sciendo

studia humana
QUARTERLY JOURNAL

Studia Humana
Volume 12:1-2 (2023), pp. 101—121
DOI: 10.2478/sh-2023-0009

A Set of Meta-Systemetic Assumptions for Dovetailing Jaina Logic Into Jaina Metaphysics

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Abstract:
This paper presents an integralist approach to Jaina logic. This is built around an analysis of the pivotal notion of *antarvyāpti* in Jaina logic. It is shown in this connection why *antarvyāpti* needs to be considered the 'Core Perspective/Problem' of Jaina logic. Next, it is shown how all the salient features of Jaina logic (as viewed from its language-oriented perspective and the epistemic perspective respectively) stand intimately related to the so-called core perspective. In the remaining sections of the paper topics like relationship of the core perspective i) to various non-standard systems of logic [DL, FL, NMR etc.,], ii) to the four pillars and to the eight MPC's of Jaina philosophy, iii) to some bluntly unimaginative ways of looking at Jaina logic [e.g., Ducko-Rabbitism], iv) to the scheme of classification of propositions in Jaina logic, v) to the resulting conceptual economies related to methodology, and especially to a unified theory of Hetvābhāsa and, finally, vi) to a re-assessment of Frege-Husserl discord in the light of the significance of Jñānātmakatā vs Vākyātmakatā in Jaina logic, etc., have been discussed.
Keywords: *antarvyāpti*, *anumāpakas*, *anyathā-anupapanna*, *avinābhāva*, *bahirvyāpti*, *bhūyodarśana*, DKM, Ducko-Rabbitism, epistemic view of logic, fallacious validity, Hetvābhāsa, *jñānātmaka*, ontic view of logic, *śabdātmaka*, semantic-conceptual linkage, syllogism-ism, synonymy, synthetic *a-priori*, *vākyātmaka*.

1. Introduction

Most other papers on Jaina logic are written with a kind of academic attitude which I prefer to call, 'a *segmented conceptual depth-analysis* orientation.' In contrast, the author of this paper takes a *holistic* approach and makes an honest endeavor to lay down some sort of a blue-print for achieving a neat scheme of conceptual unification of the entire corpus of Jaina philosophy, with a view to situating Jana logic in its *total conceptual network*. I would like to characterize the orientation of this paper as 'holistic-cum-comparative.' It is *holistic* in the sense that unlike most other papers of this genre – it tries to *situate* Jaina logic in the wider context of Jaina system of philosophy as a whole, which includes i) the metaphysical underpinnings [which I propose to call the 'meta-

systemic presuppositions' [MSP's] or, the 'metaphysical pre-commitments' [MPC's] of Jaina philosophy/metaphysics'] and, (ii) the so-called 'pillars' of Jainism. One such systemic pre-commitments of the Jaina's happens to be their commitment to a sort of world-view which I call 'universal pan-relational contextualism' [UPRC]. Such a commitment is clearly enshrined in their canonical text *Ācārānga Sūtra* [8, p. 222, Section 1.8]. In simple language, it entails commitment to a *pan-relational* world-view in which everything that is real, i.e., a *vastu*, whether animate or inanimate (*Vastu cetanācetanam sarvam dravyam*) does exist only as a *node* of a *cosmic relational network*. Nothing is exempted. [Physicists like John Gribbin, D'Espagnat, lines from thinkers like John Muir: 'When one tugs at a single thing in Nature, He finds hitched to the rest of the World,' Tennyson's ('Flower in the Crannied Wall') all express the same belief in *cosmic interrelatedness*, as is expressed in the *Acārāṅga Sūtra* [29, p. 97], [8, p. 222]. The Jainas have elevated this belief in *cosmic interrelatedness* to the status of a *non-negotiable* metaphysical truth. The entire system of Jaina Metaphysics/Philosophy [including Ontology, Logic, Epistemology, 'Philosophy of Language', Ethics (as Theory of Morality), Religion, etc., can be, and needs to be, viewed as a concerted effort to work out a well-coordinated system of philosophy. In other words, my claim here is that any proper appreciation of the characterizing features of Jaina logic is not possible unless one considers them as *organic units/components*/organs of a *living* whole (viz., of the entire metaphysical system that underlies Jaina logic) instead of regarding those specific features/peculiarities of Jaina logic as *separable fragmentary parts* of a mechanical structure. Moreover, besides being *holistic*, this paper is also *comparative* in its orientation in the sense that i) it [i.e., this paper] not only highlights the points on which Jaina logic *deviates* from the traditionally agreed framework of Indian logic (as shared by the *other* schools of Indian logic), but ii) it also makes an in-depth analysis of the logical-philosophical implications of those points of deviation *vis-à-vis* their corresponding ideas in Western logic.

It should not be difficult for a careful student of Jaina philosophy to see how Jaina 'Ontology,' [when it is viewed from a combined perspective of UPRC + IMFR + FMCA] naturally leads one to accept AKV. Similarly, when Jaina 'Philosophy of Language' as well as Jaina Logic are viewed from that same combined perspective it leads to i) Meaning Holism [MH], ii) the denial of sharp and discrete semantic boundaries between *any two* concepts, which in its turn, prepares the ground for entertaining *fuzzy* interpretation of *all* predicates occurring in each one of the *seven bhaṅgas* of *Saptabhangī* a highly plausible option. The result being context-relative conditionalization of all truth-claims i.e., *Syādvāda* [SV]. Clearly, the notion of 'conditionality' is intimately linked with the notion of 'context-dependency,' and as such, it reflects the spirit of 'pan-contextualism' in Jaina philosophy. [Of course, we should keep in mind that the Jainas consider '*existence*' itself as a predicate.] Again, iii) when 'Epistemology' is viewed from the combined perspective of MH + Fuzziness [i.e., denial of sharp and discrete semantic boundaries] + FMCA [i.e., 'Finitude of Man's Cognitive Ability', [29, p 53,] we get, what is called, *Nayavāda* [NV]. Finally, iv) once it is accepted that the real objective of the Indian logicians in general was to work out a *unifying-cum-systematizing framework* for **our world-view as whole**, it follows that the real interest of the Indian logicians was primarily *epistemological* [and thus, inescapably ***information-theoretic***] in nature. An inability to appreciate this point causes problems for those modern interpreters (of recent past) of Indian logics who try to fit Indian logic in the framework Aristotelian syllogistic model. Naturally, when it fails to fit (as it must) they come up with some very queer sorts of theoretical hodgepodges [e.g., what D.M Dutta & S.C. Chatterjee do in their book, Introduction to Indian Philosophy]. Consequently, they not only fail to appreciate the deeper significance of Indian logics, they often try to obfuscate the situation. If something 'x', has the characters both of a *duck* (i.e., being epistemology-centric, unlike a syllogistic inference) and also of a *rabbit* (i.e., possesses quite a well-defined structure somewhat similar to syllogistic format) then just call it a *'ducko-rabbit,* instead of admitting that you failed to recognize 'x' for what it is viz., a hitherto unknown and altogether a new species. Such a 'ducko-rabbit' approach, instead of solving the real problem, invents an easy way to (*dis*)solve it by a sort of sleight of hand merely by playing upon words. They try to sell (to most of the gullible readers) the idea that the 'pancāvayavī

nyāya' is nothing else than a more elaborate and better version of syllogistic format. Nothing could be further from truth that results from a blind-sight or, may be, a refusal to see the real issue. I wonder why, by an extension of the 'ducko-rabbit' argument and using parity of reasoning, nobody ever seriously considered branding Mill's so-called 'Inductive' Methods as 'deducto-observational' in nature? Such advocates of 'ducko-rabbit-ism' fail to recognize that by Mill's own admission, each one of his 'Inductive' Methods is implicitly deductive in nature. As a matter of fact, each one of Mill's so-called 'Inductive' Methods, conforms to a *dedudtive* pattern which happens to be based on some implicit axioms [13].

Granted that i) 'all *empirical* concepts are essentially fuzzy' [as the feasibility of a fuzzy interpretation of the *bhangas* of SV indicates], ii) that 'there is no (and cannot be) any sharp and definite semantic boundaries' between any two concepts, that iii) 'indefinitely extended pan-contextualism' [UPRC] holds and, that iv) 'finitude of man's cognitive ability' [FMCA], etc., are facts that we cannot turn our backs to, it follows that taking recourse to Default Logic [DL]/Non-Monotonic Reasoning [NMR] remains the only option open for staying in the business of doing logic. This is exactly what the Jaina logicians ended up doing, of course, without being aware of the formal technicalities involved in Default Logic or in NMR. As already pointed out, if there is no sharp semantic boundary-line between semantic units and further, every meaning-context must spread out indefinitely then being endowed with a finite cognitive ability (as we happen to be), we must honestly admit that there is *no way to be sure* how far a context extends or where it ends. Behind every assertion, there is always an *endless* number of presuppositions. So, instead of vainly looking for a fully *exhaustive* list of presuppositions before venturing into logic at all, we ought to be satisfied with a *tentatively exhaustive* list of presuppositions underlying any truth-claim, [as is done in DL/NMR] we need to keep on playing the game of logic *undaunted* in the face of such incomplete (and, also incompletable) information. The kind of logic that has been developed to handle this kind of gappy information-situations is called *default logic* [**DL**]. It should be clear by now why UPRC, FMCA, AKV, SV and NV all these must go, as they do, hand in hand in Jaina logic.

Clearly, it is not for nothing that I decided to take this somewhat *deviant* approach, looking for an integrated holistic view to Jaina logic. There are some other reasons behind it too: i) *first*, by focussing too much on each one of the constituent components of Jaina logic [theory of *anumāna* (inference)] one may fail to see the significance of the entire *conceptual ecosystem* in which alone the structure of Jana logic can grow and survive. My motive here is somewhat analogous to that of a forest ecologist (*not* that of a plant anatomist or that of a plant histologist). Losing sight of the forest for the individual trees cannot be an option to an ecologist. A forest is not just a collection of individual trees in close proximity to each other, any more than the graceful pattern of a dance-rhythm in a dance-performance is simply a 'series of arrested falls.' ii) *Secondly*, not only does an integralist approach to Jaina logic enables one to clearly see the *forest* (instead of seeing only the individual trees), it [i.e., an integralist approach] can also more effectively blunt the edges of unfair criticisms (by scholars of Dayakrishna's type) against the Jaina doctrines of SV, AKV etc. [For an example of such criticism, see [29, pp. 70-74]. iii) *Thirdly*, it also opens up the scope and possibility of free *trans-bound comparison* of Jaina logic with similar ideas in other systems of thought – both Indian and Western. iv) *Fourthly*, our integralist approach to Jaina logic also shows the possibility of smoothly dovetailing Jaina logic with Jaina Metaphysics, resulting in an integrated conceptual whole.

2. Highlighting the Strands that Weave Into the Unique Tapestry of Jaina Logic

It is generally claimed that the edifice of Jaina philosophy can be viewed as standing on three (or, four) so called 'pillars of Jainism' viz., AKV (*anekāntavāda*), SV (*syādvāda*), and NV (*nayavāda*). Some, like the present author, think that it is necessary to add a *fourth* one, viz., VV (*vibhajyavāda*) to the list of the above *three* which are the traditionally recognized pillars. I think that like any other load-bearing support-structure, the four pillars also need to stand on some rock-solid foundation

stones. I *hypothesized* the presence of a few such foundation stones and proposed to consider them 'rock-bottom foundation.' As we cannot go any deeper than that foundational level, our conceptual 'spade is turned back' from there, so to say. These foundation stones I propose to call 'the meta-systemic presuppositions' [MSP's] or, metaphysical pre-commitments [MPC's] of the entire system of Jaina philosophy. In my earlier writings I listed *eight* such MPC's [29, p. 84 ff]. The *four* pillars together with the *eight* MPC's/MSP's we may call 'the basic strands of Jaina philosophy.' In the rest of this section the basic strands are listed and discussed very briefly, followed by a discussion of the mutual conceptual inter-connectedness among the individual strands.

I think, before proceeding any further into developing my anti-segmental/integralist approach to Jaina logic, I need to be clear about the two main planks underlying the metaphysical basis on which my arguments for the holist-cum-integralist view about Jaina logic depends. These *two* planks are i) the so-called *pillars* of Jainism and ii) the set of *foundation stones*/the *rock-bottom* (i.e., the MPC's) on which those pillars ultimately need to stand.

It is almost a commonplace knowledge that there are (at least) *three* basic tenets or fundamental principles or 'pillars,' so to say, of Jainism viz., a) *Anekāntavāda* [AKV], b) *Syādvāda* [**SV**], and c) *Nayavāda* [**NV**]. Of these three, the first two are comparatively better-known and are talked about more often than *Nayavāda*. However, I maintain that there is another basic tenet, a *fourth* pillar, so to say, viz., *Vibhajyavāda* [**VV**] which is even less frequently discussed than the other three, although it is logically no less important than those three for that reason [*Vibhajyavāda* is discussed in detail in [29, pp. 261-288, 129].

After these initial remarks, I am going to consider the *four* pillars one by one, with a view to highlighting **a**) the respective *primary* orientation/import of each one of them and **b**) to bring (*en passant*, and in brief) to relief the *logical-cum-conceptual links/inter-relationships* that bind them together. See [29, pp. 194-204, 261-266].

With regard to **AKV,** I maintain that since it says/specifies what 'reality' is like, (*dharma*-wise/feature-wise) its *primary* orientation should be counted as ontological. In other words, *Anekāntavāda* is *basically ontological* in import.

Regarding *Syādvāda* (**SV**), I hold that since it says what sort of logically and linguistically constrained *form*, a knowledge-claim [when it is *propositionally* expressed] about the nature of something real (i.e., a *vastu*) *must conform* to, the *primary* orientation of **SV** needs to be considered *logical-cum-linguistic* in nature. In short, *Syādvāda* is basically logical-cum-linguistic in import.

In the same way, so far as *Nayavāda* [**NV**] is concerned, it is about possible *epistemic* perspectives/viewpoints that a knower may adopt in regard to its object of knowledge (*jñeya-vastu*). Whence it follows that *Nayavāda* is *basically epistemological* in import. In short, the primary orientation of **NV** is epistemological.

The qualifying words 'basically'/'primarily' are used on purpose, in order to indicate that none of the respective philosophical orientation/import imputed to any of the pillars can be said to be its *only* and *exclusive* feature. In other words, the orientation of none of the pillars is *exclusively* ontological or, *exclusively* logical or, *exclusively* epistemological in nature. It must be clear that the reason for using such qualifying words like 'basically'/'primarily' etc., is this: Since in Jaina philosophy (as in any other system/school of Indian philosophy), ontology, logic and epistemology are so *inextricably intertwined* with each other that not any one of these can be understood in isolation, singly by itself without any reference to the others. Exclusivity of one feature at the cost of the rest must be blocked. Ascription of this type of exclusivity to any one of the pillars, as we shall see, runs counter to the very spirit of 'exclude none' attitude which is so deeply entrenched in Jaina philosophy [32].

We may pause here for a while to say a few words about the *fourth* pillar, viz., *Vibhajyavāda* [**VV**] itself. Unlike the three other pillars, the primary orientation of the fourth pillar viz., of *Vibhajyavāda* is *analytical-cum-conceptual* clarification of philosophical/metaphysical claims/questions. Thus, in a way, the primary orientation of *Vibhajyavāda* is 'exclusivist,' in so far as the aim of *Vibhajyavāda* is to *sift out* or, to *exclude* (as *un*-entertainable), such purported philosophical/metaphysical queries which turn out to be *ill-formed*, by the *Vibhajyavāda* criterion.

Such *ill-formed* and *un*-entertainable questions are consigned to the special category viz., *sthāpanīya* [i.e., 'to put *on-hold*'] type questions [29, p. 256 ff]. If we keep this background in mind, we cannot deny that all these pillars have to be intrinsically interlinked in so far as each one of these only happens to be high-lighting the different aspects of one given thing [*vastu*] or another. In addition to this, there is other philosophically more significant ways also in which the pillars happen to be interlinked. We will discuss it later.

As I claimed earlier, these pillars need some foundation stone at the ultimate rock-bottom level. Such foundation stones I proposed to call 'metaphysical pre-commitments' or, MPC's of Jaina philosophy. [In some of my other writings I used 'meta-systemic presuppositions' (MSP's) instead of calling them MPC's of Jaina philosophy.] In this connection I also want to show how, by using the MPC's as launching pads for our project, it is possible to tie-up and systematize diverse areas of Jaina philosophy such as metaphysics, logic, philosophy of language, etc., in a logically coherent way. This should, in its turn, explain how ***all*** the typical characteristic/salient features of Jaina logic (viz., those that make it stand apart from the others) can be viewed as *quasi-corollaries* following from, what I consider to be *the* core feature of Jaina logic viz., the nature and the role of *antarvyāpti* in it. [By 'quasi-corollaries,' I do *not* mean *logical corollaries* in its full technical sense. Here, I use 'quasi-corollaries' only to mean such important ideas which possess (i) a strong *intuitive* plausibility, but *cannot* be derived as *deductive* consequences from our hypothesized set of MPC-**s**], and yet, (ii) they [i.e., such important ideas] happen to be *conceptually relevant* for a nice kind of systematization of Jaina logic.

Here is the list of our *eight* **MPC**'s: 1. **R**ealism – 'Ontology' is fully independent of 'epistemology'. Or, to put it in a different way, 'Mind'/'Consciousness' has nothing to do with the 'existence' of any *vastu*. 2. Infinitely many-faceted nature of reality [**IMFR**] 3. Universal Pan-relational Contextualism [**UPRC**]. 4. Ultra-literal Interpretation of the notion of 'pratyakṣa' [**ULIP**]. 5. Self (*ātmā*) as the Locus and Repository of all *jñāna* (cognitions) [**SLRJ**]. One interesting *corollary* of **SLRJ** is what may be called **UVJ** or, the '*un*-concealment view of '*jñāna*'.[29, p 43-50 ff.] [I prefer to use 'cognition' as a translation of 'jñāna,' instead of the more natural-sounding term 'knowledge,' in order to avoid any possible conceptual confusion with similar ideas in 'contemporary theories of knowledge,' as it is understood in the West.] 6. Finitude of an Ordinary Man's Cognitive Ability [**FMCA**]. This, together with **IMFR,** entails that humans are intrinsically incapable of grasping the *true* nature (i.e., the *whole* nature) of any given *vastu*. 7. Linear Hierarchical Gradualism [**LHG**]. 8. Adequacy of Bivalence-based Logic [**ABBL** or, simply, **BBL**].

I think, the nature of each of the **MPC**'s in the above list should be clear from the brief characterization given following the name of each such **MPC**. We must note here, *en passant*, that **R**ealism, **IMFR**, and **UPRC**, are three basic *non-negotiable* commitments of Jaina metaphysics as a whole. It is easy to see that *given* **R**ealism, **IMFR** and **UPRC**, **AKV** follows as a corollary, with Jaina ontology of *Anekāntik* pan-relational realism [**APRR**] coming in toe.

At this point we must *not* overlook two things,

i) that according to the Jaina view the *range of applicability* of AKV is universal and exception-less. It extends over everything in the world – both material and immaterial. Being infinite-faceted is proposed by the Jainas even as a criterion for telling something 'real,' apart from what is '*un*-real.'

[Cp. *anantadharmātmakaṃ vastu …. Vastu cetanācetanam sarvam dravyam …. yadanantadharmātmakam na bhavati, tat prameyamapi na bhavati yathā vyomakusumam iti…* [29, p. 53], [8, p. 212], and

ii) the logical-cum-conceptual relationship between AKV and APRR are mutually *complementary* to each other. In a way, the two are as inseparable as are the two sides of the same coin.

The objective of this paper, as already pointed, is to present an integrated holistic picture of some outstandingly unique features of Jaina logic by way of weaving out a recognizable pattern from the basic strands [viz., the *four* pillars and the MPC's] that give shape to Jaina metaphysical system in its entirety. Obviously, this objective is easier promised than fulfilled. However, in order

to make our job tractable and to keep it within a reasonable length, I plan to view and organize/discuss such unique features of Jaina logic' from *three* different perspectives viz., a) Jaina Logic as viewed from the Perspective of its 'Core-problem,' viz., that of *antarvyāpti*. [Henceforth, for the sake of brevity, I will refer to it as the 'Core Perspective' or the 'Core-problem']. b) Jaina Logic as viewed from a Language-oriented Perspective, and finally, c) Jaina Logic as viewed from the Epistemic Perspective. These topics viz., a), b), and c) above, will be discussed in Sections §3, §4 and §5 respectively. It needs to be pointed out here that each one of these perspectives generates various interesting logical-cum-philosophical *spin-offs*, some of which will be shown to be directly relevant to the topic under discussion here. As and when it is considered helpful for easer cross-referencing, the spin-offs from any of the above perspectives will be labelled by using Greek letters [e.g., α, β, γ, etc.]

At the beginning of §2 above, I claimed that ***all*** the typical characteristic/salient features of Jaina logic (viz., those that make it stand apart from the others) can be viewed as *quasi-corollaries* following from *the* core feature of Jaina logic viz., the nature and the role of *antarvyāpti* in it. It is one reason why I chose *antarvyāpti* as the 'Core Perspective' for viewing and understanding the distinguishing features of Jaina logic. Moreover, the notion of 'antarvyāpti,' as it is understood/interpreted by other Indian logicians, helps us to relate Jaina logic to other schools of Indian logic. This is another reason why 'antarvyāpti' may be regarded as the 'Core Perspective' for understanding the very nature of Jaina logic itself.

3. Jaina Logic as Viewed From the Perspective of its Core-Problem

As I just pointed out, the problem of determining the essential/logical nature of *vyāpti jñāna*, as also the problem of *zeroing-in* on some legitimate methods of acquisition of/ascertainment of the relevant *vyāpti jñāna* (that supposedly links a 'hetu' with its 'sādhya') in a *fail-proof* way, need to be regarded *the* core problem of Jaina logic. *This* core problem is the pivot around which the so-called 'core perspective' revolves. Before discussing how the Jaina view on *vyāpti* differs from those of the other schools of Indian logic, it needs to be pointed out that despite its crucial differences from the other schools of Indian logic, Jaina logic remains unmistakably Indian in virtue of the fact that according to the Jaina logicians i) *anumāna* is a mode of cognition/*jñāna* (NOT simply a system of formal calculus) and ii) NO watertight split between the so-called 'inductive' and 'deductive' logics is either envisaged to exist or is considered to be reasonable. The core perspective clearly consists of two components viz., a) problem of giving an exact definition/characterization of a *vyāpti* relation, and b) problem of finding a supposedly fool-proof, legitimate method of ascertaining a relevant *vyāpti jñāna* by relying on some specific group of evidence/data. Regarding problem (b) above, there are two views viz., *bahirvyāptivāda*, and *antarvyāptivāda*. Most traditionalist Indian logicians are *bahirvyāptivādīns*, while the Jainas are not. Regarding the method of ascertainment of the relevant *vyāpti jñāna* both the Naiyāyikas and the Bauddhas agree that ascertainment of *vyāpti jñāna* is amenable to empirical/perceptual evidence, provided that the set of such empirical evidence satisfy the following *five* characteristic features (*anumāpaka dharmas*) of *vyāpti* relations viz., *Pakṣavṛttitva*, *Sva-pakṣavṛttitva*, *Vipakṣa-avrttitva*, *Abādhitatva*, and *Asatpratipakṣitva*. The Naiyāyikas neatly tag and correlate one-to-one the five types of *hetvābhāsas* with failure to comply with one specific *anumāpaka dharma* or another. The Bauddhas on the other hand hold that *only three* of the *anumāpaka dharmsa* need to be satisfied in order to ensure the legitimacy of the *vyāpti jñāna* acquired through *bahirvyāpti*. So, the Bauddhas recognize only *three* corresponding types of *hetvābhāṣas*. However, the details of the Bauddha view differ from that of the Jainas only in its specifics, since both the Naiyāyikas and the Bauddhas are *bahirvyāptivādīns* and follow exactly the same logical pattern of argument in order to support their respective positions.

Keeping this background in mind we may now take a deeper look at the concept of *antarvyāpti* in Jaina logic. The standard view held by most Indian logicians regarding *vyāpti* is that i) *vyāpti* is a relation of *invariable* concomitance/pervasion between a *hetu* and its *sādhya*, secondly,

ii) ascertainment of such *vyāpti* relation (*vyāpti sambandha nirṇaya*) is amenable to a simplistic 'naïve inductivist method,' technically called *bahirvyāpti*. It is based on 'the observation of a good number' (*bhūyodarśana*) of 'exception-less corroborative instances' ('vyābhicāra adarśane sati, niyata sahacāra darśanaṁ').

The Carvākas (and the Grammarians like Bhartṛhari) questioned the validity of inference as a source of knowledge ... based on their denial of the possibility of necessary concomitance. The Cārvāka's refusal to accept *anumāna* as an acceptable/accredited means of knowing, hinges on their argument that it is *in principle impossible* to ascertain any invariable relationship [*vyāpti-sambandha*] between a 'linga' [a logical *indicator,* say, smoke] and a 'lingī' [i.e., what is logically *indicated* by it *viz*., fire]. So, the entire controversy between the 'pro-anumāna' schools and the 'no-anumāna' group boils down to this: how is it possible, *if at all*, to ascertain an invariable universal relationship or *vyāpti-sambandha* between a *hetu* and a *sādhya*. It is undeniable that no matter how many instances [without even a single exception] one may have observed, that cannot cover all the *possible* cases of past, present and future, and hence, no exception-less *bhūyodarśana* can logically warrant any universal empirical generalization.]

Consequently, ... the Jaina logicians decided to break away from the standardly proposed instance-based model of empirical generalization [i.e., *bahirvyāpti*], and advocated for the theory of internal concomitance (*antarvyāpti*) instead [14, pp. 109-11]. Hemachandra in his *Pramāṇamīṁāmsā* [PM], categorically states ... a genuine *vyāptigraha,* which is not amenable to any standard way of knowing, can be ascertained *only* by *ūha* i.e., *tarka* [*tarkāt tanniścaya*]. Mishra also draws attention to the fact that the 'number of constituents of a syllogism, according to Jaina logicians, is context-relative and depends on the level of intelligence of the people concerned' [14, pp. 109-110].

The Jainas emphasized that *bahirvyāpti*, being a sort of 'externalist naïve inductivism,' is *in principle*, incapable of yielding knowledge of universal concomitance between a *hetu* and a *sādhya*. So, they proposed to recast the method of ascertaining the relation of pervasion (*vyāpti sambandha nirnaya*) by switching away from *bahirvyāpti* to a sort of 'conceptuo-linguistic-cum-analytical' approach. Such a method of ascertaining an *inseparable, universal* link between a *hetu* and its *sādhya* (by solely relying on a conceptuo-linguistic analysis of the key-ideas involved) is technically known as *antarvyāpti*. Since *antarvyāpti*, unlike *bahirvyāpti*, dispenses with any need of relying on *external* empirical evidence we may call it, 'internalist *non-inductivism*.' The following well-known sloka is often quoted to express in a nutshell the spirit that motivates the Jaina logicians to reject *bahirvyāpti* as totally useless as a means of ascertaining a genuine *vyāpti* relation between a *hetu* and and its *sādhya*:

> *anyathānupapannatvam yatra tatra trayeṇakim/*
> *nānyathānupapannatvam yatra tatra trayeṇa kim.//*
> (Borrowed from Phaṇībhūṣaṇa [17, p. 121].

A few more words of clarification on the essential logical points packed in the notion of *antarvyāpti* is called for here. A Jaina logician Vādidevasūri says: ***If*** a given minor (*pakṣa*) is such that ***within*** it the concomitance between the *hetu* (probans) and the *sādhya* (probandum) holds/are co-located, ***then*** it is a case of *antarvyāpti*. Elsewhere, it is *bahirvyāpti* [35]. We also find the following very similar characterization of *antarvyāpti* in – Ratnaprabhācārya's work, Ratnākarāvatārika: "pakṣīkṛta eva viṣaye sādhanasya sādhyena vyāptiḥ antarvyāptiḥ anyatra tu bahirvyāptiḥ" [21, Part 2, Sutra 38]. However, the notion of 'concomitance holding within/inside a *pakṣa*' needs a lot of unpacking before it can make any clear sense. Unfortunately, traditional commentators, as we shall see, do not throw much light on it. So, we discuss it more analytically in the following sections.

Phaṇībhūṣaṇa too, follows Vādidevasūri, and says this: in the case of *antarvyāpti* concomitance of a probans and its probandum holds ***internally***. He explains it thus: 'when it is a case where the *pakṣa* [i.e., the hill] to which the *sādhya* [i.e., the fire] is to be imputed by using *anumāna,* is such that the concomitance of the *sādhana* [i.e., the *hetu*] (viz., the smoke seen on *that*

hill)] and its *sādhya* [i.e., fire on *that* hill] holds ***internally*/*within*** the *pakṣa* itself, that counts as an instance of *antarvyāpti* [17, p. 339]. According to S.C. Vidyābhūṣaṇa, 'Extrinsic inseparable connection (*bahirvyāpti*) occurs when an example from outside is introduced as the common abode of the middle term (*hetu*) and the major term (*sādhya*) to *assure* the inseparable connection between them. ... However, [in cases of *antarvyāpti*] the reference to the kitchen is *no essential part* of the inference' [36, pp. 177-78]. What is meant by saying, 'the reference to the kitchen is *no essential part* of the inference' is left unclear. I did not get any clue from the texts, but I do have a hunch about how to make a good sense out of it. I use an analogy to drive my point home. Imagine a classroom in which there is a blackboard with a triangle drawn on it. A student is asked to go to the blackboard and to demonstrate that the sum of the *three* angles of the triangle is 180^0. The boy goes to the board, picks up the protractor, measures the angles one by one, adds up the *three* angles so measured and, gets the result 180^0. This is one way of showing that the sum of the three angles of the triangle is 180^0. Similarly, to add 7+5, a junior schoolboy may depend on counting fingers. But obviously, neither using a protractor nor finger-counting is *any essential part* of a 'geometric proof' or of an 'arithmetic operation.' Why is it so? Because, as in the case of the geometric proof, the ideas viz., 'sum of the internal angles of a triangle' (='*hetu*,' so to say) and 'being equal to 180^0' (=*sādhya*) the concomitance relation 'holds *internally*' i.e., is logically contained in the very concept of a triangle itself. This also helps us to understand why reference to other triangles 'is *no essential part* of the concerned inference.' Naturally, when *antarvyāpti* is used for *vyāptinirāaya*, '*bhūyodarśana*' is no longer indispensable and even '*sakṛt darśana*' would do. For obvious reason, I propose to use 'intrinsic semantic-conceptual linkage/concomitance' [or, simply, 'semantic-conceptual linkage'] as an English equivalent of *antarvyāpti*. When viewed from this angle, the notion of *antārvyāpti* looks very similar in spirit to Kant's notion of an '*analytic* judgment', where 'the subject-term *contains* the predicate-term *within* it' [das Prädikat **B** gehört zum Subjekt **A** als etwas. (German originals taken from Ratke, Heinrich (1928): *Systematisches Handlexicon zu Kants Kritik*). All we need for such a re-construal is to *substitute*, 'in an analytic judgment the subject-term *contains* the predicate-term *within* it,' *in place of* 'in *antarvyāpti* the concomitance of *hetu* and *sādhya* holds ***within*** the *pakṣa*.' [By this, I do *not* suggest, however, that the *vyāpti* relation between a *hetu* and a *sādhya* as ascertained by using *antarvyāpti* is an analytic one in the full-fledged Kantian sense. It is to be construed as indicative of an invariable relationship [= *universality* and *necessity*] between a *hetu* and its *sādhya* in a way in which the subject and the predicate in a synthetic a-priori judgement are related]. One interesting question arises here. In order to philosophically explain why it is possible at all to blend the requirements of 'infallible necessity' with that of 'factuality' in a synthetic a-priori judgement Kant had to hypothesize a 'Copernican revolution' in philosophy. [Cp. 'Understanding maketh nature']. He claimed (contrary to the popular belief) that 'an object must conform to knowledge, rather than the other way around.' This was Kant's proposed way for putting 'a-priority' and 'factuality' together. Similarly, in order to reconcile their 'strong realism' with that of 'infallibility', the Jainas needed to take recourse to one of their *eight* metaphysical pre-Commitments (viz., SLRJ, which includes UVJ) and ended up embracing, what I prefer to call, 'a-priorist realism'/'realist apriorism' [29, pp. 47, 109-111].

I think that our foregoing discussion does suggest i) a clue to, what I consider, the most plausible approach to make sense of '*antarvyāpti*', [where 'concomitance of *hetu* and *sādhya* supposedly holds ***within*** the *pakṣa*'], and moreover, and ii) makes it easy to see that ***if*** my hunch is correct, the *vyāpti-jnāna* yielded by *antarvyāpti* does have a close *thematic affinity* to Kant's notion of a synthetic a-priori judgement. [I use 'judgement' here (*not* 'proposition') on purpose, in order to emphasize that it [i.e., such a *vyāpti-jnāna*] is essentially cognitional (*jnānātmakam*) in nature – *not* simply a grammatically well-formed sentence-shell or proposition (*vākyātmaka*). In contrast, a *bahirvyāpti-nirūpita* knowledge of concomitance is predominantly *vākyātmaka*, because it is nothing else than a frequency-theory-based statistical index of positive correlation between a *hetu* and a *sādhya* [11]. We shall soon see that the notions of *vākyātmakatā* vis-a-vis *jnānātmakatā* play crucial roles in Indian logic.

If we look carefully at the different characterizations of *antarvyāpti* as proposed by different Indian logicians, we cannot fail to discover a *unifying* thread that runs through *all* the different versions of it. This will also bring the essence of *antarvyāpti* to a clearer focus. Following is a list of *four* such alternative characterizations of *antarvyāpti*: i) it is the kind of *vyāpti* where the concomitance of *hetu* and *sādhya* holds ***within*** the *pakṣa*', ii) it is the kind of *vyāpti* where the *necessary* concomitance is either to be (a) in the subject of inference (*sādhyadharmiṇ*) or else, (b) it is to be in the corroborative instances (*dṛṣṭāntadharmiṇ*). In the former case, it is called 'antarvyāpt,' in the latter case it is called 'bahirvyāpti,' iii) Pt. S. C. Nyāyācārya [15, pp. 39-40] maintains that by 'antarvyāpti' the Jainas simply meant the type of *vyāpti* used in inferences that yield pan-inclusive universal conclusions called, 'kevalānvayi anumāna.' [According to Jayanta Bhaṭṭa, however, there is no *kevalānvayi hetu* [17, pp.304, 316], iv) According to the Bauddhas, ***all*** *hetutā* (i.e., *vyāpti*) relations are reducible to either *tādātmya* (identity) or, *tadutpatti*, (i.e., causal/dependent origination'). Let us unpack this view. It is clear that the Bauddhas agree that 'hetutā' signifies an infallibly universal relation between a *hetu* and a *sādhya*. In case it is *tādātmya* it turns out to be an instance of *antarvyāpti* by definition. In case the *hetutā* relation concerned is that of *tadutpatti* [causal fructification], it would be based on observation of a good number of exception-less corroborative instances. In that case, it is nothing but *bahirvyāpti*. Most of the scholars who criticize the Buddhist view on this point, simply *interpret tadutpatti* to imply that according to the Buddhists, *bahirvyāpti* is just another *legitimate* way of ascertaining *vyāpti*. Most people consider such an interpretation natural, unproblematic and easy to smoothly fit in with the overall framework of Buddhist position. However, I do not think it either natural or unproblematic to consider the Buddhists *bahirvyāptivādins*, because there are many textual evidences which clearly indicate that the Buddhists supported *antarvyāpti* and explicitly rejected *bahirvyāptivāda*. Moreover, the very fact that the doctrine of *pratītyasamutpādavāda* itself is considered a non-negotiable metaphysical truth by the Buddhists, does entail that it must be '*non*-counter-instance-able,' in principle. If so, an *a-priorist* interpretation of *tadutpatti* is quite feasible and would be more plausible. Anyway, neither *tādātmyatva* nor *tadutpattimatva* militate against the view that being a 'semantic-conceptual linkage' constitutes the very essence of the notion of *antarvyāpti*.

Both the Bauddha and the Jaina logicians were advocates of '*antarvyāpti*.' Incidentally, in Buddhism one comes across another technical term viz., '*svabhāva hetu*,' which seems to play the same methodological role as *antarvyāpti* plays in Jaina philosophy. It is interesting, however, that the respective examples used (by the Jainas) for *antarvyāpti* and the ones used (by the Bauddhas) for what they call, '*svabhāva hetu*,' are uncannily similar. Actually, both parties use 'It's a tree, *because* it is an Oak' (or, some similar variants of it) as illustrative examples for their respective cases. This naturally prompts one to ask whether or not the two terms [viz., *antarvyāpti* and '*svabhāva hetu*'] mean the same thing, except for being couched in different terminologies.

Be that as it may. But what is the *unifying* thread that is supposed to run through *all* the different versions/interpretations of *antarvyāpti*? Let us proceed in a step-by-step manner to arrive at the required answer.

Step 1. The entire controversy regarding the legitimacy of 'anumāna' as a *pramāna* boils down to this: How is it possible, *if at all*, to ascertain an inviolable/necessary and universal/exception-less relationship [i.e., a *vyāpti-sambandha*] between a *hetu* and a *sādhya*? [All would agree on this point.]

Step 2. Any claim to this effect [about universal and necessary connection between an 'S' and a 'P'] has to be a synthetic a-priori judgment which, according to Kant, cannot be given in or through experience.

Step 3a. Vādidevasūri's idea of 'concomitance of *hetu* and *sādhya* holding ***within*** the *pakṣa*' can be reasonably viewed as having a close thematic affinity to Kant's notion of synthetic a-priori judgments which are '*non*-counter-instance-able,' in principle.

Step 3b. Similarly, ***if*** all cases of 'antarvyāpti' simply signify a 'kevalānvayi hetu' (which does yield only *pan-inclusive* universal conclusions) ***then*** the concomitance of *hetu* and *sādhya* that

'*antarvyāpti*' shows has to be '*non*-counter-instance-able,' in principle, too [15 i.e., JDD, pp. 39-40].

Step 3c. Again, ***if*** 'antarvyāpti' means where the – *necessary* concomitance holds inside the subject of inference (*sādhyadharmiṇ*) ***then*** it ['antarvyāpti'] need *not* depend on observation of external instances. So, it would also be '*non*-counter-instance-able.'

Step 3d. Finally, with regard to the Buddhist view on this issue [of 'antarvyāpti'] I have made my position clear a few paragraphs earlier.

Steps 1, 2 and 3a-3d above clearly show that the *unifying* thread that is supposed to run through *all* the different versions/interpretations of *antarvyāpti* is the notion of 'semantic-conceptual linkage,' which carries with it the ideas of '*non*-counter-instance-ability' and of 'infallibility' as two logically inseparable associates of it. As I see it, the *unifying* thread that laces together the various formulations of 'Antarvyāpti' captures the very heart-throb of Indian logic viz., the root problem/'das ***Ur***-problem' of *vyāpti-nirṇaya*. It also defines the watershed between the 'pro-*anumāna*' and the 'no-*anumāna*' groups.

An etymological exploration of the most well-known inferential structure in Western logic shows that it is a rigidly structured *triplet* called, 'Syllogism;' whereas in Indian logic, it is a *non*-rigidly structured pattern called 'anumāna' which may consist of *two*/*three*/*five* or up to *ten* organs/limbs (*avayavas*). The Greek word for 'syllogism' is 'συλλογισμός' which is linked to 'logos' ('λογός') i.e., language/sentence. Naturally, it predominantly highlights the *vākyātmakatā* aspect of an inference. This, in its turn, *delinks* the cognitive [i.e., *jnānātmaka*] aspect of a syllogism and prepares ground for a *meaning-insensitive* formulation of syllogistic inferences. It is no wonder therefore, that the Western concept of 'logic' [which is derived from 'logos'('λογός'] until recently, considered complete ***formalizability*** as the acme of perfection (Cp. Hilbert's Program)].

Actually, at times, the carrot of a prospect of achieving a purely mechanical/algorithmic means of sanitizing any argument into an ER-free i.e., an errors of reasoning-free one by way of syllogizing it looked intellectually so alluring/tempting that even Aristotle himself succumbed to it and toyed with the idea of working out a scheme of 'Inductive Syllogism.' For brevity, let us call it the 'συλλογισμικ tendency.' It should be clear by now that this tendency would be primarily 'logos-centric' [*vākyātmaka*] and would thus tend to ignore the cruciality of the *jnānātmakatā* in the logic of inference (Western). In sharp contrast to it, in the systems of Indian logic (or, Indian Theories of inference) [which are always and inalienably cognition-centric (*jnānātmaka*)] no split/fissure occurs (or, a sharp line of demarcation exists) between '*formal* truth' and '*material* truth,' between '*deductive* logic' and '*inductive* logic.' There is simply no scope for passing off a meaning-cum-relevance-*insensitive* technic of symbol-manipulation as a pristinely *rigorous* system of logic. I have a hunch that a number of such later-day intellectual high-hopes [e.g., Hilbert's program, various attempts to axiomatize Physics (e.g., by people like Frederick Suppe), Woodger's book, *Axiomatic Biology*, 'Encyclopedia of Unified Sciences' program of the Logical Positivists etc., can be considered motivated by what we call, 'συλλογισμικ tendency' [or, 'syllogism-ism,' to put it differently].

A few words on 'syllogism-ism' need to be said here. As already pointed out, the Western concept of 'logic', being a progeny of 'logos' ('λογός') contains in its DNA a 'syllogismic' ('συλλογισμικ') tendency. It was natural, therefore, to expect that Western logic would be lured by the methodological 'carrot' of total formalizability in complete disregard to the requirements of 'meaning-cum-relevance sensitivity.' History of 'logic' clearly shows that things happened as expected. Until recently, complete *formalizability* was considered the acme of theoretical perfection in logic [Until Kurt Gödel showed it to be a chimera.] Intrusion of epistemic considerations in logic was considered a theoretical blemish/imperfection which a logician must try to get rid of. In earlier paragraphs I mentioned the cases of Hilbert's and Woodger's, attempts at axiomatizing Physics [often referred to as the Sixth Problem of Hilbert] etc., as examples. [Some corrective reaction to making logic free of all elements of subjectivity is taking place in contemporary Western logic. A trend of converging the 'ontic' and the 'epistemic' approaches to logic is discernable] [28, pp. 36-42 , §11, §12].

In the light of this recent trend, I think it would not be unreasonable to consider Frege's charge of 'pychologism' against Husserl's **Philosophie der Arithmetik** (1891) [in which Husserl tries to combine mathematics, psychology and philosophy] to be based on a deep misapprehension of Husserl's philosophical objective. As R. Tieszen [25] put it, 'Husserl, as a philosopher, cautioned against the 'blind' or uncritical development of formal work. ... in its general outline, Husserl's post-psychologistic, transcendental view of arithmetic is still a live option in the philosophy of mathematics, unlike Frege's logicism. It is also superior to Frege's late views on arithmetic in several important respects.' According to J. N. Mohanty, [26] the review (by Frege) falsely accuses Husserl of subjectivizing everything, so that no objectivity is possible, ... Husserl's conception of logic and mathematics differs from that of Frege, who held that arithmetic could be derived from logic. For Husserl this is not the case....

Moreover, I do honestly believe that Frege went wrong because he failed to appreciate the deeper/inner epistemic significance of Husserl's ideas & Husserl, who *allegedly* changed his view after Frege's criticism, did so more because he succumbed to the pressure of Frege's stature as a mathematician rather than to force of Frege's criticisms [Cp. Chandrasekhar-Eddington row in the area of Astrophysics in 1935, regarding the calculated value of 'Chandrasekhar Mass.' Although Niels Bohr, Wolfgang Pauli and other physicists agreed with Chandrasekhar's analysis at the time, yet owing to Eddington's status, they were unwilling to publicly support Chandrasekhar].

4. Jaina Logic as Viewed from a Language-Oriented Perspective

A few points need to be noted here before we can enter into any meaningful discussion about how Jaina logic, as viewed from its 'core perspective,' logically relates to the view from a language-oriented perspective. It is a 'no-brainer' to figure out that our rendition of the notion of 'antarvyāpti' on the analogy of synthetic a-priori judgments, ***if*** correct, does show *three* things viz., i) that it [= *antarvyāpti*] can offer a highly plausible explanation for combining two desiderata viz., a) *niyata sahacāritva* (universal and exception-less-ness of co-presence, *in principle*) and b) *avyābhicāritva* (i.e., an infallible and necessary connection) between a *hetu* and its *sādhya* (in other words, a genuine concomitance relation between a '*probans*' and its '*probandum*') and thirdly, c) it also shows that on our interpretation *antarvyāpti* [being of the nature of a judgement] happens to relate *two* concepts [viz., *hetutā* and *sādhyatva*] and thus, has to be amenable to being expressed in a propositional form. Whence it follows that so far as the formulation of *antarvyāpti* in a propositional form is concerned, it must form an integral part of the semantic network of some language, say L and, as such, it must also be subject to the constraints of SV (*Syādvāda*) i.e., the Doctrine of Essential Conditionality of all Propositional Claims, besides being subject to other constraints like MH and of *non*-negotiable/unavoidable *contextuality* of all propositions/sentences [due to a metaphysical pre-commitment of the Jainas to, what we called, UPRC]. When this entire scenario is viewed in the background of the pan-inclusivist [32] attitude or, conceptual Catholicity of the Jainas, it is only too natural to expect that they would tend to break out of the rigid stereotypical logical positivist attitude of conflating 'meaningfulness' of a sentence with it having a truth-value (either T or F). Any such scheme of classification of sentences/propositions I call 'a truth-functional scheme of classification of propositions.' Logical positivists were strong advocates of such a view. In contrast, I prefer to call the expanded scheme of classification of propositions as laid down by the Jainas, 'a *non*-truth-functional scheme of classification of propositions.' We are now in a position to explore the details and related implications of the so-called 'Core Problem' of Jaina logic when it is viewed from a language-oriented perspective or from an epistemology-oriented perspective (in §5, below). As a step towards understanding the rationale behind the elaborate, but *non*-truth-functional, scheme of classification of propositions. [In the present context, 'proposition' should be taken to mean 'any well-formed sentence that can be used as part of a language L as it is used for communication by an established linguistic community']. Keeping this point in mind, the first thing that we need to recognize in order get into the heart of the *non*-truth-functional theory of language of the Jainas is this: They started by dividing all human languages

into two major groups: a) a set of logically entertainable *meaningful* sentences each one of which admits of a definite truth-value T/F, [we may call it the '*alethic* group', for short]; and b) a set of logically entertainable meaningful sentences which *do not* admit of any such definite truth-value assignment, [*non-alethic* group, for short].

From what has been said just now, it should be clear that Jaina logic was clearly shaped, to a large extent, by their ontology, especially *anekāntavāda*, and also by *syādvāda* [i.e., doctrine of *unavoidable conditionality* of all propositionally expressed truth-claims]. These two, coupled with Jaina theory of language, made their joint contribution by developing an elaborate, non-standard scheme of classification of propositional expressions. Keeping such logical ramifications in view, the Jainas classified all propositional expressions (i.e., any grammatically correct, meaningful sentence to which a truth-value can be assigned) by going beyond the artificial True/False dichotomy of the logical positivists. Naturally, the resulting Jaina scheme of classification has some highly interesting features. As a consequence of breaking the barrier of True/False dichotomy 'as the sine qua non' of meaningfulness, the Jaina logicians were able to include not only the *purely* truth-functional expressions but also the non-truth-functional ones in their scheme and classified all purported truth-claims into **α**) *satyāpanīya* (*paryāpta*) *bhāṣā* [i.e., potentially truth-value assignable expressions of a language [*Prajaha Sūtra*. Bhāṣāpada, 15-19], and **β**) *a-satyāpanīya* (*a-paryāpta*) *bhāṣā*, [i.e., *non-alethic* ones to which *no* truth-value (**T** or **F**) can be assigned [Ibid]. It is interesting to note that the Jainas used 'paryāpta' [=adequate/good enough] and 'a-paryāpta' [=inadequate/*not* good enough] as synonyms for *satyāpanīya* and *a-satyāpanīya bhāṣā* respectively [3, Chapter 5], [9].

The potentially truth-value assignable expressions again, are of *three* types viz., **T** (*true*), **F** (*false*), and *imprecise* ones [i.e., expressions to which only a *non-sharp* truth-value can be assigned (e.g. 'current population of India is 134 million')] This shows that the Jaina-s are never happy with an 'all-or-none' type scheme of bifurcation of truth-values [T/F] for the purpose classification of anything.

The *non-alethic* expressions, on the other hand, are sentences/expressions (e.g., 'May God bless you,' 'Listen to your parents,' 'Wish you the best of luck,' etc.,) which are *not* classifiable under any one of the three classes of *potentially alethic* [i.e., truth-value assignable] expressions listed above. In some Jaina texts 'non-alethic' expressions of a language are classified into two sub-groups viz., *quasi* truth-functional expressions (*satyāmṛṣa bhāṣā*) and pure non-truth-functional (*a-satyāmṛṣa bhāṣā*) [3]. Nonetheless, according to the Jaina-s, such *non-alethic* expressions are *logically as significant* as are the potentially *alethic* ones. Accordingly, the *non-alethic* expressions are graded and classified by the Jaina-s into various sub-classes of non-truth functional, yet *informationally non-empty*, expressions. This idea of a non-truth functional and yet information-wise non-empty sentential expression/proposition stands in sharp contrast to the logical positivists' view, according to which a sentence which is neither **T** nor **F**, *must not* be counted as having *any* information-content whatsoever [For further details of the Jaina scheme of classification of statements [3], [9].

A list of a few types of non-alethic sentences, along with their corresponding Jaina jargons as found in various Jaina books, is given below:

i) Āmantranīya: Requestative. Please come to the Birthday Party.
ii) Yācanīya: Expressive of a Prayer: May God help him.
iii) Pṛcchanīya: Interrogative. Which way is the Airport?
iv) Prajnāpanīya: Information-catering: The meeting is scheduled at 10 AM, next Sunday.
v) Loaded Question Expressing: Would you like to live in Slavery?
vi) Pratyākhyānīya: Refusal-indicating. Sorry, I have no money to lend.

Each one of these examples fails to be either T or, F but still each conveys some 'information' and none is 'Nonsensical.'

As a consequence, Jaina logic was prone to accommodate the idea of logics of many sorts e.g., Fuzzy Logic [FL], Default Logic [DL]/Non-Monotonic Reasoning [NMR] etc. Since, the System of Jaina logic consists of logics of different sorts as its various segments, I consider it more

advisable to *characterize* Jaina logic as a whole, as a cluster or conglomeration of logics of various sorts' [CLVS, for short].' What I mean by CLVS *must not be confused* with the claim made by some experts like Professor S. L. Pandey [16], who maintains that Jaina logic needs to be branded as a system of many-valued logic [MVL] of *seven*-values. I found some serious weaknesses in Pandey's arguments. So, I could not agree to his view and suggested that it would be somewhat misleading to brand Jaina logic as a simple and *unproblematic* case of many-valued logic [MVL] of *seven*-values [29, pp. 66-70, 297-302].

Steps in the logical link that exists between Jaina theory of language on one hand, and FL, DL, NMR and other kinds of non-standard logics on the other, is indicated below in a step by step fashion:

Step 1. There can be no *anumāna* unless there is a legitimate *vyāpti*-relation, to support it.
Step 2. No *vyāpti*-relation is legitimate unless *all* its accidental vitiating factors [*upādhis*] are eliminated.
Step 3. It is impossible to eliminate *all upādhis*, because there is an endless number of them.
Step 4. Hence, in order to ascertain that a *vyāpti*-relation is a legitimate one, an inferer [*anumātā*] would need to fall back upon some kind of default logic [DL] or non-monotonic reasoning [NMR].
Step 5. Steps (1)-(4) above clearly show the relevance of default logic [DL] and of non-monotonic reasoning [NMR] in the theorization of Jaina logic.

Finally, a look at the details of the Jaina scheme of classification of 'propositions' also reveals that the Jaina logicians are *not* averse to incorporating 'fuzzy' and/or 'quasi-truth functional' propositions in their system of logic, say S.

The forgoing discussion clearly suggests that 'ideally speaking,' an adequate systematization of Jaina logic (theory of *anumāna*) would require softening and suitably adjusting the currently dominant exclusively formalist-deductivist tautology-centric notion of 'validity,' in favor of a more 'intuitively natural' notion of '*soundness*' of 'logical infer-ability' [*anumeyatā*]. The features of such an *ideal* system of 'logical *inferability*,' say **S,** needs to be able to incorporate in its framework, are mainly of *three* types viz., α) incorporating context-cum-relevance sensitivity β) incorporating the machinery for handling 'fuzziness' into the system **S** [These *two* requirements should constitute the so-called, 'epistemic moorings' of **S**. [Clearly, 'fuzziness,' when it is taken seriously, would be antagonistic to the spirit of 'absolutizing' such dichotomies as, 'deductive-inductive,' 'valid-invalid,' 'consistent-inconsistent,' etc.]. Finally, γ) **S** would also need to be flexible enough to accommodate a way of *de-linking* the ideas of 'logical rigor' and 'deductive validity.' ***If*** such a logical system **S** were ever fully realizable, that would naturally amount to being flexible enough to accommodate elements of 'fuzzy logic' and of 'default-cum-non-monotonic modes of reasoning' as parts of its inferential machinery. However, such flexibility of an **S** would come only at a cost. At the '*metalogical* level,' the resulting system can be only '*non*-semi-decidable' [24, pp. 224-229].

5. Jaina Logic as Viewed from an Epistemic Perspective

In this section we will discuss some epistemic spin-offs of different sorts which are related to what I called the 'Core Perspective' viz., tackling the problem of ascertaining the legitimacy of a purported *vyāptijnāna*. Jaina logicians rejected *bhūyodarśana and dṛṣṭānta-based* enumerative induction as totally incapable of solving the problem. In other words, it amounts to rejection of *bahirvyāpti* as a methodological tool for ascertaining genuine *vyāpti*. As we have already seen, this led the Jaina logicians to propose *antarvyāpti* as the only proper method for arriving at a legitimate *vyāptijnāna*. Clearly, getting rid of *bhūyodarśana*, *dṛṣṭānta*, etc., also enabled the Jaina logicians to minimize the so-called 'factuality bias,' which was so deeply ingrained in the other systems of Indian logic. This methodological move also resulted in conceptual economy (*lāghava*). Some of those are (a) *general* while (b) some have more *specific* epistemic implications e.g., relating to the Jaina theory of 'Hetvābhāsa.'

a) Some general advantages relating to conceptual economy (*lāghava*) are the following: i) getting rid of the need of *dṛṣṭānta* and of *bhūyodarśana*, resulting in ii) getting rid of the need of *ad hoc* postulation of *five/three anumāpakas* (to guard against the possibility of any purported *vyāptijnāna* going astray), etc. Hemacandra and Yaśovijaya are quite emphatic on the point that an exemplar (= *udāharaṅa*) is *not* really necessary for arriving at an inferential conclusion. This naturally fits in well with the Jaina assumption that the actual process of inference-making resembles what we may call a 'deterministic knowledge machine' – DKM for short. ***If*** inference is considered the product of a deterministic input-output sequence generating machine ***then***, depending on how rich the data-base of a DKM is or, how it can gradually improve, etc., the amount of information that needs to be fed into such a machine may be proportionately minimized [22, pp. 374-382], [28, pp. 28-32].

[So far as the Indian theories of inference are concerned, I consider the DKM view of inferential machinery somewhat analogous to Pavlovian 'conditioned reflex,' except that instead of being a purely mechanical *reflex-response* (of a Pavlovian dog) it happens to be a reflexive *cognitive awareness* (a state of *jnāna*) according to the Indian logicians] [35, pp. 3-8, 24-26].

b) Besides this, some other spin-offs related to the 'core problem' which has important berings on the Jaina theory of *anumāna* in general and on Jaina theory of 'Hetvābhāsa' in particular, are the following:

Firstly, as already indicated, in order to eliminate the need of fact-dependency of *anumāna*, Jaina logicians argued in favor of redundancy of *dṛṣṭānta*, and thereby was a step closer to overcoming the *factuality bias* in their theory of *anumāna*. It may also be noted here that *this* very move did prepare the logical basis forthem to re-define and develop a *unified, jñānātmaka* (cogno-centric) theory of *hetutā* (invariable concomitance) which, in its turn, paved the ground for formulating a theory of single-criterion, single-type notion of *hetvābhāsa*.

Secondly, once we grant that our construal of *antarvyāpti* on the analogy of Kant's notion of synthetic a-priori judgement is a plausible hypothesis and view it along with such other things as commitments of the Jainas to i) *non-negotiability* of pan-contextualism, ii) to *syādvāda* [i.e., the Doctrine of Essential Conditionality of all Propositional truth-claims] and iii) also to the denial of existence of any sharp boundary-line between semantic units then logic dictates that there can only be *conditional* assertions (as in SV) and *tarka* must not only be admitted [*contra* the Naiyāyikas and others of their ilk] *just as* one of the, but rather as *the main* legitimately admissible source of *vyāptijñāna*. Actually, this happens to be the basis of today's celebrated HD-method of theory construction universally followed in modern Science. No sophisticated scientific theory of today [e.g., the Relativity Theory, String Theory, etc.] can be properly understood except as a conjecturally entertained *posit* – technically called a 'tarka' – a sort of reasoning based on counterfactual condtionals. Whence it follows that on ultimate analysis, an invariable concomitance can be *definitely ascertained* only by taking recourse to *tarka* or hypothetical reasoning [*tarkāt tanniścaya*]. In order to methodologically legitimize this claim, the Jainas needed to admit *tarka* as a full-fledged *pramāṇa*. They did this by going against the Naiyāyikas and some other mainstream traditionalists.

It is interesting to note that after the Jaina logician Akalankadeva, other thinkers/Indian logicians belonging to other schools (e.g., Naiyāyikas like Vācaspati Miśra, Udayaṇa, Vardhamāna, etc.,) recognized the importance of, and put more and more importance on *tarka* as an indispensable means of *vyāptigraha.* However, as it seems to me, they continued to follow a *double standard* and, as a result, most Naiyāyika-s still showed reluctance to admit *tarka* as a full-fledged form of *pramāṇa* [=method of epistemic justification]. However, thinkers of the Jaina school such as, Yaśovijaya, Akalankadeva, etc., continued to argue at length in order to establish the status of *tark*a as a full-fledged and independent *pramāṇa*.

At least from our vantage point of view, I prefer to consider this bold and breaking-away-from-the-tradition approach of the Jaina logicians as a primitive inkling of the modern spirit of hypothetico-deductivism [Popper-Lakatos type], by way of rejecting a simplistic Mill-type 'Inductivism' of the Naiyāyikas.

Besides this, non-negotiability of pan-contextualism would *entail* that even the Law of Non-contradiction [LNC] needs to be contextualized. And if so, then the tautology-centric formalist notion of validity would fail to be a universally *applicable* criterion of validity, and this would entail that the *allegedly* clear line of demarcation between 'fallacious' and 'non-fallacious' arguments gets smudged. These implications of accepting *tarka* [arguments based on counterfactual conditionals (CFC)] as a legitimate *pramāṇa,* plus a commitment to non-negotiability of pan-contextualism, are too obvious to miss.

Thirdly, among the Indian schools of logic, the Jaina school holds a unique position due to their commitment to pan-contextualism as the *sine qua non* both of their logic as well as of their metaphysics. For example, this commitment [to non-negotiability of pan-contextualism] logically leads them to accept the doctrine of MH [Meaning Holism] [29, pp. 93-97, 105-129], which commits them to the view that even the technical words of logic and even the laws of logic are no exceptions. So, they end up challenging the status of LNC [Law of Non-Contradiction] as an absolute/non-negotiable principle. Naturally, they propose to, and does, contextualize LNC [29, pp. 110-119]. One must *not* conflate the notion of contextualization of LNC (by the Jainas) with that of its denial or rejection by them as some scholars like K. P. Sinha tend to do [33, pp. 9, 110-120].

Fourthly, due to their undiluted commitment to MH the Jaina thinkers had to question the notion of context-free synonymy. Elsewhere, I showed [29, pp. 247-249] how the idea of context-relative gradations of synonymy happens to be a highly plausible interpretation, especially in the context of their Nayavāda. Granted the plausibility of this interpretation, the idea of context-relative gradations of synonymy seems so kindred in spirit to Putnam's view on 'synonymy' [19, pp. 119], [29, pp. 105-107]. Quine also pointed out some problems that arise in the context of defining the notion of synonymy [20]. I also discussed the question of synonymy in my RBU lectures [26].

c) Some *Lāghava* aspects of Jaina theory of 'Hetvābhāsa':

i) The Logicians of the Nyāya school, as we have seen, held that a legitimate probans must be characterized by a set of *five* characteristic features [*anumāpakas*].

ii) The standard view of the Naiyāyikas is that there are *five* types of *hetvābhāsa*, each type corresponding to violation of a specific legitimizing feature. Since, the Buddhists admit of *only three* such legitimizing features, they admit of only three kinds of *hetvābhāsa*, viz., *savyābhicāra*, *asiddha*, and *viruddha* [(Dingnāga, Dharmakīrti, *Nyāyabindu*)]. The Jainas, on the other hand, hold that neither *five* nor *three* of the characteristic/ legitimizing features can guarantee the legitimacy of a *vyāptijnāna*. According the Jainas all *hetvābhāsas* are due to a failure to satisfy the requirement of *avinābhāvatva* which signifies an *inseparable semantic-conceptual* relationship between a *hetu* and a *sādhya*. It simply means that 'it is *impossible* that the *hetu* exists but the *sādhya* does not, [in symbols, ~ M (*hetu* & ~ *sādhya*)]. This is what, as we saw, *antarvāapti* is supposed to ensure. The Jainas, however, proposed to use a more inclusive term 'anumānābhāsa' [instead of 'hetvābhāsa'] to mean 'defects of inference in general.' In the light of the very brief sketch given above, we may now take a deeper look at *hetvābhāsas* in the context of Indian logic and especially, of Jaina logic.

Throughout this paper I kept harping on the point that the Jaina approach to *anumāna* is essentially cognition-centric [*jnānātmaka*]. Hence, it [Indian logics in general and especially Jaina logic] cannot but be *context*-sensitive, *relevance*-sensitive, as well as *meaning*-sensitive, even in contexts of serious logical controversies. Clearly, it is far beyond the capability of any purely formal system of logic to live up to. Here is an example to justify this claim. If we try to treat 'hetvābhāsa'/'anumānābhāsa' on par with 'fallacies' in Aristotelian logic [AL], disaster is just waiting to happen. The following queer instances selected from Western Logic, of what I call 'fallacious validity', in the absence of any better expression, clearly show that: 'Hetvābhāsa'/'anumānābhāsa' must *not* be considered on par with the 'purely formal notion of fallacies' as found in Western logic. Let us consider a few of the reasons for it:

α) Western logicians who claim to have made a 'neat classification of fallacies' into 'deductive' ones and 'inductive' ones, are quite mixed-up in this respect. Even the supposedly 'pure deductive' fallacy viz., that of ambiguous middle, turns out *not* to be a *purely* deductive one at all. Rather, it is of a mixed sort – it is actually a 'semantic-cum-logical' fallacy. This becomes obvious, if we

remember that a computer logic-program that relies on a purely abstract schema, based exclusively on rules of 'formal syntax,' would fail to be sensitive to the two different *contextual* senses of 'dates' in two of its occurrences [e.g., in '*dates* are edible' and in '12th &13th of May are *dates*']. Naturally, such a context-*insensitive* logic-program would put '12th &13th of May are *edible*' in the category of proper deductive consequence of a *valid* inference.

Similarly, β) despite the fact that the Western logicians maintain a very sharp line of demarcation between 'inductive' and 'deductive' logics, they unlike their Indian counterparts, are hardly concerned with the problem of formulating a general definition of 'fallacies,' which would apply both to 'Inductive' as well as to 'Deductive' fallacies with equal plausibility.

γ) Moreover, the theoretical position of Aristotelian logic [AL] (i.e., traditional logic), is *not internally consistent* at all, even when one takes into consideration *only* the purely formal deductive fallacies. Let us take just one such example: In traditional logic, 'Most P' = 'Some P'. So, 'Most S are P' = 'Some S are P', it is an '**I'** proposition in which both the subject and the predicate terms are *undistributed*. Yet, from 'Most teachers are graduates' and 'Most graduates are reliable' we can *validly* infer that, 'Some teachers are reliable'. Although, as a matter of fact, a) the argument is a syllogism, b) it does *violate* the syllogistic requirement of validity that the middle term must be distributed at least once in the premises, and yet, c) it is also *valid* in the sense that *if* its premises are true, so *must* be its conclusion. Although, this very same argument has to be counted as *definitely invalid*, as per the rules of Aristotelian logic. Such queer cases may be called, '*fallaciously valid*' arguments. Nothing can better highlight the difficulties of working out a totally unproblematic scheme of neat compartmentalization of logic into 'deductive-inductive,' of fallacies into 'formal-informal,' of arguments into 'valid-invalid' etc. In our college days, we grew up being constantly exposed to the claim that 'Indian logic' *blurs/lacks* clear lines of 'area-compartmentalization' *vis-à-vis* the 'surgically clean dissection' of areas in Western Logic.

The lesson to learn from the above discussion is very clear. In a system of logic which is inalienably epistemo-ontic/cognition-centric (like Indian logics in general and Jaina logic in particular happen to be) cannot entertain/accommodate any 'purely formal' notion of logical fallacy (or, for that reason, even that of a 'purely formal' notion of validity, (like, '**p**/therefore, **p**') within its framework].

After having shown the difficulties in trying to force-fit logical concepts from the West into the conceptual framework of Indian logic, we may now very briefly highlight some benefits pertaining to conceptual economy (*lāghava*) that the Jaina theory of *hetvābhāsa* has, over its alternative versions proposed by the other schools of Indian logic. By discarding *bahirvyāpti* in favor of *antarvyāpti* the Jaina view got rid of dependence on *bhūyodarśana* and *udāharaṇa*, eliminating thereby any chance of any purported *vyāptijñāna* going astray due to the presence of some accidental impediments (*upādhi*). So, no *anumāpaka dharma* had any place in the Jaina theory. *Secondly*, by re-defining the key-concept 'hetutā' by a single, overriding criterion of *avinābhāvitva/ananyathāsiddhatva* the Jainas were able to formulate a single-criterion unified concept of *hetvābhāsa* without any need to proliferate *hetvābhāsas* into different types. However, it needs to be mentioned here that most of the Jaina writers tend to use the expressions '*avinābhāvitva*' and '*ananyathāsiddhatva*' interchangeably but some of them seem to be in two minds in that respect. Reason for this is, I surmise, that the two expressions are *not* to be considered exact synonyms of each other. I argued elsewhere [43] =28, p 20-21, §4 that the real import of '*avinābhāvitva*' is mainly logical/conceptual/analytical whereas that of '*ananyathāsiddhatva*' is basically methodological. If so, '*avinābhāvitva*' would entail '*ananyathāsiddhatva*,' but *not* conversely. It can be shown by citing any number of instances that the Indian logicians lacked any keen awareness of the distinction between the 'methodological' and the 'conceptual-logical' aspects of a *hetu* that a *vyāpti*-relation may indicate. Consequently, they were prone to *mix up* the 'methodological' and the 'conceptual-logical' aspects of *vyāpti*, without realizing its implications. Yet, because of their instinctive and keen analytical acumen, they had a hunch that something was amiss somewhere. Consequently, the Jaina logicians [and all other logicians belonging to some other school of Indian logic] failed to appreciate the problem and were quite confused about how to

prioritize the status of '*avinābhāva*' *vis-à-vis* '*anyathānupapannatva*.' I have already discussed the issue in detail elsewhere [28, pp. 21-25, §5]. I hope, that here and in my other writings I have been able to remove a potential source of confusion in Jaina logic besides explaining why some Jaina thinkers were in two minds about this very issue.

6. How to Catch a Tricky 'Ducko-Rabbit'?

In the earlier sections of this paper our objective was mainly to identify and highlight some salient features of Jaina logic which make it stand apart from the other systems of Indian logic. We picked up the following *five* distinctive characteristic features of Jaina logic, (*not* in the order they are listed here): i) Upgrading the status of Tarka to the level of a full-fledged 'Prāmāṇa' [i.e., an accredited means of acquiring proper knowledge (viz., 'Pramā')], ii) Challenging the status of LNC (Law of Non-contradiction) as an absolute/unconditional principle/truth, iii) Challenging a widely shared, deeply ingrained feature of Indian logic which I prefer to call 'factuality bias.' [For example, the following implicit assumption viz., 'No *dṛṣṭānta*, no *vyāpti-jñāna*, no *vyāpti-jñāna*, no *anumāna*/Therefore, 'No *dṛṣṭānta*, no *anumāna*,' has its root in the 'factuality bias']. iv) Ensuring conceptual economy (*lāghava*) through unification and simplification of some key-concepts, of logic, and finally, v) Jaina logicians' proposal for a more elaborate and unconventional scheme of classification of well-formed, information-conveying linguistic expressions [Actually, my claim that 'an *anumāna* is mainly geared at extracting some information on the basis of the inferential data' may seem quite unacceptable to some contemporary 'deductivist' logicians. For example, according John Corcoran [28, pp. 9-24]. Łukasiewicz explicitly rejects the view that deduction is a process of information extraction. It is also interesting to note here that Karl Popper himself was reluctant to consider 'Inductive' logic as a 'logic' in the strict sense of the term. In this paper I tried to challenge such an idea in two ways: *first*, by emphasizing the crucial importance of distinguishing between the '*logos*-centric' (*vākyātmakatā*) and the 'cognition-centric' (*jñānātmakatā*) aspects of logic, and *secondly*, by exposing the risk of conceptual confusion that may ensue from using 'deduction' and 'anumāna' interchangeably].

In this section, in contrast to the previous ones, we concentrate on such features as Jaina logic shares with other schools of Indian logic which, in its turn, clarifies what constitutes the 'Indian-ness' of different systems of Indian logic. Two features viz., a) unlike Western logic, Indian logics refuse to succumb to the pressure/lure of 'syllogism-ism' (συλλογισμικ') without letting the aspect of 'logo-centricity' (*vākyātmakatā*) aspect of an *anumāna* split away from its cognition-centricity/epistemo-centricity (*jñānātmakatā*) aspect. For brevity, we shall use the expression 'no-split' stand, to refer to this shared feature of Indian logic, and b) the second of the two constituent features of 'Indian-ness' is prioritization of *jñānātmakatā* aspect of an *anumāna*, over its *vākyātmakatā* aspect. We may recall that 'ducko-rabbitism' is taken recourse to by a savant/scholar when two conditions are fulfilled: i) when he is confronted with a queer biological species possessing two such features which are of 'never-seen-together-before' type, and yet ii) he can neither identify it with any of the known species, nor is he confident enough to claim that he has discovered a new species. Under such a condition he feels a natural propensity to give it a new composite name (like 'ducko-rabbit') to the recently discovered specimen in order to mask his own incompetence. The incident was not at all dissimilar to doing a sort of, what I called, 'ducko-rabbitism.' I like to cite here two real life examples of scholarly 'ducko-rabbitism': the *first* one (already mentioned) is found in (Professors D. M. Dutta & S. C. Chatterje's book) 'Introduction to Indian Philosophy' which characterized *Pancāvayavī Nyāya* of the Nyāya School simply i) as a more elaborate version of Aristotelian syllogism and ii) as a kind of logic which is deductive-cum-inductive in nature. The second example is from S.L. Pandey's characterization of Jaina logic. Pandey indulges in a more arrogant type of 'ducko-rabbitism.' According to him, '…. Jaina logic is thus …. *both* a ***non-truth-functional*** many-valued logic of *probabilities* and a ***truth-functional*** three-valued logic.' .... [16, p. 159], [10] '*prāmāṇya* or logical value of every *naya* is a *probability*-value or a midway position between truth and falsehood. ... hence *Nayavāda* leads to ***non-truth-***

functional many-valued logic of probability. … Jaina-s have conceived this logic as truth-functional ***also***, …. Jaina logic is thus …. *both* a ***non-truth-functional*** many-valued logic of *probabilities* and a ***truth-functional*** three-valued logic' [16, p. 159].

Pandey [10, pp. 155-160] continues further, '.... there are certain other relevant considerations which indicate that *Syādvāda* refers to a many-valued logic. Pandey also claims that *Syādvāda* challenges the *law of non-contradiction*.' Matilal and Sinha, concur with Pandey on this point. [12, pp. 44-53], [33, p. 9]. Pandey thinks that the Jainas would assign some truth-value even to contradictory statements.' In this context Pandey also claims that 'such logic *would have to be a Three-valued Logic* [16, pp. 157-158]. This point and the reasons for the untenability of S. L. Pandey's view is critically discussed in detail in my forthcoming book [29, pp. 297-302].

One may ask here, if 'cherry-tomatoes,' 'baby-carrots,' etc., are OK, why do instances of academic 'ducko-rabbitism,' like 'deductivo-inductive,' or being 'non-truth-functional-cum-truth-functional' etc., sound so odd and looks so ridiculous? The reason is not at all far to seek. I think, it's due to acting in a way similar to that of a dog that's 'barking up the wrong tree' in order simply to impress its master about its own alertness and efficiency. When one reads between the lines of Dutta-Chatterjee's or S. L. Pandey's claims, it becomes obvious that both parties are bent on scoring a Quixotic victory, actually by trying to tackle some *non*-issues. A *pancāvayavī nyāya* is better than a syllogism *not because* the former is a 'quintuplet,' while the latter is only a 'triplet,' but because a syllogism is purely formal, relevance-insensitive and totally logo-centric (*vākyātmaka*) mode of reasoning, whereas a *pancāvayavī nyāya* is relevance-sensitive and basically cognition-centric (*jñānātmaka*) mode of reasoning. The air of 'inductive-ness' surrounds *pancāvayavī nyāya* because, *ex hypothesi*, a *pancāvayavī nyāya* needs to have some information-content (*ajñāta-jñāpakatā*). Actually, a look at the *two* components/*avayavas* (*viz., hetu* and *udāharaṇa*) of any *pancāvayavī nyāya* should clearly explain the reasons why there always has to be an air 'inductive-ness' surrounding the concept of *anumāna* in Indian logic. Of course, a *pancāvayavī nyāya* does put to use the result of some previous induction. However, making such an induction itself is no part of a given *pancāvayavī anumāna*. This is a subtle but very important point – to forget it is to walk into the trap of theoretical confusions. I suspect, S. L. Pandey is affected by some such confusion. Presumably, that's why S. L. Pandey, in his eagerness to show that Jaina logic is so much more comprehensive and forward-looking, (*vis-à-vis*, Aristotelian logic and other more recently developed areas of Western logic) proposes to put in so many disparate items in a single portmanteau (viz., Jaina logic) that it tends to burst at its seams. ***If*** instead of proceeding in such an *ad hoc* disorganized way, Pandey had appreciated the implications of inalienable *jñānātmakatā* of Indian logic, he would see how most of the logical features that he ascribes to Jaina logic would find their respective spots on a more comprehensive canvas of *logic in general* (or, of a *universal logic*). However, a proper systematization of the jarring elements in the masterplan of a *universal logic* (if it is ever actualized) would be subject to at least *two* constraints:

i) First and most importantly, it must be able to strike a balance between the 'ontic aspect' and the 'epistemic aspect' of logic. Clearly, till now, it is just a pious hope, only a *desidiretum*, so to say. [The 'ontic aspect' and the 'epistemic aspect' correspond, though only very roughly, to our notions of 'logo-centricity'/'vākyātmakatā' and 'cognition-centricity'/'jñānātmakatā' respectively]. Why it is so important not to downplay the centrality of *jñānātmakatā* in Indian logic, especially when comparing it with Western brands of logic becomes obvious if we remember that even the technical vocabulary of Indian theories of *anumāna*, wears the tag of *jñānātmakatā* on its sleeves. For example, 'pakṣa' of an *anumāna* is defined as 'sandigdha sādhyavān pakṣaḥ' and 'sādhya' is defined as that feature [*dharma*] 'which is yet to be ascertained.' Let us talk about a few other similar points. For example, in the case of a syllogism, its constituents [premises, terms etc.,] are identified/defined *not* by their respective *logical functions* but by tagging a specific location-address [e.g., Premise number 'so and so', or by tagging a status-indicator to each premise [e.g., *Major*/principal premise, *Minor*/subsidiary premise etc.,] Similarly, 'terms' occurring in a syllogistic inference are so called neither because of their meaning-contents nor because of their logical roles in the inference. Terms are so called simply to indicate their *terminal*

positions/locations in a sentence, technically called a 'premise'/a 'conclusion,' etc. Naturally, this kind of approach to logic cannot block even a meaningless expression from becoming a term (in the full-fledged technical sense) of an inference. Unfortunately, in the context of an *anumāna* however, expressions like 'sky-lotuses' or, 'hare's horns' or, 'a bandhyāputra,' etc., are hardly ever accorded a respectable logical status. No wonder therefore, that Western logic finally ends up embracing a 'garbage in, garbage out' type notion of inferential ***validity***. In the same vein, a major term is identified by its location-address i.e., simply as the predicate of the conclusion (i.e., the second terminus of the conclusion-expressing sentence). Unlike the definition of its Indian counterpart *viz*., 'sādhya' (i.e., something which is yet to be established) the identifying criterion for a major term is simply its specific location-address. All these highlight the fundamental difference between Western logos-centric (*vākyātmaka*) approach to logic *vis-à-vis* the Indian cognition-centric (*jñānātmaka*) approach to logic. Keeping this background in mind would also make it easier to appreciate the point that I was trying make [in §3 above] regarding the Frege-Husserl controversy. All these things go to show that there is always an *un-eliminable* epistemic mooring underlying Indian theories of *anumāna*. It is for this reason that Frits Staal (1973) very clearly recommends ample caution to guard against possible confusions engendered by indiscrete translation of logical terminology of Western logic and its glib use in the context of discussing Indian logic. He draws attention to the fact that the customary assumption that the Indian concepts of 'hetu', 'sādhya,' and 'pakṣa' correspond to the Aristotelian middle, major and minor terms respectively, is incorrect [34, pp. 156-165].

As regards the *desidiretum* mentioned above, it needs to be pointed out that if we take a careful look at the growth-patterns of recent thoughts *about* both Western and Indian logic, an interesting pattern begins to emerge. On one hand, in the post-PM ['Principia Mathematica'] period of growth of logic, Western logic has been moving away from its initial predominantly 'ontic,' 'strictly *rigid formalism*' to more 'flexibly inclusive' diversified systems of logic which include, 'Fuzzy Logic' [FL], 'Relevance Logic' [RL], 'Default Logic' [DL], 'Para-consistent Logic' [PCL], 'Epistemic Logic' [EL], etc. On the other hand, during the last fifty years or so, the approach of reputed scholars of Indian logic is moving away from the original nebulously formulated, *non*-deductivist, information-theoretic, and predominantly 'epistemic' view of logic, to a more well-regimented but at the most a semi-formal analog of 'ontic' view of logic [28, pp. 41-42].

ii) Secondly, any masterplan of a *logic in general* (or better still, of a *universal logic*) must also be ready to pay a high price in terms of a complicated meta-theory of the resulting system which would include, among others, Default Logic [DL], Non-monotonic Reasoning [NMR] etc. For example, it is known that the general question of entailment in Non-monotonic Reasoning is *not* even semi-decidable i.e., it is '*non*-semi-decidable' [24, pp. 226-234]. This, and some similar other point have been touched upon by the present author [28, pp. 220-229]. For some other 'metatheoretic' results see [5].

7. Concluding Remarks

I honestly believe that a proper and balanced blending of *jñānātmakatā* aspect of logic with its *vākyātmakatā* aspect is needed for balancing out their respective one-sidedness. As I see it, taking the first step in the direction of tackling this formidable task requires working out a plausible account of an information-theoretic [*not* a tautology-centric] notion of implication. If successful, this itself would take care of both 'context-sensitivity' and 'relevance.' Our desidiretum may be just a dream-stuff and even if my sojourn along the path of 'holistic-integralist approach' to Jaina logic turns out to be only a case of sleep-walking, I wouldn't mind it in the least. For me, the bottom line is this: If we are not daring enough to dream, we forfeit our right to complain about our dreams having been shattered.

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