

**Course Name: 'Introduction to Pāṇinian Grammar'**  
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**Week:06**  
**Lecture:28**

Welcome. I welcome you all to this lecture in the course Introduction to Pāṇinian grammar. Right now, we are studying the Process of Speech Production described in the Pāṇinian grammatical tradition. And we are studying an important source called Pāṇinīyaśikṣā in which this process of speech production is described in the following manner, "ātmā buddhyā sametyārthān mano yunkte vivakṣayā manaḥ kāyāgnim āhanti sa prerayati mārutaṁ mārutastūraṁ caran mandraṁ janayati svaram sodīrṇo mūrdhnyabhīhato vaktramāpadya mārutaḥ varṇān janayate". We studied this source and we noted down the 8 stages of the process of speech production. They are 'ātmā buddhyā sametyārthān' that is the 1st stage, 'mano yunkte vivakṣayā' is the 2nd, 'manaḥ kāyāgnim āhanti' is the 3rd, 'sa prerayati mārutaṁ' is the 4th, 5th is 'mārutastūraṁ caran mandraṁ janayati svaram', 6th is 'sodīrṇo mūrdhnyabhīhato', 7th is 'vaktramāpadya mārutaḥ' and 'varṇān janayate' is 8th.

Amongst them the first two 'ātmā buddhyā sametyārthān' and 'mano yunkte vivakṣayā', they have been studied in the previous lectures. Now, we shall study all the remaining stages. These two stages were studied in detail because they form the core of this entire process of speech production. In fact, the very 1st stage is also considered to be the cause of this entire process. And therefore, it is justified for us to spend little more time to understand what these stages actually are.

Now, the remaining 6 stages mentioned on this slide they are actual, physical or biological process of speech production that is the description of the biological and physical process. So, we shall study that one by one. Remember that we have already studied these two and the description in these two stages remains as in the background as a backbone.

So, given that these stages are fulfilled now the process of speech production moves ahead in the 3rd stage which is 'manaḥ kāyāgnim āhanti'. What is this? So, 'manaḥ' is 1 slash 1 of manas, kāyāgnim is 2 slash 1 of kāyāgni and āhanti is 3p slash 1 of a plus 'han' to strike. Kāyāgni consists of two words kāyā and agni, kāyā means body, agni means heat and kāyāgni together means the bodily heat. So, now what this means is that the mind strikes the bodily heat. So, the mind is enjoined with the vivakṣā the desire to speak now and now this such a mind will strike the bodily heat. Now, the mind enjoined with the vivakṣā takes the next step and strikes the bodily heat.

The point is that if the mind is enjoined with the vivakṣā then this happens, but if the mind is not enjoined with the vivakṣā, but still the meaning is collected. Now, this process may not happen or

should not happen. So, once the mind is enjoined with the vivakṣā, once it is decided that the collected meaning is to be expressed then so far the process of speech production which remains unmanifest starts becoming manifest, starts becoming physical, starts becoming biological. So, this is the direct effect of the process of the speech production described so far in the cognitive apparatus. The description so far can be considered as preparation for the physical or actual expression of that prepared state. That state will be called the cause whereas; now on this will be the effect in terms of the physical production. Similarly, that stage will be directly proportional to this physical or biological state or stage. The amount of clarity that exists within the earlier cognitive state described before will be proportional to the clarity that exists in this physical state or stage in the process of speech production.

Now, next sa prerayati mārutaṁ, this kāyāgni now saḥ is a pronoun 1 slash 1 of the Sanskrit pronoun 'tad' meaning 'he', referring here to the kāyāgni also referred to in the previous line on the previous stage whereas, kāyāgni means the bodily heat. prerayati is 3p slash 1 of 'pra' as a proverb with 'ri' as the verbal root and prerayati means propels. And mārutaṁ is the 2 slash 1 of māruta meaning the wind. So, what it means eventually is that the bodily heat propels the wind. This wind is the breath that is inhaled and it is propelled in the lungs that is the location; obviously, propelled up. So, the first stage in the physical part of the process of speech production is the previous 3rd stage where manaḥ kāyāgnim āhanti the mind strikes the bodily heat whereas, this bodily heat in its turn propels the wind that is the breath that is inhaled. And this propulsion happens in the lungs. So, lungs is the location for this.

Now, mārutastūraṁ caran mandraṁ janayati svaram, this line consists of following words mārutaḥ is 1 slash 1 meaning the wind, 'tu' is an indeclinable meaning but, urasi is 7 slash 1 of uras meaning chest. So, urasi means in the chest, caran is 1 slash 1 carat meaning moving, mandraṁ is 2 slash 1 of mandra meaning base tone. janayati is 3p slash 1 of 'jani' meaning generates and svaram which is 2 slash 1 of svara meaning sound. All these put together the line means the wind thus propelled by the kāyāgni the bodily heat moving in the chest, generates the base tone sound. This is the beginning of the production of speech sound in this process of speech production.

So, this base tone sound produced in the chest marks the beginning of the further speech sound signals being produced in the oral cavity. So, this is the stage which is happening in the chest where a base tone sound is produced using the breath that is inhaled. After this 'sodīrṇo mūrdhnyabhīhato', this stage happens. In this line there are following words saḥ which is the 1 slash 1 of the pronoun 'tad' he, now here it indicates mārutaḥ the wind. udīrṇaḥ 1 slash 1 of udīrṇa meaning propelled up. mūrdhni is 7 slash 1 of mūrdhan meaning the roof and abhīhataḥ 1 slash 1 of abhīhata meaning struck. What this means is the wind after having generated a base tone sound in the chest, is propelled further up; up the wind pipe and then it strikes the roof of the wind pipe which is linked to the oral cavity.

And then 'vaktramāpadya mārutaḥ', vaktram is 2 slash 1 to the mouth vaktra means mouth, āpadya is derived by adding the suffix 'ya' to the verbal root 'pad' with the proverb a which means having reached. mārutaḥ is 1 slash 1 meaning the wind. So, this stage means this line means having reached the mouth or the oral cavity inside the mouth. In the previous stage this wind is propelled further up by the kāyāgni and then it touches the roof of the wind pipe and from there on it enters the oral cavity from the wind pipe.

This is the next stage and finally the last stage namely 'varṇān janayate'. varṇān is 2 slash 3 of varṇa meaning the sounds and janayati is 3p slash 1 of 'jani' which means to generate. So, janayate means generates. So, in this final stage the final speech production is completed is described. This stage says that the sounds are generated and this is where the process of speech production comes to an end. And the produced sounds they enter the ears of the listener, hearer and then they generate the meaning and convey the signal, convey the meaning load the speaker had put in those sound signals. So, generates the speech sound that seems to be the literal meaning of these words. Who generates? It is the mārutaḥ which generates and; obviously, it is the atma who generates thus going through this particular process the speech sounds. This is what is the process of speech production in a nutshell.

To summarize this entire process we can say that the first two stages are internal cognitive stages. 'ātmā buddhyā sametyārthān' as well as 'mano yunkte vivakṣayā' and they can be called as the cause of this entire process of speech production. Remaining ones starting from 'manaḥ kāyāgnim āhanti' on words up to 'varṇān' janayate, they are the physical or the biological stages. Involving various physical and biological entities like the wind gained through breath, bodily heat, chest, roof of the wind pipe and oral cavity etcetera.

One thing to be noted over here is that throughout this physical or biological process the internal cognitive process holds itself together. That is the backbone of this entire physical process that is in fact, the cause of this physical process. Clarity in that stage the cognitive stage causes clarity in direct proportion in the physical speech production. Confusion in that stage may cause confusion in direct proportion in the physical speech production of that particular individual. Therefore, one needs to take care at the level of cognition to have clarity which will then get reflected in the speech signals that are produced. So, if one wants to improve one's speech one should pay attention primarily to the level of the cognition in which the meanings get collected. If that becomes clear then things will fall in place, they will ensue and clarity will be visible also in the auditory part of the speech. Now, we can also show this entire process diagrammatically in this particular fashion. Here is the arthākāśa and śabdākāśa, the internal world of the speaker which consist of ātma having collected the artha through the buddhi and then enjoining the mind through by vivakṣā.

And then the mind strikes the kāyāgni which then propels the māruta in the uras and then it is propelled further in the vaktra the face or the oral cavity wherein there is some processing done on it and then it generates the sound, but remember all this process that happens in the vaktra or the face or the oral cavity they that is all programmed at this level. And all these stages they are the intermediary stages they are simply carrying forward the programming that happened at this level to this external most stage of the oral cavity which then generates the sound. And this is your audible sound.

So, this is the diagrammatical representation of what is arthākāśa. There are several items which are part of the arthākāśa and this arthākāśa is part of the intellect. Similarly, the same intellectual space is also divided into śabdākāśa. There is arthākāśa and there is śabdākāśa and there are some links between these two. There are these links between arthākāśa and śabdākāśa and they play a crucial role an important role. And it is these arthākāśa parts and the parts of the śabdākāśa then which are also linked to the objects in the world primarily through the arthākāśa. So, objects which are part of arthākāśa they are also linked to the objects in the external world.

And then the words and meanings are associated with the objects in the external world together. The śabdākāśa and the arthākāśa that exists in the intellect they are also interrelated with the objects in the external world, but remember that we are dealing primarily when we deal with the process of speech production with this internal śabdākāśa and arthākāśa and not these external. They cannot be processed, they have to be processed in this fashion, they have to be processed as śabdākāśa and arthākāśa.

The process of speech production and the cognitive stage and vivakṣā also involves the sentence formation, a sentence that gets formed as 'Rāmo grāmaṁ gacchati'. So, here you have Rāma grāma and gam as part of śabdākāśa which is linked with arthākāśa then gets formed in the manner of a sentence right in the śabdākāśa expressing the arthākāśa which can be once again described in this particular manner. So, when the ātma collects the meaning through buddhi he collects the root's meanings and the termination meanings and then this propels the vivakṣā in which the group of roots and terminations which are part of the śabdākāśa are also made part of. And then finally, the manas and kāyāgni etcetera they are also made part of this particular process.

And finally, it comes to the level of vaktra where the series of words or sentences they get produced. So, this is the auditory perception, this is not the auditory perception the intellectual and the cognitive plane works over here as the cause in this particular manner. Similarly, the concept of compatibility, congruity or yogyatā also plays an important role in the śabdākāśa as well as arthākāśa.

So, for example, the word pakṣi is linked with uḍḍi namely to fly and mānava which means a human being is not linked directly with uḍḍi or to fly. So, when we say we fly we know that we are not actually flying. When we say I am flying tomorrow to New Delhi, we know that I am not actually flying like a bird. So, then what is meant here is that I am going to sit in a plane which is inanimate, but it can be flown using some kind of fuel. So in fact, that action is going to happen and what I am referring to when I utter the sentence I am going to fly tomorrow to New Delhi is particularly this reference that I am going to sit in a plane which is going to fly, which is going to be run by an individual which we are going to call as the action of flying.

Similarly, the arthākāśa and śabdākāśa also consist of the polysemous words and meanings which are expressed by different words. For example 'hariḥ śaśakam bhakṣayati' in this sentence hariḥ is a polysemous word because hariḥ stands for a God or a monkey and also a lion whereas, śaśaka means a rabbit and bhakṣayati means to eat. So, hari in as part of the śabdākāśa is linked to several items in the arthākāśa, which creates confusion, which creates ambiguity. And there are mechanisms suggested in the literature the traditional literature as well which indicate the ways in which this ambiguity can be resolved with the way in which the disambiguity is achieved. So, polysemous words are indeed part of the śabdākāśa linked to various parts of the arthākāśa. So, the sentence 'hariḥ śaśakam bhakṣayati', which means a lion eats a rabbit that is clear as far as the arthākāśa of the individual is concerned which undergoes this particular process described just now.

So, to summarize we can say that this process of speech production described now involves the cognitive process and the physical process. And the cognitive process plays a very important role that of a cause of the effect in the form of the physical process. This is what we try to explain in this lecture also through the diagrammatic representation. Now, coming to the close of this lecture we recite as is our practice the maṅgalācaraṇa today it is taken from a very important work of Bhaṭṭojī Dikṣita called Vaiyākaraṇanamatnamajjanakārikā and this maṅgalācaraṇa is "phaṇibhāṣitabhāṣyābdheḥ śabdakaustubha uddhṛtaḥ, tatra nirṇīta evārthaḥ saṁkṣepeṇa kathyate". I repeat, "phaṇibhāṣitabhāṣyābdheḥ śabdakaustubha uddhṛtaḥ, tatra nirṇīta evārthaḥ saṁkṣepeṇa kathyate".

This is from Vaiyākaraṇanamatnamajjanakārikā. And we end today's lecture with the 5 sutras today taken from 4.2. They are 'tena raktam rāgāt', 'lākṣārocanātṭhak', 'nakṣatreṇa yuktaḥ kālaḥ', 'lubaviśeṣe' and 'samjñāyām śravaṇāśvatthābhyām'. I repeat, 'tena raktam rāgāt', 'lākṣārocanātṭhak', 'nakṣatreṇa yuktaḥ kālaḥ', 'lubaviśeṣe' and 'samjñāyām śravaṇāśvatthābhyām'. And now we shall study some specific terminology which describes the features of sounds that are thus produced in the process of speech production in the next lecture. Thank you for your attention.