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C-SEMIOLGY IN SEARCH OF PANINI

Ranjit Singh Rangila

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The Problematics

Panini is presented as 'the initiator of the sciences of mind' in a contribution called *Reading Sawtantra Karata in Panini* (Rangila 2005c) that immediately preceded the present one. It is shown as to how Panini builds up calculi of signification (the 'karakā' system as it is technically called) and places that in the body-brain-mind of physically living person who keeps using the same to conduct its computations throughout its life as and when the person desires, or is obliged to create its life making messages. The body-brain-mind of this living human person does root its computations through a very subtle and detailed mathematical wisdom that Panini formulates.

It is further shown that this move helps Panini to model architecture of human mind, the processing modules that have its definite mathematical resources. Hopefully these mathematical resources can be taken up in detail in some future writing.

Experience has it that at the face of it this discovery, or even call it a personal proposal in Panini could be something delightful to Paninikaras. Yet, at a more serious level of consideration, the proposition may be received at the most as a side issue in Paninian studies. Given the status of Paninian studies in the universities and institutions in the country, it could be an encouraging redemption if one is proved wrong.

The scenario in the institutional linguistic studies in India is not uniquely different. One is not sure whether the discovery could carry any news value and excitement to the linguists in India.

It is quite likely that contemporary culture of ideas, especially in India, may even find the contribution of a doubtful proposition. This realization is based on the fact that somehow the picture of Panini and of his work(s) that has got created is that *Panini is a grammarian who created a grammar of Sanskrit language*. And, unfortunately, this picture has come in the way of receiving Panini's work as one of the great knowledge traditions of human civilization. After all if Panini has to do something with Sanskrit, he should be of interest to those who deal with the language. Why should scholarship in general bother about the work?

Two issues are messed up in such a picture of the work(s) of Panini. First, that Panini is a grammarian and that too in the sense in which 'grammar' is meant

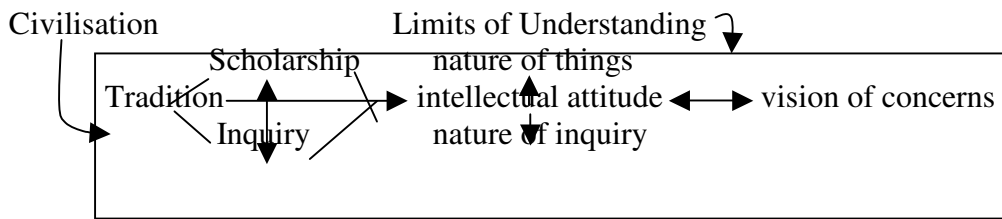
If one turns to the long tradition of Paninian studies way back upto Patanjali, for instance, one finds that Panini's work has been discussed, criticized and validated to its minutest details. The Siddhanta Kamudi tradition of Paninian studies has even tried experimentation with Ashtadhiyayai. For instance, Bhattoji Diksita's (Vasu 1962)

rearrangement of the Panini Sutras in the order that he thought them to be more productive could be cited as one of the important achievements of this trend.

As the Paninian tradition has it, grammar, its internal structure, economy principles, the operational wisdom, the derivative mechanisms, the elemental discoveries and systems that they get placed into, the citation devices, the minimality and maximality primitives, the theory building intuitions, and even the role of the ‘grammar’ in the world of knowledge have been effectively conceptualized as well as debated.

These being the central concerns of the tradition, there is every reason to expect that the tradition commits to some definite intellectual attitude towards nature of things as well as towards the nature of inquiry. Likewise it is equally a reasonable expectation that the scholarship participating in the tradition develop a particular vision of its concerns. The Picture-1 has the conceptual architecture of this wisdom:

Picture-1



It may, therefore, flow from the statement that to understand a tradition while it accepts, and/or rejects a proposition as internal to its concerns, or falling out of its purview, the crucial thing to know about the tradition is to appreciate its attitude towards nature of things and its vision of inquiry. This is where, one believes, C-semiology may be helpful in Paninian Studies.

As such, the discovery that Panini is an initiator of sciences of mind is personally valuable and reassuring to me, as I have been investigating into the facts, concepts, percepts, texts, epochs, polities, societies and cultures etc. that civilization creates as its systematised wisdom through the life making practices of people under a general vision of inquiry called **C-semiology** (see Rangila 2004b, 2005a for the nature of this inquiry, and see also Uberoi 1978 for the inspiration of the basic vision).

On the platform of this inquiry, it does not matter much who is who and what is what, and that too at the face of it, or for that matter as to what claims are in circulation. The inquiry is directed at the creation of civilization itself to begin with. With that it gets at the civilized life and societies that people have created all over the glob. In this sense, C-semiology investigates into civility making.

And, to study the civilized life and societies that people have created, C-semiology investigates into the sources of knowledge creation and wisdom negotiation (see Rangila 2001a and 2001b on the details of these issues). To the perspective of C-semiology, therefore, even the creation and emergence Sanskrit, to begin with as a value professing

adjective, and subsequently as value prescribing noun, is an exercise in civility making.

When focused only on the problematics of language studies, this inquiry gives priority to the logic of civility creation, and through that approaches the logic of language as well as the algebra of human creation as expressed with the resources of language. In that this inquiry in an altogether a different proposition as compared to the most of the linguistic theory, since it does not divide between the logic of civility and logic of language. In fact they merge into a singularity (see Rangila 2002 for the details), that is conceptually invested and through that they develop into what Gill (1981 and 1996) described as 'conceptual structures'.

Should it be said, therefore, that Panini, among others is welcome if he has anything to do with the creation of the civilization of ideas? This is where the vision of C-semiology meets Panini. That is, to be in search of Panini in C-semiology is to probe into this question at the outset of an inquiry. Otherwise it does have very little consequence for the C-semiological inquiry even though a contribution could be very ingenious in any known field of enquiry.

The search leads to a further question: How does one participate in the creation of civilization? And the most plausible answer that the C-semiological inquiry has is this: just by participating in the creation of knowledge and wisdom.

That is, one learns the ways of knowing and doing things from ones tradition; conducts observational inquiries; develops ways and means to critically examine the traditional accomplishments; and in so doing offers ones better alternatives.

How else should it happen? Even when preservation of knowledge (Veda) is to be understood in terms of the stipulation of Patanjali, the minimum that seems desirable is that it must entail participation in the game of wisdom creation. Only then the ways and means of knowledge preservation can be hoped to get developed.

One is careful in receiving Panini to C-semiology on these terms, as this inquiry may be suspected of disturbing the role that the tradition has assigned to Paninian studies. For instance, Panini has been revered for the role that his work has played in saving and serving Veda. In fact the tradition has gone to the extent of honoring Ashtadhiyayi as a *Vedanga* – a limb of the Veda.

It is certain that the C-semiological inquiry into Panini's work does not have to necessarily disturb its traditional role. In fact that is very valuable contribution. To help knowledge tree survive and to serve it to flourish must be the central role of any effort at knowledge creation. It should be, rather matter of great pride for any self respecting person aim at making a contribution.

Although the role in question is laudable, yet one is equally aware that this is just one among the set of four roles that Patanjali stipulates. Incidentally, furtherance of knowledge through meditative discoveries is also one of roles of inquiry in Patanjali

stipulation. C-semiology does this through the rigour of its inferential leaps directed at fields of enunciation that get created in civilization.

Moreover, it may be added that Panini is invited to the C-semiological inquiry so as to learn from the Sage, and to enrich the vision of C-semiology. The search that sets on in the process initiates an inquiry into the multiple possibilities of in the contribution(s) of Panini. As indicated the inquiry as such is sourced through Patanjali's postulation.

To be careful, one may add that despite the schematic sharing with Patanjali, there are subtle and core differences as well. Patanjali does his inquiry, and in the process he validates Panini's operative intuitions, especially in the area of derivative rigour that Panini has crafted.

C-semiological inquiry receives this much from Patanjali with thanks, and then it goes back to the craft(s) and vision(s) of Panini in search of its latent possibilities. Panini in this sense walks into C-semiological inquiry not only as a grammarian, or for that matter as a creator of the collective heritage of human wisdom, but also as the guiding source and partner in the furtherance of human will to inquire into unknown.

They Know Panini

The shift in the intellectual attitude and in the focus of studies in Panini that C-semiology initiates is faced with a typical predisposition among the Paninikaras in the contemporary Paninian studies. The majority attitude that borders a considered opinion as well as faith accomplice is that *Panini wrote Ashtadhiyayi* somewhere around 700-450 B.C. (see Matilal 1971:19 on date).

This writing does not propose to contest that wisdom, except recording that there is scope for careful rethinking on this issue, especially given the technological advancements and innovations that have come in the recent years (see Rangila 2004b to make a conjecture). It is quite likely that fresh inquiry may prove that on this issue Paninikaras have offered habitual statements chocked in their immediate intellectual environs.

The more significant part of the said faith takes Panini and *Ashtadhiyayi* as a single reality, where both of the expressions merge into a synonymy. Built on this is the over archetypal impression, more of a shared belief among the scholarship that *Panini wrote only Ashtadhiyayi*. At least this how Panini is presented most often.

This supposed synonymy has induced a significant portion of Paninian studies to focus only on *Ashtadhiyayi*. One is not even lead to imagine whether Panini ever bothered to do 'write' anything else. Given this implicitly shared belief, or call it assumption, the contemporary scholarship has its expressed opinions.

For instance, Chomsky (1965) believed that Panini's *Ashtadhiyayi* 'is a fragment of generative grammar'. Perhaps, in spite of their initial position that in Panini there is no separate syntax – morphology and syntax go together, as they continued their translation

of Mahabhash, Joshi and Roodbergen (1976) also started believing, following Chomsky, that Panini has composed a *generative grammara*. J.D. Singh (1990) discovers in it a 'descriptive grammar' that operates on some kind of *self evidency*. In a very carefully worked out Course on Panini Ramakrishnamacharlu (2003) talks of the architecture of Ashtadhiyayai that generates *derivative morphology*.

The sampled scholarship has variance in its points of departures, yet the differences merge into a singular inference-focus that Panini means only Ashtadhiyayai. Fortunately, even by this intuition, the scholarship has done good service to Panini's work, as they have kept interest in Panini alive in the intellectual scene of language studies even in 20th century.

There are more than one possible reason for this belief and attitude. One of them could be a simple matter of the physical and mental labour that one has to put up master even the text of Ashtadhiyayai. As such it is a very densely articulated text. Arguably it is by far the best of what Panini created, yet it demands quite a big span of time of one's life if one is desirous of gain good intuitive grasp of it.

The unbelievable length in which the works of Joshi and Roodbergen, of Cardona, and of Ram Nath Sharma among others run shows the time and skill and mental maturity that Ashtadhiyayai itself demands. It makes, therefore, sense if the tradition of Paninian studies is found to have focused in majority on Ashtadhiyayai.

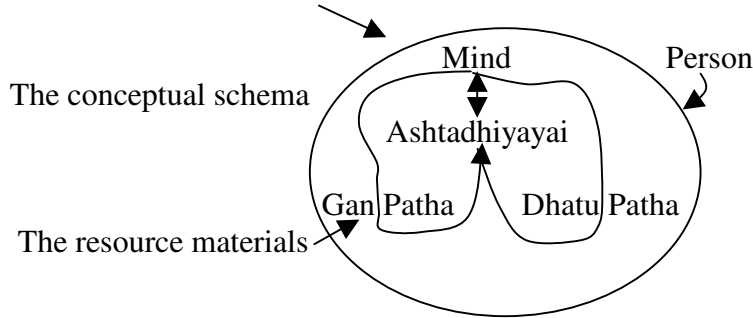
But this has, unfortunately, induced a habitual attitude among Paninikaras to see every thing else from the stand point of only Ashtadhiyayai.

The Panini Discovered

However, one must realise that in spite of the over dependence and indulgence with it, Ashtadhiyayai is not a self contained text. The first glimmer to this effect is brought home by the fact that Panini has created 'Gana Patha' and 'Dhatu Patha' and even kept them separate also. Having done that Panini establishes – even though most of the Ashtadhiyayai centered scholarship does make use of the Pathas in the Paninian studies.

Yet there is more to this separation of the Pathas with reference to Ashtadhiyayai. The Pathas are kept out of the text of Ashtadhiyayai due to reasons of computing and due to some neurological contingencies, especially in the area storing and processing that assist mental computing. In this sense, there is no gain in just identifying them only as separate texts, even if someone might just take them as some kind of 'lists'.

They are separate from Ashtadhiyayai, and are related to in very technical sense of the term, where Ashtadhiyayai plays the base platform, the conceptual schema, and both Gana Patha and Dhatu Patha play as the bases for the resource materials. The Picture- 2 offers a conceptual architecture of the schematic facility that Panini created:

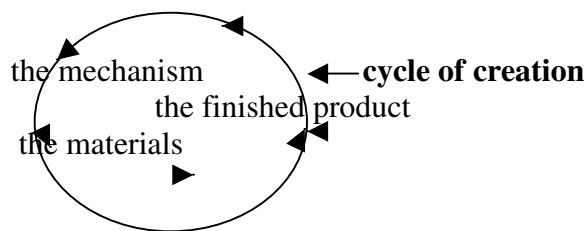


Picture- 2

When these considerations are coupled with the fact that the now popular name Ashtadhiyayai does not seem to be very old, and the original name of the text happens to be "Sutra Patha", an apparent doubt surfaces: May be there is more to Panini than what the text of Ashtadhiyayai possibly offers.

This much is grasped very evidently that when both Gan Patha and Dhatu Patha are put together with the Sutra Patha so that the three work together in consonance in a system of operations. When the issues like mind modeling and mental functioning are brought in, just as it is done in the cited in the beginning of this writing, the consonance among the three Pathas gears up to make mental computations possible. That the Sutra Patha provides the programmed platform such that can spin out any materials put through it into well worked out (and socially preferred) 'products' is equally established.

This goes without saying that the mechanism, the materials and the finished product are three different things, yet they are related to one another in a *cycle of creation*. The Picture-3 has it:



Picture-3

This does happen in a situation, where even if the Sutra Patha has ordered operation in sequenced modules that churn out derived morphology. Even in this case, at least, the root materials to go through the derivation are drawn from the sources that are outside the Sutra Patha.

The full implications of this facility, especially the way Panini works out different modules, places them in sequence in the text of the facility, expect the operation to go places, separates operative platform as such (Sutra Patha) from the localities of the resources to be taken from (Gan Patha, Dhatu Patha, Ling Patha etc.) will be appreciated

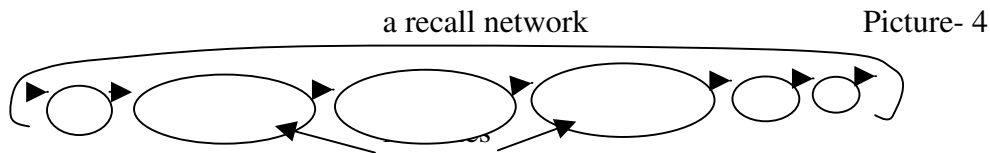
better as brain functioning and information storage in humans is better understood.

At the face of it, this realisation looks innocent and non-consequential. A careful consideration reveals something very basic to the character of Sutra Patha – that rather than being a self contained, Ashtadhiyayai is an integrative text.

This realization is confirmed at the platform of Ashtadhiyayai text itself, because in this text every statement, device and so on, is integrated at every stage in such a way that nothing goes either out of the text, or out of the operation. Adhikara, call it control or administration, that is, a technical device known to the Paninian tradition, looks after this integrative mechanism in Ashtadhiyayai. The details of this conventionalised mechanism are irrelevant here.

This discovery of nature of the treatise also points out as to how the name Ashtadhiyayai is of limited, if not doubtful value, as it admits 8 chapters in the text. Going by the sense in which the expression 'chapter' is meant - a piece of writing in which a portion of it is completed, the expression Ashtadhiyayai makes very limited sense, as every thing here is though complete in itself, yet is a part of the bigger chunk in which it is integrated through some integrative function.

Operationally speaking, there are modules created; one may even discover an ordered structure within the specific module, yet these multiple modules function through a recall network that could be profitably designated as *architecture*. The Picture- 4 has it:



Incidentally, the statement may not be pushed up to a claim of improvement over Panini. As a matter of fact both 'Anushashnam' and Adhikara together stand for 'administrative networking' among other functions, and the Sage as well as his tradition have sufficient conceptual tools to take care of the suggested designation.

Further, the explanatory discoveries that R.N. Sharma (1990: 71-72) has made, especially on the Sutra 1.1.71: '*adir antyena saheta.*'

'An initial item joined with a final *it* denotes not only itself but also all intervening items.'

offer considered wisdom to have *Shivasutras*, known alternatively as *Maheshsutra* or *Pratiharsutra*, also to get integrated into the Sutra Patha (see Rangila 2003a, 2003b, 2004a, 2005b for earlier statements on the issue. Kirparsky also has a similar discovery).

Seen from the point of view of computation this happens in the same technical sense in which Gan Patha and Dhatu Patha are suggested above. That is, Panini needs to integrate the Sutra Patha platform with the *Shivasutras* as he works out some of the basic citations (Pratyahara) in the later. These citations thus created, and many more that may be created

on the basis of them, are used to gain economy in his operational processing. When compared to the mega size of the Sutra Patha-Ashtadhiyayai, the text of the *Shivasutras* is hardly of any count, just a set of 14 aphorisms, yet they form the resource materials in the same way in which Gan Patha and Dhatu Patha do.

In fact, to understand Panini's vision of economy and the ways and means that he formulates to achieve it, *Shivasutras* are a much helpful text to learn from, as it is here that Panini is visible working out the craft (see Rangila 2002a for an understanding of the craft in *Shivasutras*). The citations (Pratyahara) thus created are employed in the Sutra Patha to indicate and refer to the materials being processed.

And, with this integrative relationship in hand one can have the pleasure of experiencing the wisdom of the orality based academic culture as well. It seems Panini is in an advantageous position, perhaps, because his is not a book-centered culture, and therefore he could visualize the way human mind functions with ease. Orality does have its orientation differences as compared to the orientations that literacy introduces.

The Physical Human That Panini Has

This section of the writing must sound very strange and odd to Paninikaras, as none among them bothers to note that even if Panini creates only Sutra Patha-Ashtadhiyayai, he does it for a normal and physically real human being; that there is this real human person who is playing in it; and is getting modeled in it also. To me and to my personal tradition, the grammar that they read, discuss and bother about in Panini is relevant to, should one add Sanskrit (read adjective as it originally was) to physically real a cultural person.

Of course, like Panini himself, the most primitive identity trait of this person is that it belongs to an oral civilization. From the point of view of C-semiology this is a very major difference between him and us. As already indicated the minimum one must say here is that there are subtle orientation difference whose consequences are never bothered about so far.

To continue with the Discovery of Panini, it could be useful to devote some space in this writing for the purpose to following Sutra (Ramlal Kapoor Trust Text, Sutra 4) in Paniniya Shiksha:

Soul while meditating on 'artha' with the help of mind and buddhi, encourages mind to take charge of bodily heat (in Nabhi) to instigate air that moves slowly through body-heart and gives rise to sounds appropriate to the 'artha'.

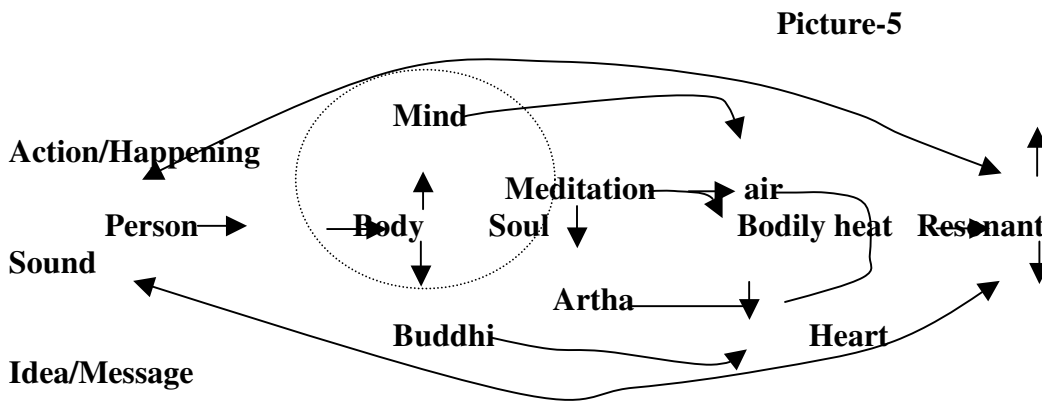
Vidhata Mishra (2000) gives an alternative rendering:

'The soul with intention to produce a word recollects things with the help of knowledge and instigates the mind, then the mind contacts bodily heat which instigates the air (energy) and the same air causes production of sounds. In this

process of sound production, knowledge, mind, bodily heat and air, all the five elements are required.'

At the face of it the sutra of Shiksha describes the process of sound production. When seen from the end of the inferential leaps that C-semiology brings in Panini may be understood describing the actual neuro-physiological happening that takes place as a real life and physical human person creates messages in his/her life making praxis that are sourced through resonant sounds. Otherwise, why should after all the sounds be produced, and why should ones soul be bothered if it is not woth/

That is, Panini is getting us his idea of physical person engaged in the game play of 'artha'. Put alternatively, a human person, including Panini one should say, apart from having its physical body, has soul, buddhi, mind, bodily heat and flow of air as its resources, does posses sense-pool of Artha. The person uses these resources to assert, create and convey the Artha, which may even be taken as meaning laden messages in its life practices. The resonant sounds that the human person produces are the source material of the verbal message. The Picture-5 presents the conceptual architecture of the Panini formulation:



The idea and the picture of human person that Panini conceptualizes is much rich and inclusive as compared to the vision of man that institutional academics in the contemporary world hold on to. How unfortunate, in the name of doing science they beat a soulless person. One wonders whether human civilization can survive with such a vision of a living and civilized person. Is it not unfortunate that no phonetician of any caliber is seen conceptualizing an act of sound production by giving place to artha on the one hand, and soul-buddhi-mind-body meditation on the other?

Discovery of this physical person who has its soul as the base source, mind to think, intellect to rationalize, and the three of them together to meditate in consonance and realize Artha, heart to beat with feeling, body currents to resonate air and produce field of sonorous message – every bit put together is quite a sober and is discovered through deep understanding of man. One does not get at it with skin deep involvement in the affairs of cosmos. It requires a powerful intuition that may afford more of a cosmic anchor in reality.

The sharpness of the intellect conceptualizing the picture and its freshness should suggest that this Shiksha is an early life work of Panini and it precedes both Shivasutras and Sutra Patha- Ashtadhiyayai. In that case, should one hope to conclude that Panini has this vision of human person while he is creation Ashtadhiyayai? My hypothesis is that this is the vision of the real life physical person that Panini talks of 'Karata' in his Ashtadhiyayai.

There are, of course, controversies regarding the authorship of the Shiksha. There are those who reprimand Panini for having it from others and contributing nothing original. To them, having rather hopelessly failed Panini left the field in lurch. This critical wisdom could be valuable to the effect in case it can produce at least one Mr. Original in the known length and breadth of the human civilization of ideas.

Why expecting from others to grow just like trees when you require a mother-teacher even to tell-teach you even the very first entity that you may identify very faintly? What worth is a piece of learnt criticism if it is induced by somebody's copying and publishing abilities that are inflicted on the otherwise orally preserved piece of knowledge? If everybody in the contemporary universe can shift his/her career due to choice or compulsion, why expecting from ancients to freeze in their initial choices?

Then there are those who spread stories that Panini was a dullard in the early days of his life. Dull by whose standards? If he really was, then how come such a delicate and rich in abstract system building person could emerge? After all, the work that Panini did, could not have happened suddenly, and that too because his creative abilities should have got a sudden spell of illumination. To the vision of C-semiology it is possible to see through many stories like this one and discover prejudice active at their core.

Be it as it may, and one is willing to believe without any emotion that Panini learnt, borrowed or adopted even the vision of human person from his intellectual resources, even then it is incredible. Given the good, bad, or whatever records, at least the discovery of Panini's vision of physically living person is possible only if Paniniya Shiksha is received as a part of his work.

With this vision in place, as indicated, the picture of Panini himself and that of his work has the change in a very drastic sense. That is, those who have been reading only automata based theory, and a 'grammar' of a particular language in the work(s) of Panini, will have to revise their position.

Faced with this vision of the physically living human person who produces the resonant sounds that are relevant to the requirement of its Artha-message combinations, the so-called 'grammar' that has been touted as a system unto itself, has to walk into the soul-mind-buddhi-heart-body combine of the physically real and civilized person to begin with. Thereupon this system, given the architecture and the operational wisdom that Panini conceptualized in it, will have to participate in the game of message making. If it does not do that, then it cannot be worth the trouble. Of course, one should not forget the

stipulation that nothing ever goes out of the creation of Panini – even when it does not directly participate in the mental computations, it remains latent in the system.

Undoubtedly, this is a very big conceptual shift that can come about if Paninian scholarship just cares to see his work beyond the limits of the last Sutra /aa/ of Ashtadhiyayai. To be careful, not that this shift will diminish the importance of his work the way it is already known. Much on the contrary, the intellectual shift can open up a hitherto unknown window of within the known picture, and present Panini as a minute preceptor who addresses his inquiry to the artha-message creating ability and facility of civilized person.

To the pursuits of the C-semiological inquiry this discovery of Panini is extremely valuable as it throw fresh light on the work of Panini already known to the tradition of Paninian studies. The C-semiological discovery offered so far should lead someone to more than one simple minded inferences:

- a) That the system of observation, computation, explanation and creation that Panini builds is in tune with the functioning of human consciousness (body, soul, mind, buddhi and heart included);
- b) That the scheme of computation that is formulated by Panini is humanly possible for cognitive processing of the sonorous and conceptual materials;
- c) That the algebraic and the automata subtleties are the near versions of the operational mappings of human mind, and they are not simply production of Panini's fancy for abstract complexities; and
- d) That Ashtadhiyayai is primarily is a text of human possibilities, creative capabilities, and inferential localities that real life individual explores to make messages in real life situations.

One may be careful to realize that all most each of these inferences gains its efficacy only when Paniniya Shiksha is integrated into Sutra Patha-Ashtadhiyayai platform as one of its source texts.

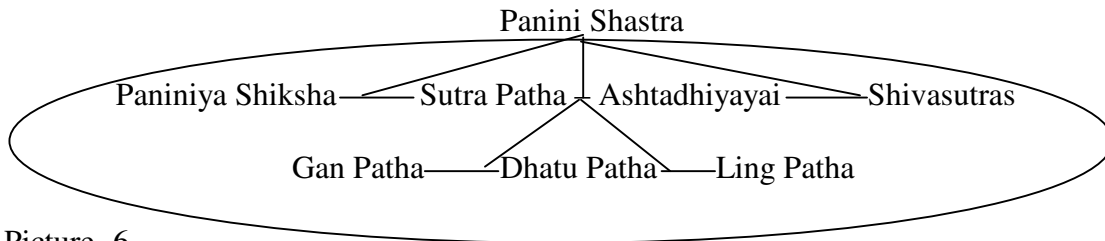
The Panini Shastra Discovered

The Panini that C-semiological inquiry into Indian civilization is looking for is the one who should offer not just his Ashtadhiyayai to the world without even a murmur about the Karata, the Creator whose sovereignty is declared; but should also advise his sympathetic followers as to why is all the trouble. If the line of present inquiry is pursued, then the inferential leaps that it allows may point out that the way out, like in the case of the paradigm cases of inquiry, is to proceed for some kind of paradigm shift that Kuhn (1971) advocated.

Or, to put it from the other end of the issue, if not the tradition, at least a C-semiological inquiry into Panini's contribution should look for the paradigm that the Sage created within the confines of his work.

May be the shift in focus that C-semiological inquiry is engaged in could lead to such a possibility. The primary discovery that this effort may put up is that it could cause an extension to the prevalent equation Panini = Ashtadhiyayai in the contemporary scenario. As suggested in this writing, there is a rich boon that accrues of such an extension, because it not only opens a window into Panini's world view, importantly so it also creates a threshold for a very far reaching conceptual shift in Paninian studies.

To put in the language that is now familiar in my courses on Panini, what one need to discover is that although Ashtadhiyayai is at the centre of the entire contribution of Panini, there is lot more to it. For want of any better expression the contribution as such could be designated as *Panini Shastra*, which has the following architecture in the Picture-6:



Picture- 6

To Conclude

To discover Panini on the suggested lines makes sense as it leads to the discovery of his conceptual attitude, the nature and craft of his theoretical primitives, and above all his world view of the nature of things in the cosmos. There is a shift in focus and in the analytical priorities, especially when this inquiry is viewed with reference to prevalent intuitions in Paninian studies.

For instance, in the face of a very pains taking pursuit where one is struggling to elucidate the authentic statement of Panini in Ashtadhiyayai and looking for the explicatory efficacies for the elementary compositions within the system that he formulated, it is surely a major shift of concern in an inquiry that proposes to look far as to why does Panini do that in the first place. The sustaining hope of this study is that to scan Panini's work through inferential leaps that C-semiology offers could be a helpful intuition.

In one important sense, it is more than just ones personal choice to opt for inferential discoveries and look for the hidden potential and possibilities in a civilization of ideas in general and in the tradition of Panini in particular. It seems the case that a tradition that does not open to unknown possibilities may not serve fresh fruits.

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