TANTRA YUKTI
METHOD OF THEORIZATION IN AYURVEDA

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ABSTRACT: *Method of theorization (Tantra Yukti-s given in Ayurvedic texts) is analyzed in the backdrop of scientific method. Thirty six methodic devices are singled out from texts for analysis in terms of truth specific, theory specific and discourse specific issues. The paper also points out exact problems in conception of method in Ayurveda and Science.*

Technological efficacy of Science has lead to wide acknowledgment of effectiveness of its method. Standards of testability, verifiability and more refined criteria of falsifiability as filters for legitimate knowledge have been brought about by ceaseless development of science. Ingenuity of Science is seen in its method. Reason by itself is not sufficient, it must get soiled by matter through its verification by 'experiments'. It is experiments that give impetus to scientific knowledge.

Trial and error experimentation with material formularies on the state of health is a very old human practice. Earliest of medical practices would have relied on 'trial and error' investigations (and intuitive understanding too) of plausible material formularies for curing diseases. Does 'trial and error' procedure in evolving right knowledge a sufficient methodic tool? Does it stand up to the criteria of experimental testing of knowledge? It does, if evaluation of hypothesis by looking at its material implications is a sufficient criterion. Science additionally demands that hypothesis be backed by a theory. Even *ad hoc* hypothesis, not backed by elaborate theory, can be tested by trial and error procedures. But scientific method involves testing of hypothesis that is implied by elaborate theory. "Experiment" is a procedure to test a theory and not to test a standalone hypothesis for which trial and error procedure may be sufficient. It is for this reason that scientists all these years have hesitated to grant "traditional medicine" a status of scientific knowledge.

But Ayurveda is not just a collection of formularies that are medically efficacious but is a theory. Ayurvedic theory is elaborate. It deals with behavior of material substances and specially behavior of body on the intake of material substances with the help of ac conceptual framework. It deals with functionality – disfunctionality of body and mind with the help of a conceptual framework. That Ayurveda has a theory can hardly be disputed. But the theory of Ayurveda, if it is believed that it has one, is not popularly regarded by scientists as a scientific theory. What is a basic intuition regarding this dismissive rejection. The issue is whether Ayurveda has a testable / verfiable theory. There can be theories that are not testable or verifiable. Popper[i] contrasted scientific method with Metaphysics, Psychoanalysis and Marxism precisely on the basis of such an apprehension. There theories come out with hypothesis as their implications that are not falsifiable. There are simply no situations in

which negation of such hypothesis can obtain even in thought experiment. For example, if psychoanalyst arrives at a particular diagnosis of a patient, and if diagnosis is challenged as being not true, the psychoanalyst can come up with reason from her theory as to why her diagnosis is being challenged. Thus psychoanalysis is a theory that can interpret any situation to its theoretical advantage. Thus Popper called it a unfalsifiable theory. Since then falsifiability has been accepted by working scientists as a criterion of theory which claims to give legitimate knowledge. Is Ayurvedic theory this type of unfalsifiable theory? Is this the apprehension that scientists have for the Ayurvedic theory?

If Ayuraveda has a corpus of true knowledge and if Ayurveda does have an elaborate theory, how is its methodology different from scientific methodology. Ayurveda's difference with science is apprehended by scientists and Ayurvedic *acharya-s* at various levels.. There is one difference of trait between theories in Science and Ayurveda, which may have methodological bearing. Theories in Science keep changing, developing, with time. But theory of Ayurveda does not seem to have changed significantly ever since it has been enunciated in the great antiquity. So here scientist can feel uncomfortable with the Ayurvedic theory. Well, Ayurvedic knowledge did change as time passed and from region to region. Numerous *Nighantu-s*[ii] composed in different periods and divergent live contemporary practices of Ayurveda from region to region do stand testimony for change in content of Ayurvedic knowledge. But this change in knowledge can be conveniently assigned to 'trial and error' procedure. In any case, even Ayurvedic theoreticians proclaim that fundamentals of the theory do not change in these cases, though their application does and could change.

In this essay we look into Ayurveda itself for insights into its method. Also what needs to be noted is that Popperian apprehensions have their own problem within science. For example, one of a basic hypothesis in physics can be shown to be non-falsifiable, namely, that -length of one second today is same as length of one second tomorrow or yesterday. This hypothesis is non-falsifiable simply because it is not possible, even in thought experiment, to put one-second of today and one second of yesterday at one place to co-measure their duration.[iii] Such problems in Popperian criterion of legitimate knowledge do point towards merit in looking into Ayurveda itself for insights into method of legitimate knowledge. Ayurvedic texts do have sufficient body of reflections into the question of method and epistemology, which we shall tap on for this inquiry. We shall look more closely at theory construction methodology rather than epistemic issue of true knowledge in Ayurveda. This is because scientific objection'to Ayurveda is Popperian in spirit and not experiential or truth-claim related in spirit, Since many efficacious formularies of Ayurveda are acceptable as 'true knowledge' but not its theory. Popperian objection is on the theory construction aspect of Ayurveda.

Usually one would expect that epistemological and methodological reflections would be found in philosophies culturally co-terminus with Ayurveda. *Darsana-s* have been popularly understood as 'philosophies' since they deal with issues of perennial concern to man. Thus one would expect to turn to *Darsana-s* for advancing this inquiry. We shall not do that here. Relations of *Darsana-s* and Ayurveda apart[iv], there are methodological and epistemological issues addressed explicitly in the codified literature of Ayurveda. The

significance of such issues is although not limited to the specific domain of Ayurveda though they are situated within that domain primarily. In fact the three issues, given below, that can be singled out for exposition and reflection are issues that are valid more or less for any domain of knowledge. But the answers that Ayurveda has given for them are best justified within Ayurveda and might differ from answers that are implicit in other traditions of knowledge such as *Vyakarana* and *Ganita*. Broadly the three sets of epistemic issues can be paraphrased as: Truth specific; Theory specific: Discourse specific. These are:

(1) Truth Specific Issues associated with *Pramana Sastra:* On what ground is the security and the authenticity of knowledge ensured? As an answer to such an epistemic query Ayurveda propounds its own thesis on *pramana-s.* There is an important suggestion regarding pramanatva of *Yukti,* which needs to be philosophically examined, especially since it is a subject of debate within the tradition of Ayurveda.

(2) Theory Specific Issues associated with *Tantra:* :Distinct from the epistemic issue of truth are the issues related to theory construction, composition and interpretation. They deal not only with the structural properties of a theory but also with theory specific semantics and evidencing of theoretical claims. Interestingly, Ayurvedic tradition stands distinguished in terms of advancing an explicit thesis on theory construction, composition and interpretation. No other knowledge system except *Artha Sastra* deals explicitly with the methodology of theory construction.

(3) Discourse specific Issues associated with *Vada Vidya:* There is an epistemologically separable realm of discourse distinct from the issues of truth and issues of methodology of theory construction. Discourse embodies epistemic norms in general but displays structural features significant for the advancement of knowledge which are not internalized either *inpramana sastra* or *Tantra Yukti.* Structure and norms of debates grounded in oral discourse are an instance of these features. Ayurveda tradition internalized methodological issues of discourse known as *vada vidya.* Analysis of discourse in the context of the process underlying advancement of knowledge is as philosophically relevant as is the analysis of issues of truth and issues of theory construction.

Three areas of inquiry into *pramana (prama karana:* process of arriving at authentic knowledge), *tantra(tantra yukti:* methods for theory building), and *vada (vada vidhana:* procedures for discourse and debate) are fairly exhaustive when dealing with the methodological issues in the Indian analytic traditions as well as other analytic traditions. They deal with issues of truth, theory and discourse respectively. If nature of truth acquisition is dealt in the first set of issues, community building around knowledge is associated with the third set of issues. Our concern is more with the issues associated with theory building as are dealt in the second set of issues. Thus, we shall, for the rest of the essay, deal in some details only with the second set of issues because of (1) their association with Popperian apprehension, and (2) the novelty and uniqueness of their treatment in the corpus of Ayurveda.

Theory *(Tantra)* as such can be construed as an entity (or a composite entity) for the philosophical reflection. Such a construal can be done relatively independent of the content of the theory at a meta-theoretic level. Indeed. *Tantra Yukti-s* deals with meta-theoretic

suggestions and investigation pertaining to such an entity (or a composite entity). The subject matter of *Tantra Yukti* are the methodological elements and devices *(Yukti-s)* of theory *(Tantra)* that involves at once the process of coming into being of a theory, the rigor and structure of its presentation as well as its interpretative / hermeneutical aspects. Delineation of methodic elements *(Yukti-s)* of theory *(Tantra)* is challenging not only because the meta-theoretic context itself is multifaceted defying easy domestication but also because working out mutual independence, consistency and completeness of various methodic elements involves entangling deep semantic knots. It is a universal exercise since it involves universal reflection across theories and in the universal context of man's theoretical endeavor. These would hold for all theories whether in Indian analytic traditions or other analytic traditions.

We would give textual reference to 37 such methodic elements proposed in the doctrine of *Tantra Yukti* in various classical Indian texts. Though these 37 methodic elements are not given in one text, various listings are given in various texts, but on aggregation from all these texts figure of 37 is arrived at. These 37 *Yukti-s* are compiled from 8 sources:

1. *CarakaSamhita[v], 8.12.41-50.(36 Yukti-s)*

2. *Susruta Samhita[vi]*, 63 chapter (32 *Yukti-s)*

3. *Vigabhata 's Astangahrdaya[vii]*, 50th chapter - *Uttarsthana* (36 *Yukti-s)*

4. *Visnudharmattara Purana[vi]''*, 36 (32 *Yukti-s)*

5. *Kavitai?Lya'sArthasastra[ix]*, 3.2 32 *Yukti-s)*

6. Bhattaharichandra's *carakanyasa* on *Caraka Samhita,* 8.12.41-50 (40 *Yukti-s)*

7. Nilamegha's *Tantra Yuktivicarax* (36 *Yukti-s)*

8. Anonymous *Tantra Yukti* (36 *Yukti-s)* Besides these lists several other theoretical work from the Indian analytic traditions refer to or use *Yukti-s,* such as in Panini Astadhayayi[xi]*(28 yukti-s)*

After compilation of all these Forty-one *Yukti-s,* a unanimous agreement about thirty-one Yukti-s was noticed. That is, thirty-one *yukti-s* are found in all the above mentioned texts. One *Yukti* is not recorded in only one of the source. So thirty-two are near unanimous *Yukti-s.* Rest of the nine *Yukti-s* were found mentioned only in one of the sources. Out of these nine *Yukti-s,* four can be subsumed under one of the thirty-one unanimously agreed on *Yukti-s.* This leaves us in all with thirty-seven *yukti-s,* which have mutually exclusive methodic functions. One of the *Yukti-prayojanam* or purpose, is mentioned explicitly in only one of the sources. But this *Yukti* is a one that can be taken for granted since *Tantra Yukti-s* by their nature deal with *Prayojana Sastra* or purposive theories. Thus, we can regard independent exclusive Yukti-s as thirty-six in number and one meta- Yukti of purpose. Among these 36 yukti-s, only 31 are unanimously agreed to in the eight above texts and regarding five Yukti-s there is only a partial agreement. Following table lists out thirty seven of these methodic devices which have mutually exclusive methodological functions.

In the table of *Tantra Yukti-s* we have classified *Yukti-s* in accordance with the scheme that we have evolved after studying them. Leaving *mefa-Yukti* apart, thirty-six of them can be classified in accordance with a classical distinction of *artha* and *vakya.* Theory as an individual is grounded on the 'purpose' for which it is composed - *prayojanam* -

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{*prayojanam nama yadartham sastradi pravartate: prayojana* means the purpose for which theory is propounded). Such that any theory would be called *prayojana sastra*. For instance Ayurveda is *aprayojana sastra* for the purpose of establishing *sarira dharma. prayojana* as a *Yukti* demarcates out the teleological ground of the theory as a source of its individuality. We leave aside here the question whether the rest of 36 *Yukti-s* are valid for *sastra-s,* which can not be classed as *prayojana satra like Darsana-s* (philosophies). If prayojana as an *Yukti* is seen as a source of the individuality of a theory than one can neatly lay out rest of the 36 *Yukti-s* establishing either *arthayojana* (entity plan) or *vakya yojana* (structural plan). [xii]

The distinction between *artha* and *vakya* is important. Any theory has two basic aspects, one dealing with entities it accepts and other dealing with linguistic organization of theoretical statements. One is dealing with ontological aspect and other with presentation aspect. *Laghava* or brevity, for instance, will depend on *vakya yojana.* This distinction is also analogous to *de re* and *de dicto* distinction in the Greco-European tradition of theorization. One deals with reality and other with language. One refers to entities considered as real and other to their systematization in the form of language. Second one with words and the first with what words refer to or meaning.

At the next level we have classified thirty-six *Yuktis* in two categories each for *artha yojana* and *vakya yojana.*

Arthayojana deals (la) with fixing of meaning within the theory, and (2a) with evidential interpretation of meaning that is implicated in theory. Once overall purpose of theory is decided, entities that get involved in theory are what theory constantly refers to, theoretical claims are about these entities.

Further, theory will involve evidential interpretation of entities, theory will embody hermeneutics of claims regarding these entities. Thus we have divided *artha yojana* into two classes of *Yuktis.*

Vakyayojana deals (1 v) with domain decision of theoretical constructs, and (2v) with technical structure typical to that theory. Once overall purpose of the theory is clear. Once domain of reality it deals with is clear, a theory knits truth claims regarding its objects in a presentation structure. This presentation structure has two elements. One that deals with segregation of subjects covered in the theory, this part of a structure would involve division into several sub-domains and sub-sub-domains and their nesting in accordance with subject matter of theoretical claims. Other would deal with structural aspects that are typical of the theory, the technical aspect of the theory. Thus we have devided *vakyayojana* into two classes of *Yuktis.*

This way of classifying methodic devices not only works fine with content of these 36 methodic devices of theory building but also makes meta-theory of *Tantra Yukti* intelligible for theories that lie outside Indian analytic traditions, such as in modern science. Any theory would have a prime defining delimitor. namely, its purpose. Like Newton's mechanics will understanding motion of bodies as its purpose. After that, theory would require to grasp two aspects (1) reality that it accepts as its subject matter, and (2) theoretic organization of the truth claims regarding reality that are specific to the theory. In Newton's mechanics, (la) reality of rigid bodies and space-time etc.. is required, and (2a) laws, theoretic norms, mathematics etc, is required. This would hold for Allopathic theory of medicine as well. Further, *de re* aspect of theory would require (la) methodic devices to delimit that reality, and

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(2a) methodic devices to work out evidential interpretations of the theory. Similarly, *de dicto* aspect of theory building would require (1 v) domain stratifying devices, and (2v) technical structure that the theory would use to its advantage. Below is list of 36 such devices.

We are taking of 36 rather then 37 *Yuktis* because *prayojana* as a *Yukti* is not unanimously agreed on and is advanced only by *Caraka Samhita* among the source of the doctrine of *Tantra Yukti.* Whether the source of individuating of the theory itself can be considered as a methodic element of theorization raises doubts, which can explain why other commentators of the doctrine did not accept it as a *Yukti.* But they all agree that it *isprayojana sastra* which employs *Yukti-s* in the first place and that *Tantra Yukti-s* deal - *withyojana* of *artha,* and *vakya* of any *prayojana sastra.*

Within arthajoyana we distinguish between two classes of *Yukti-s.*

1. Dealing with stationing (establishment) of meanings / objects of the theory thus establishing the semantic field of the theory.
2. Dealing with evidential hermeneutics thus evidencing viewpoints advanced by the theory and its relation with the other viewpoints.

Similarly, *Yukti-s* classifiable under *vakyayojana* are demarcated into two sets:

1. Dealing with the stratification of the domain of theory thus bringing to lights the content structure of a theory.
2. Dealing with the technical structure of a theory in terms of the technical elements and their relation, which constituted theory. The tabular of the 37 (36+1) *Tantra Yukti-s* is fairly exhaustive and would normally work for theories that are composed in oral context as classical Indian theories were as well as for theories composed in written context as modern theories are and rendering of traditional theories are. We would not like to go into efficacy of each methodic device in any particular theory here. Such an exercise for Ayurveda and Artha Sastra has been done in the texts of these theories. Nor is our attempt to render illustrations of each methodic device from modern theory. In fact, in the Indian analytic tradition, recourse to *Tantra Yukti-s* is taken when correcting damaged theory. For instance, Vaisesika theory is suspected to be incomplete for very long. *Vaisesika sutra,* founding text of *Vaisesika Darsana,* is not available in its prime form. Pt. Ananta Lai Thakur from Calcutta has pointed out several lacunas in the *Vaisesika Sutra* on the basis of *Tantra Yukti,* specially forth class of *Yukti-s*. He has a project to correct these lacunas on the basis of *Tantra Yukti-s.Qwte* different from such or other traditionally justified uses, our prime concern is to reflect on methodological features of *Tantra Yukti-s* in the context of methodologies adopted in the modern science.

The doctrine of Tantra *Yukti* poses difficulty for understanding in the modem context primarily for two reasons:

(1) The relative independence of the *Yukti-s* and exhaustive completeness of the set of suggested Yukti-s is not obvious, and;
(2) The disposition underlying formulation of the doctrine seems to be virtually orthogonal to the popular disposition underlying modern scholarship on theory construction in the Anglo-American tradition of historiography of science and analytic philosophy.

In the Ayurvedic tradition the issues of truthful knowledge formulation *{prama karana)* are

distinguished from the issues of theory construction *{tantra prayojana)* though no *Tantra* can last without the support of *pramana.* The distinction rests on the distinct epistemic support of the content of theory and of the constitution of theory. The distinction leads to the separating of methodological investigation codified *inpramana sastra* and in *Tantra Yukti.* Anglo-American tradition, overlooking this meta-metho do logical distinction strives to ascertain methodological unity of scientific theories focussing on truth ascertainment of theories. The distinction is not between form and content since *Tantra Yukti-s* do not deal with the formal aspect of theory alone. The doctrine of the *Tantra Yukti* instead proposes a methodological unity of theory construction, composition and interpretation distinct from methodological unity derived from the truth valuation of content. Again the methodological unity of theory constriction, composition and interpretation is difficult to accept within the Anglo-American tradition since constructional and interpretational aspects are seen as subject matter of historical and sociological inquiry respectively rater than of methodological inquiry. Besides Anglo-American tradition places the idea of experiment and experimental verification at the helm of investigation into theory construction or investigation into scientific methodology and it is this idea which is not found explicitly either in *tantra Yukti* or *inpramana sastra.* On the other hand doctrine of *Tantra Yukti* has significance beyond post-renaissance fetish

with scientific theory defined on the basis of 'unique method of science' thesis and is valid for large spectrum of theories in Indian tradition ranging from *Aruthasastra, Alankarasastra* to *Ayurveda.* The difference on the underlying dispositions in two traditions seems to be deep and calls for further philosophical inquiry and we will not pursue the matter further here as it would demand detailed exposition beyond the introductory scope of the essay.

The problem of independence and completeness of *Yukti-s* is itself quite serious within the Indian tradition of theory construction. Can the structure of Panini's *Astadhyayai* be understood on the basis of the doctrine of these tantra *Yukti-sl* What is the relation of these *Yukti-s* with the *Nyaya* model of *uddesa, laksana, pariksal* Perhaps a distinction needs to be drawn between two kinds of theories.

(1) *Darsana-s,* which are organized for the purpose of the teleological finality - *moksa{purusartha).* Domain of these is universal and all - inclusive.
(2) *Prayojana* sastra, which are organized for the purpose of establishing a particular *dharma.* Domain of these theories is delimited by the restrictive object *of prayojana.*

In that case , perhaps, Tantra *Yukti-s* only deal with the latter kind of theories.

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12. *SusrutaSamhita,* p. 858 – "*Atrasam Tantra Yuktinam kimprayojanam? Vacyate- yakyayojanam arthayojanamca ":* "What is the purpose of *Tantra Yukti? Vakyayojana andArthayojanan",* Dalhana's commentary on it makes it more explicit
- "*Vakyayojanamarthayojanam ceti vakyasyasambandhasaya yojanam sambandhanam vakyoyojanam, tinasyasangatsya carthasya prakasanam sangatikarana carthayojana.*

TABLE OF METHODIC DEVICES FOR THEORY CONSTRUCTION, COMPOSITION AND INTERPRETATION

TANTRA YUKTI : Methodic Devices			
Prayojana : Purpose			
UNANIMOUS AGREEMENT			
ARTHA YOJANA Object Scheme : Entity Plan: Real Aspect		**VAKYA YOJANA** Linguistic Scheme : Structural Plan: Language Aspect	
Meaning Fixing	Evidential Hermeneutics	Domain Stratification	Technical Structure
Adhikarana Domain of Meaning	*Drstanta* Illustration	*Vidhana* Organization of Domain	*Svasamjna* Internal technical Terms

Padartha Fundamental Objects	*Sansaya* Indetermination	*Uddesa* Sub-Domain Declaration	*Yoga* Concomitance
Nirvacana Derivation of Meaning	*Purvapaksa* Prime Facie Objection	*Nirdesa* Exposition of Sub-Domain	*Niyoga* Commanding Injunction
Upadesa Authoritative Injuction	*Vyakhyana* Thesis Exposition	*Adesa* Adducing Rational	*Vakyasesa* Interpretative Consistency
Hetvartha Causative Reasoning	*Nirnaya* Determinate Conclusion	*Pradesa* Partial Adumbration	*Samuccaya* Compatible Conglomeration
Uhya Theoretic Reasoning	*Anumata* Thesis Consent	*Atidesa* Extension or Connection of Sub Domain	*Ekanta* Universal
Arthapatti Suppositional Implication		*Prasanga* Connection according to Context Extension	*Vikalpa* Optionality
		Viparyaya Consistency through opposite meaning	*Apavarga* Exception
			Atikantaveksana Backward Reference
			Anagataveksana Forward Reference

PARTIAL AGREEMNT			
Upmana Analogic Reasoning	*Uddhara* Elevating Thesis		*Naikanta* Variability
Sambhava Possibility	*Pratyutsara* Rebuttal of Central Thesis		