Panini

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MAKERS OF INDIAN LITERATURE

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Paini : Monograph in English by Saroja Bhate on the ancient Sanskrit Grammarian, Sahitya Akademi, New Delhi (2002), Rs 25

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1. Pānini : Life and Time

Once upon a time there lived a sage called Varṣa He had two disciples, Kātyāyana and Pāṇini While Kātyāyana was very intelligent, Pāṇini was a blockhead. Distressed by this ill-luck, one fine morning, Pāṇini left the gurukula and went far away into the Himalayas. There he practised penance in order to propitiate Lord Śiva. Pleased with his austere penance Lord Śiva appeared before him and granted him the boon of intelligence. The god in his ecstacy performed holy dance and gave birth to fourteen holy Sūtras 'aphorisms' by beating his drum fourteen times. Blessed with intelligence Pāṇini accepted them and returned home Then he composed a grammar of Sanskrit language which became the first and the most perfect grammar that could ever be composed.

This is the story of sage Pānini and his grammar told by Somadeva in his Kāthāsaritsāgara. The same story with some minor changes is found in some other ancient story-books. Jayaratha, the author of Haracaritacintāmaṇi remarks, for instance, at the end of the story, that Lord Śiva thus put an end to the Aindra system of grammar that was in vogue and since then Pānini's grammar became well-known in the world.

In addition to such mythological accounts about Pāṇini's life as described above which articulate the greatness of his grammar·and his indebtedness to Lord Śiva due to whom his dullness was transformed into a genius, a few more tales are found recorded in the accounts of ancient Chinese pilgrims, Hüan Tsang and I tsing. Hüan Tsang has recorded, for instance, a few stories about Pāṇini which were popular in the North-west region of India during his period (A.D. 602 - A.D. 644). We are told that when Hüan Tsang reached a place called So-lo-tu-lu he found that it was a place where sage Paṇini who composed his Ching-minglun (grammar) was born. He was told that since his childhood Pāṇini was well informed about the liguistic behaviour of the people around

him. He wanted to improve the earlier system of grammar which was vague and false. He wandered in search for guidance in this regard. In one of his sojourns he met Īśvara Deva and consulted him on the matter of introducing reforms into the existing grammar. Īśvara Deva gave him proper advice and assured all help. Thus after having met a Guru Pāṇini returned home. After incessant hard work Pāṇini composed a book of letter which contained 1000 *ślokas*. This book was a result of his painstaking, laborious efforts for collecting information from people who spoke the language. It contained everything that could ever be known about speech. Pāṇini then submitted his work to the ruler who was greatly impressed by the work. The ruler then issued an edict throughout his kingdom that Pāṇini's grammar should be studied and taught in every school. The ruler further announced a reward of 1000 pieces of gold for him who studied Pāṇini's work from the beginning to the end. Since then the work had been handed down by masters of great competence to the next generations. For all these centuries Pāṇini was highly respected and statues were erected in his memory. Huan Tsang further tells us how 500 years after the death of Lord Buddha an *arhat* (a learned Buddhist monk) came to So-lo-tu-lu and in a *Stupa* converted a Pāṇini scholar into Buddhism.

In addition to this information about Pāṇini's great popularity told by Hsuan Tsang in his Records, we get an account in his biography of how Hüan Tsang studied Sanskrit. Here it is told that Huan Tsang studied Sanskrit grammar at Nalanda. About Pāṇini's grammar he was told that Pāṇini received the Sanskrit grammar from *Śakra* who had received it from Brahma and that Pāṇini reduced the size of Sakra's grammar which contained 10,000 *ślokas* to 8000 *ślokas*. A detailed description of his grammar as containing inflexion, *subanta, tinanta, ātmanepada* etc. is also given in the biography.

Another Chinese pilgrim, I Tsing, describes, in his Record of Buddhist Practices sent home from the southern sea, the method of learning in the west (i.e. in India) during A.D. 691 - A.D. 692. He tells us that during that period children used to begin study of Pāṇini's

grammar at the age of eight and repeated it for eight months.

The Chinese accounts as mentioned above project Pāṇini as a personality in a manner exactly opposite to the mythological account For them Pāṇini was not a dullard turned into a genius. On the contrary he was sharpwitted since his childhood The Sanskrit grammar claimed by him was not a God sent gift but was, rather, a result of his hard toil He collected linguistic data through an extensive search and minute observation of linguistic behaviour There is again no consistency regarding Pāṇini's relation with Indra (Śakra) as far as the mythological and the Chinese accounts are concerned. According to the former, Pāṇini owed his knowledge of grammar to Lord Śiva and his grammar eventually eclipsed the grammatical system of Indra that was in vogue then, while according to the latter, the grammar composed by Indra was handed down to Pāṇini who abridged it to a considerable extent. Since both Indra and Śiva are mythological figures we need not dwell upon these stories any more Yet we should not close our eyes to the historical facts reflected in these stories such as, for instance, that Pāṇini was a reformist and he did not compose a totally new grammar but revised the earlier grammar traditionally handed down to him mainly from the point of view of bringing precision and perfection. Even a cursory glance at his grammar is enough to prove these facts. Similarly, we should not be surprised if Pāṇini was worshipped as a deity and statues were erected in his memory during ancient period, because any casual reader of Sanskrit literature can feel the influence of Pāṇini and his grammar throughout the literature through all these countries. It has been correctly acknowledged by tradition that the Sanskrit language that nurtured the classical Sanskrit literature owes its purity and immaculateness to Pāṇini's grammar. The fact that this grammar continues to be an essential part of curriculum in traditional pāṭhaśālās today is an enough evidence to prove the great respect and high popularity enjoyed by Pāṇini and his grammar from ancient times till today

We do not receive further information on Pāṇini's life and time than what is stated above From stray references to his names such as

Dākṣīputra, Sālāturiya, and Pāṇini we may conclude that his mother was Dākṣi, his father was Paṇi or Pāṇin (scholars are at variance on this issue) and he belonged to a place called Śalātura which is identified by modern scholars with Lahur, a village now in Pakistan. After enquiring about the present monument of Pāṇini in Pakistan following reply is received from an archaeologist :

"The birth place of Pāṇini is at the present village of Lahur about 5 k.m. south of District town of Swabi. The present village has shifted to the main road that goes from Jahangira to Swabi. The old village was 3 k.m. west of the main road where formerly there was a big mound of ancient time. But unfortunately in the recent years the mound has been levelled down. However, there is a village nearby which is even now known as Panai. On last Friday dated May 19, 1995 I took a group of visitors to this site and this group has recommended to the local authorities to erect a memorial with the name of Pāṇini. His name is well-known in the region and the people are proud of this great scholar. So far there has been no postage stamp issued bearing a picture of Pāṇini However, the Government of Pakistan has planned to revive the old University at Taxila. In that University, we are hoping to establish an Institute of languages and linguistics and give it the name of Pāṇini Institute.[1]

In the absence of any concrete external evidence it is difficult to decide the exact date when Pāṇini lived. However, from the nature of the language he described, which is closer to the Vedic language, from his references to the Vedic literature with all its broad divisions it is concluded that he belonged to the period between 5th and 4th century B.C. This is the generally accepted opinion about his date.

Although tradition does not furnish us with any other detail about Pāṇini's life and family, a tale woven around a reference in Pāṇini to a verse is told that he met with a tragic death when he was attacked by a lion while he was contemplating the last Sūtra of his grammar ('a a')[2]. The phrasing of the rule 'a a' might have inspired the tale. Yet it reflects the character of the great grammarian who was always deeply engrossed in the thought about language and grammar to the extent of

being totally forgetful about the surroundings.

This is all we know about Pāṇini, his life and time.

1. From the letter received from Prof. Dr. A. H. Dani, advisor on archaeology, Government of Pakistan, Ministry of Culture, Sports and Tourism, dated May 21, 1995. I express my indebtedness to Prof. Dani for sending this information to me.

2. The verse of unknown authorship appears in the Pancatantra. The first line runs as follows : सिंहो व्याकरणस्य कर्तुरहरत् प्राणान् मुनेः पाणिनेः "The lion carried away the life of Sage Pāṇini the author of grammar."

2. Pāṇini's Grammar of Sanskrit : An Overview

Tradition ascribes to the name *Pāṇini* (P) the following books : अष्टाध्यायी, धातुपाठ, गणपाठ, पाणिनीयाशिक्षा and जाम्बवतीविजय.

All of these works except the last are grammatical works. The last work is a drama. We do not know much about this work. We will try to understand P as a grammarian in the light of the works mentioned above.

P's grammar of Sanskrit is acclaimed by linguists all over the world as the oldest and at the same time the most perfect model of a grammar. While L. Bloomfield describes it as "one of the greatest monuments of human intelligence", - P Thieme is impressed by P's "prodigious sagacity" and his "ingenious intuition the splendor of which millennia could not tarnish." It is no wonder that P is worshipped with respect and is referred to as *Bhagavān* 'His Holiness' in Indian tradition. What is so unique, so gorgeous about his grammar that has fetched great admiration for P? In the following pages we will try to acquaint ourselves with the special features of P's grammar. Let us begin with a broad overview :

In Sanskrit *Vyākaraṇa* is a term for grammar. Literally *Vyākaraṇa* means separation or analysis. The *Vyākaraṇa* of Sanskrit is therefore an exposition of the Sanskrit language through analysis. Analysis is, in fact, a characteristic of any grammar in general. A grammar of a language is an enquiry into the structure of that language with a view to discovering the rules behind the regular patterns of linguistic behaviour which accord the language the status of a valid means of communication. The grammatical method consists essentially in analyzing a language into its components, defining the relations among them and describing the whole linguistic structure in terms of meaningful combinations of these components.

Sanskrit is described in modern linguistic terminology as an

inflecting language. An inflecting language is a language with inflection as the main process which explains its structure. Inflection consists in the process of combining the basic linguistic units into word-forms found in the usage. The grammar of an inflecting language has, therefore, to be analytical and inflectional in character. So is P's grammar of Sanskrit. It provides the analysis of the language to the extent possible. P is indeed the first grammarian to go deeper into the conventional speech units known as words and recognise the basic elements of meaning which combine into different meaningful units. Thus, his Vyākaraṇa contains not only an analysis of speech units into their ultimate constituents but also lays down rules of their combinations leading to a variety of linguistic expressions. The variegated wealth of linguistic expressions which appears to an ordinary person as a crowd of words is reduced to a few regular patterns of linguistic behaviour by P through his analytical procedure. We will see later how P has achieved this. It is enough in the present context to take note of this most striking feature of P's grammar which has rendered it a perfect match of Sanskrit The absolute union of P's grammar with Sanskrit has resulted in a confusion in the mind of linguists who have failed to decide whether it is the extraordinarily perfect structure of Sanskrit that is perspicuously reflected in his exposition or it is his unparalleled method of analysis which has gifted Sanskrit with the structure which is so consummate. Indeed, Sanskrit and P's grammar are made for each other. This marvellous feature of P's grammar is the first among the factors that have won him the fame of the greatest grammarian of the world.

It may also be noted in this context that P has provided a model of grammar not only for Sanskrit but also for other classical languages like Pali and Prakrit as well as for Indian languages like Kannada, Tamil and Marathi and even a non-Indian language like Persian. A look into the history of Indian grammatical literature further reveals that quite a few grammatical schools other than the school of Pāṇini·arose in the course of time. However, almost all of them are nothing but imitations of P's grammar.

Now, let us try to understand how the Pāṇinian grammar describes the Sanskrit language. The first thing that strikes a student of grammar is that P's grammar is descriptive and not prescriptive. It describes how language is used and not how it should be used. P's grammatical approach can be described in modern linguistic terminology as structural or generative approach He describes language in terms of its structure. His method of describing the structure is generative. He shows how larger linguistic units are built up from smaller linguistic elements. His grammar is therefore a derivational grammar. The Pāṇinian model of grammar can be compared to a machine of which the basic linguistic elements, namely the bases and affixes are the input and the words and sentences which are found in the usage are the output. Let us see with the help of an illustration how words are derived from smaller units.

The Sanskrit sentence राम फल खादति 'Rama eats a fruit' is, when seen through the Pāṇinian window, a sequence of base-affix pairs as follows :

राम + स् + फल + अम् + खाद् + ति

While राम and खाद् are bases, स्, अम् and ति are affixes. P's grammar further provides a mechanism for building word-forms from these pairs. Thus

राम + स् → राम + र् → रामः

फल + अम् → फलम् → फलम्

खाद + ति → खाद् + अ + ति → खादति

The break-up of the words shown above is not arbitrary or ad-hoc in character as it appears to be. The bases and affixes are identified after a close scrutiny of the whole linguistic data. Further, they are not mere sounds or soundgroups. Each one of them is invested with some meaning. While the meanings of राम and खाद् are common and wellknown (from the lexicon), the meanings of the affixes are grammatical rather than ontological in nature. For instance, the affix स् conveys singularity. The affix अम् conveys the grammatical category of an 'object' in addition to

singularity. A grammatical object is that which is directly connected with the action conveyed by the verb in a sentence. In the Pāṇinian tradition it is described as that in which the result of the action resides. In the present case the result of the act of eating (खादति) resides in फल. This feature of फल is indicated by अम्. The meaning of the verbal affix ति is more complex. It conveys, in addition to singularity, present tense and the grammatical 'subject' i.e. the one who performs the action. That राम is the agent or subject of the act of eating is conveyed by the verbal affix ति. Although it appears strange since the agenthood of राम is expressed by an affix added to the verbal root खाद्, this analysis works quite well for the linguistic analysis as will be shown later.

The Pāṇinian breakup of the sentence रामः फल खादति as described above is, thus, not a mere string of grammatical units. Each one of them has a meaning and is meaningfully connected with its neighbour. It is also clear from the above illustration that word-forms रामः, फल and खादति are derived from their respective word-elements not in isolation but in mutual connection with each other. Through the verbal affix ति, राम is connected with the verbal base खाद्, whereas फल is also connected with the verbal base through the affix अम् which shows its relation with the verb खादति as an object or a location of the result of the action. P's grammar is thus a derivational grammar which derives strings of words mutually connected through meaning. Each and every word is derived not separately but in a meaningful relation with another word.

Compare the following figures of Pāṇini machine A and B:

(Fig. A)

Input	Machine	Output

| राम, ग्राम, फल्, गम्, पत् | राम + स्, ग्राम + अम्, फल + अम्, गम् + ति, पत् + ति | राम, ग्रामम्, फलम्, गच्छति, पतति |

(Fig. B)

Input	Machine	Output

| राम, ग्राम, फल, गम्, पत् | राम + स्, ग्राम + अम्, गम् + ति | रामः ग्रामं गच्छति |
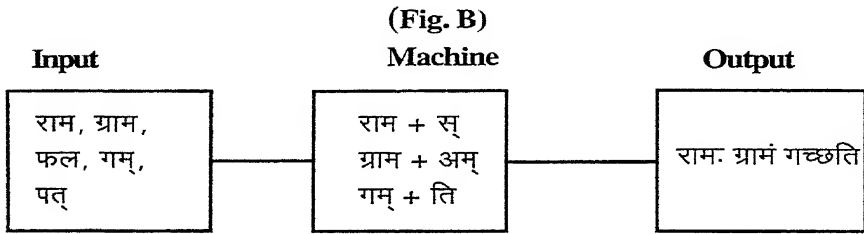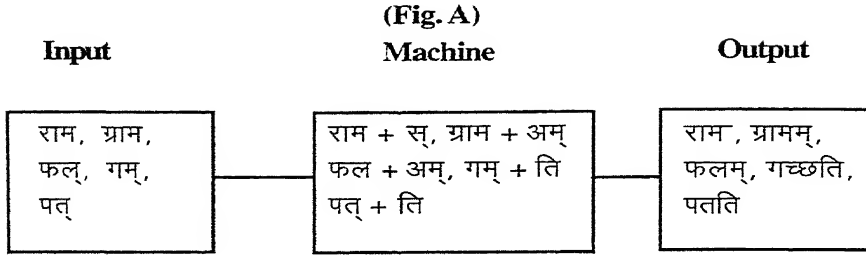
If we compare the two figures we find that the figure A shows only words as finished products of the P. machine whereas Figure B shows a sentence as the finished product. Figure B is a correct representation of P. machine. Whereas figure A represents the view of some. We will come to this point later. This is how P's grammar deals with Sanskrit in general.

3. The Form of Pāṇini's Grammar

1. *Sūtra* Style :

After taking a brief overview of P's grammar, let us now turn to the grammar itself in order to understand how it is formed The traditional name for P's grammar is *Aṣṭādhyāyī* which means 'a collection of eight chapters'. This is in consonance with the ancient practice of naming books after their form or structure. *Aṣṭādhyāyī* (A.) appears as the name of P's grammar for the first time in the ancient grammatical treatise called *Vyākaraṇamahābhāṣya,* a commentary on P's grammar by Patañjali presumably belonging to the second century B.C. No other name of the grammar is handed down in the tradition. The grammar is thus, as suggested by its name, divided into eight chapters and each chapter is further divided into four *Pādas,* (quarters or sections). Each *pāda* consists of a series of grammatical statements connected with each other. Each of these statements is called *sūtra.* The term *sūtra* literally meaning 'a thread' stands for a genre of literature peculiar to Sanskrit. It is a style of composition which consists essentially in presenting a certain thought in the most succint manner. When ideas or observations about a certain phenomenon are formulated in the shortest possible statements which are further strewn together as if in a thread, such composition is known as *sūtra.* The term *sūtra* is, in fact, conventionally used to convey both, a short statement and a string of such short statements. Tradition defines a *sūtra* meaning a short statement as follows :

अल्पाक्षरमसन्दिग्धं सारवद् विश्वतोमुखम् ।

अस्तोभमनवद्यं च सूत्रं सूत्रविदो विदुः ।।

"The experts of *sūtra* understand by the term *sūtra* an expression which consists of very few letters and yet is free from ambiguity, which

contains the essence (of a thought) and is omnidirectional, which is devoid of meaningless sounds and is pure."

It is, indeed, a difficult task to compress a certain matter in to the most pithy expression and, at the same time, to make it comprehensive and omnidirectional, as the above definition says. It was, however, the need of the ancient time when, due to the lack of script and writing material, all knowledge was to be committed to memory. The *Sūtra* style arose out of this necessity to relieve strain on memory and the ancient Indian thinkers who accepted the challenge successfully composed epitomes of their respective disciplines. The first to appear in the series of the *sūtra* works were the *Śrauta sūtras* or the ritual texts which were composed in the later Vedic period. The *sūtra* mode of composition which was thus already in practice came handy for P who developed it into a more sophisticated form and gave it a perfection which has been regarded as his unique contribution to the theory of metalanguage. A Pāṇinian *sūtra* is regarded as a perfect model which exemplifies the genre of *sūtra*. *Sūtra* is thus a name for both, the A as a whole and each individual statement therein. The A is a *sūtra* in the sense that it is a string of grammatical statements woven together. Total number of the *sūtras* according to tradition is 3995. Its division into eight chapters and subsequently into 32 sections is artificial rather than original and is introduced probably by P's followers for the convenience of their study.

It is clear that P has not intended this division since he does not announce either the beginning or the end of any chapter. For him it is intended as a string of 3995 *sūtras*. Therefore it can be said that neither the name 'Aṣṭādhyāyī' nor the division originate from P. His grammar is thus for him a *sūtra* in the true sense of the term.

2. A Mnemonic Model :

For an ordinary student of Sanskrit the A presents a formidable appearance. Although written in Sanskrit, the text of the A hardly makes any sense to any one who claims proficiency in Sanskrit. For its metalanguage which is essentially Sanskrit deviates from the Sanskrit

language not only in its technical terminology which is peculiar to the science of grammar but also in syntax. Further, the metalanguage goes nearer to what we may call code-language because of the copious use of symbolic code words. We will look into the details of these features of P's metalanguage at a later stage. These features are responsible for the enigmatic form of the A. It is because of this strange appearance of the grammar that the very first encounter of a student with this grammar is an unsavoury experience Sir William Jones is reported to have called P's *sūtras* 'dark as the darkest oracle'. Let us experiment with the very first *sūtra* of the A.

P I.1.1 : वृद्धिरादैच् ।

This *sūtra* is totally unintelligible to any student with whatever amount of knowledge of Sanskrit language he possesses unless he is able to crack the hard nut, namely, आदैच्. आत् and ऐच् are codewords standing for the vowels आ, and ऐ as well as औ respectively. In order to understand the *sūtra* a student is required to be acquainted with the decoding mechanism and the decoding mechanism is inbuilt with the system of P's grammar. In other words, the above *sūtras* presupposes knowledge of some other *sūtras* in the A. What is true of this rule is true of any other rule in the A. It may be therefore said, paradoxical as it may appear, that any rule in the A presupposes knowledge of the rest of the A. This interdependence of the *sūtras* in the A makes impossible a gradual understanding of the A. It is therefore evident that the A can make sense only to those students who have a previous training in its technique and method of description. It is believed by some scholars that P's *sūtras* were accompanied by his own commentary which was lost in the course of time.

The form of the A is thus not that of a students' textbook on Sanskrit grammar but that of a highly sophisticated digest meant for those alone who are proficient not only in Sanskrit language but also in its grammar. It is meant for experts rather than beginners. The basic aim of the A is to recapitulate essentials of Sanskrit grammar and to present

them in the most succinct form in order to facilitate memorization rather than to teach Sanskrit grammar in a simple, easy manner. Although the Aṣṭādhyāyī was, and still continues to be, used as a textbook of Sanskrit grammar in traditional schools, P has presented it as a mnemonic rather than a pedagogic model.

3. Basic Components of the *Sūtras* :

Each *sūtra* in the A consists of, in general, two or some times three items, say, *a*, *b* and *c*. While *a* roughly corresponds with a subject and *b* with a predicate, *c* stands for the situation or environment in which *b* is predicated for *a*. Each *sūtra* is a statement about a grammatical fact and can be reduced to the following formula :

$a \rightarrow b \ (c)$

(a is or becomes b in the environment c)

(where '$\rightarrow$' ' stands for 'is' or 'becomes' and ( ) stands for environment.) The most outstanding feature of a *sūtra* is the absence of verb. The verb अस्ति 'is' or भवति 'becomes' is understood as a part of the predicate in every *sūtra*. The first *sūtra* of the A cited above can be restated as :

P. I.1.1 : वृद्धिरादैच् भवति।

आ, ऐ, and औ are (called) वृद्धि

Similarly,

P. II.4.42 : हनो वध लिङि can be restated as हनो वध लिङि भवति। (हन् becomes वध in the situation लिङ् i.e. the root is हन् replaced by वध in the optative mood).

Whereas the items *a* and *b* are present in the former example, in the letter all the three, namely, *a* (हनः), *b* (वध) and *c* (लिङि) are present. The items *a* and *b* are obligatory members of a *sūtra*, while *c* makes an occasional appearance.

It will also be clear from the above two examples that the order of the three items is not fixed. In P I.1.1 *b*(वृद्धि) precedes *a* (आदैच्) while in P. II 4.42 *a* precedes *b*. Usually however, *a* precedes *b*.

P's *sūtras* are thus, with the exception of a few *sūtras*, verbless sentences. He has reduced all verbal statements to nominal sentences where the verb अस्ति or भवति is understood. One or two more examples may throw light on P's penchant for nominal style :

P. I.1.9 : तस्य लोपः (भवति) ।

Its elision (takes place)

It was possible for P to use a verbal construction

सः लुप्यते ।

'It is elided'

Similarly,

P. I.2.64 : सरूपाणाम् एकशेष एकविभक्तौ ।

'There is one single remainder for all items having the same form before the same case ending.'

Here also it was possible for P to state

सरूपाणाम् एकः शिष्यते एकविभक्तौ ।

'one among those having the same form remains before the same case ending.' In both the cases above P prefers the nominal form शेषः to the verbal expression शिष्यते.

Nominal style is thus the most striking feature of a Pāṇinian *sūtra*. In some rules, however, P does mention a verb :

P.6.3.137: अन्येषामपि दृश्यते (दीर्घः) ।

'(Lengthening) is seen also in other cases.'

In the above rule P records the possibility of the grammatical phenomenon of lengthening in cases other than those listed by him. After

having listed the linguistic expressions where the final vowel of word is lengthened (P.VI.3.115 to 136) P makes a general statement of the above type in order to account for the cases not listed by him. Sweeping remarks of this type are, however, a rare phenomenon in his grammar.

4. Ellipsis : अनुवृत्ति

Another prominent feature of the Pāṇinian *sūtra* style is ellipsis. Ellipsis as a feature of the Pāṇinian *sūtra* style consists in the omission of that word or words which could be borrowed from the previous *sūtra*. Almost all *sūtras* in the A are elliptical sentences. Although ellipsis is a common feature of spoken language in general, it becomes a mechanical notation in P's grammar and is based on scientific accuracy. In order to understand the device of ellipsis let us first try to understand how ellipsis works in ordinary spoken language. Here is a piece of conversation between two children talking to their father :

A : Father, please bring me a red ballpen.

B : And blue for me, father.

Ellipsis in the sentence uttered by B can be removed by supplying necessary words from the previous context and completing the sentence as follows :

and (please bring a) blue (ballpen) for me, father.

It is clear from the above example that an elliptical sentence is made a complete sentence by borrowing required words from the previous context. P has ingeniously made use of this ordinary feature of spoken language and has transformed it into a highly technical appliance. This appliance is called अनुवृत्ति in the Pāṇinian system. Although P has not explicitly laid down the principles of अनुवृत्ति or continuation of words from previous context in subsequent rules, a close scrutiny of all the *sūtras* reveals them. Recently, they have been discovered and collected in to the form of a book. These principles work methodically and consistently throughout the A. The most fundamental rule of अनुवृत्ति is

as follows :

Each and every word in a *sūtra* is continued in the subsequent *sūtra*(s) unless it is blocked by an incompatible word.

In ordinary spoken language only those words are borrowed in elliptical sentences from the previous context which are essential for making a complete sentence. In P's grammar however, अनुवृत्ति functions as an obligatory rule. Let us take a small section of rules in the A and try to find out how the principle of अनुवृत्ति works :

P.7.3.101 : अतो दीर्घो यञि (सार्वधातुके अङ्गस्य भवति) ।

Lengthening of the final अ vowel of a stem takes place before a सार्वधातुक suffix beginning with semivowel ञ् or भ्

P.7.3.102 : सुपि च (अतो दीर्घो यञि अङ्गस्य भवति) ।

Lenghtening also of the final अ vowel of a stem takes place before a case ending beginning with a semivowel or ञ् or भ्.

P.7.3.103 : बहुवचने झलि एत् (अतः सुपि भवति) ।

The vowel ए replaces the final vowel of a stem before a plural case ending beginning with a consonant.

In P.7.3.101 the words अङ्गस्य and सार्वधातुके are continued from the previous context. Though all the three components, *a* (अतः), *b* (दीर्घ) and *c* (यजि) are present in the rule to form a complete sentence (अ is lengthened before a semivowel or ञ् or भ्), these words are continued because of the fundamental rule of अनुवृत्ति. The words अङ्गस्य and सार्वधातुके stand as substantives for the adjectives अतः and यञि respectively. In other words, they are compatible with the words in the *sūtra*. Compatibility is thus the eligibility of a word for the अनुवृत्ति . In P.7.3.102 the component *c* alone is present. In that rule the whole preceding rule अतो दीर्घो यञि is अनुवृत्त in addition to the word अङ्गस्य which is continued from a still earlier context. The word यञि stands as an adjective for the word सुपि and both the words together mean 'before a case-ending beginning with a semivowel or ञ् or भु. In this rule the word सार्वधातुके in not continued,

because it is not compatible with सुपि. While सुप् denotes case endings, सार्वधातुक denotes verbal endings. In other words, any component having the value of a substantive does continue in the subsequent rules until a rule mentions a new substantive. An adjective does, however, continue as long as it is compatible with the new substantive and as long as it is not blocked by another adjective. Thus in P.7.3.103 the new adjective झलि (before any consonant) blocks the अनुवृत्ति of यञि (before a semivowel or श् or म्)

Similarly, the component *b* (दीर्घः) which is continued from P.7.3.101 into 102 does not further continue in 103, because 103 mentions a new predicate, namely, एत् (i.e. the vowel ए).

The functioning of the basic principle of अनुवृत्ति as described with the help of the above example shows how mechanical and methodical the procedure of अनुवृत्ति is. If we go deeper into the text of the A., we find that it is, indeed, very intricate and mathematical in character. However, we abstain from doing so for the present.

We have seen so far how the text of the A. as well as the individual rules therein are formed. The external form of the A. indeed looks quite unintelligible. True, it is not intelligible to those who do not possess the key to understand it. Once the key to the decoding mechanism is obtained, there is nothing incomprehensible. That is why P's grammar is described as व्याघ्रमुखी गौः 'a cow with the face of a tiger' After having a glance at its outer structure, let us now go to the interior.
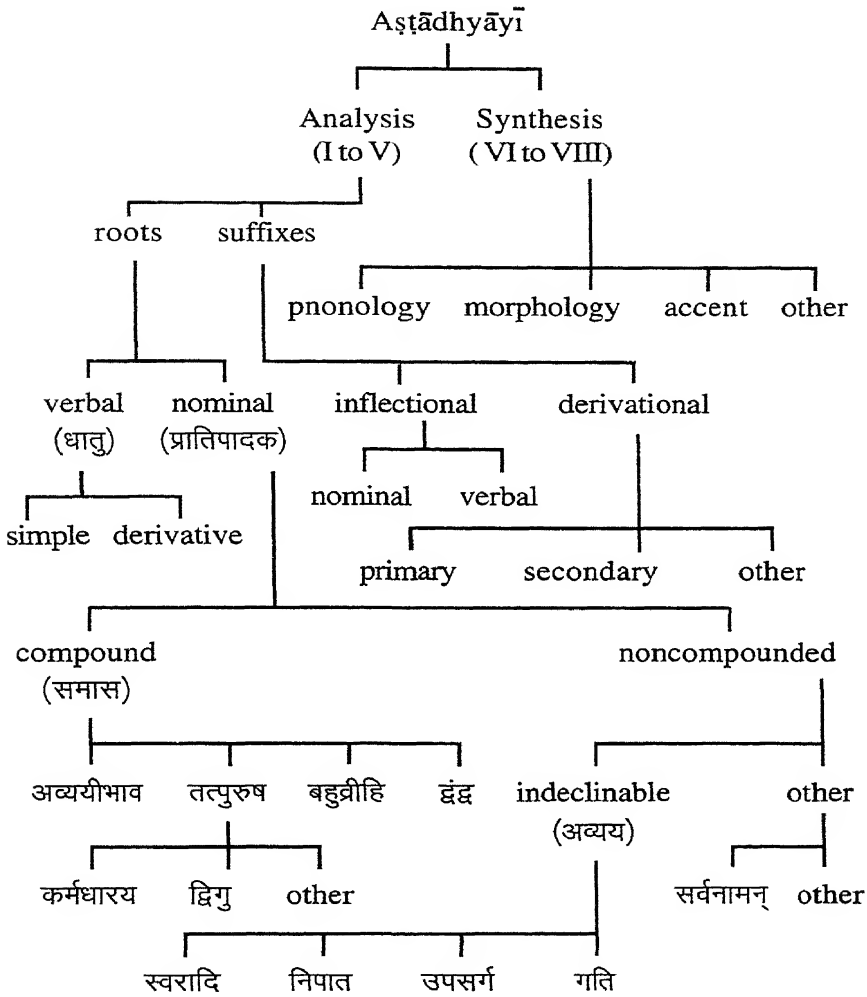
4. Subject-matter and its Arrangement in the Aṣṭādhyāyī

Since P does not provide a table of contents at the beginning of his grammar, his grammar becomes unintelligible to a general reader. However, a close scrutiny enables a Pāṇinian student to extract the main topics and their arrangement. We have seen that P's grammar is a derivational model. With Śabdānuśāsana 'instruction into word-forms' as the main aim P. has arranged his subject matter on the binary principle consisting of analysis and synthesis. The first part of his grammar gives analysis of the linguistic matter into basic linguistic units. It consist of an inventory of the archetypal linguistic units. The second part which deals with the synthesis of these units consists of a mechanism which combines these units into different word-forms.

According to P's grammar two building-blocks that lie at the foundation of the linguistic superstructure are the root and the suffix. Both the categories are further subdivided. The root is broadly divided into two categories : verbal root, called धातु and the nominal root called प्रातिपदिक. Similarly, the suffix is divided into two categories, namely, derivational and inflectional. These are again subdivided into diverse subcategories. The inflectional suffixes are, for example, classified into two sets called सुप् and तिङ्. The former set consists of declensional endings, whereas the latter stands for conjugational suffixes. The verbal roots are of two types, primary and derivative. A complete inventory of the former exists as a separate appendix to P's grammar, called धातुपाठ. The धातुपाठ contains about 2000 Sanskrit धातुs which are grouped into ten classes on the basis of the formation of the verbal stem. For instance, root वद् 'to speak' belongs to the first class, because it forms its stem as वद by the addition of the suffix अ, while the root कुप् 'to be angry' belongs to the fourth class, because it forms it stem as कुप्य by the addition of the suffix य.

Derivative roots are formed by adding various suffixes in various meanings either to roots or to nouns. For instance, the root पुत्रीय 'to desire a son for oneself' is a derivative root from the nominal root पुत्र 'a son' by adding the suffix य, while the derivative root चिकीर्ष 'to desire to do' is derived from the simple root कृ 'to do' by adding the suffix स. Although P has not given a complete lexicon of nominal stems as he has done for verbal roots, he has partly listed them under different categories. For example, indeclinables called अव्यय form a category of nominal roots and are further subdivided into subcategories like निपात (preposition), उपसर्ग (prefix), गति (prefix) etc. P has given exhaustive lists of all these categories. He has also enumerated all pronouns (सर्वनामन्). Further, several subgroups of nominal roots belonging to the general category called प्रातिपदिक are mentioned by him for different grammatical purposes. All these lists appear in a text called गणपाठ which also is traditionally ascribed to P and forms an appendix of his grammar.

P's description and analysis of the suffixes is equally elaborate and exhaustive. The derivational suffixes are used to build two types of derivatives : primary and secondary. The former, known as कृदन्त are derived by adding कृत् suffixes to verbal roots, whereas the latter known as तद्धितान्त are derived by adding तद्धित suffixes to nominal stems. The word form गत्वा 'having gone' is, for instance, a कृदन्त derived from root गम् 'to go' by adding the कृत् suffix त्वा. The word-form दाशरथिः 'a descendant of दशरथ' is derived from the nominal root दशरथ with the addition of the secondary suffix इ. More complex word-forms such as compounds are derived by a two-tier process. For example, the compound word राजपुत्रः 'a king's son' is derived first from two nominal roots राजन् and पुत्र and subsequently by adding the inflectional suffix. It must be noted that the starting point of the formation of all the word-forms is the root-suffix diode. Every word-formation which thus begins with the process of (root + suffix), further involves different processes such as substitution, elision, modification and euphonic combination. All these processes are described in the synthetic component of P's grammar.

Aṣṭādhyāyī

Analysis (I to V) Synthesis (VI to VIII)

roots suffixes

pnonology morphology accent other

verbal (धातु) nominal (प्रातिपादक) inflectional derivational

simple derivative

nominal verbal

primary secondary other

compound (समास) noncompounded

अव्ययीभाव तत्पुरुष बहुव्रीहि द्वंद्व indeclinable (अव्यय) other

कर्मधारय द्विगु other सर्वनामन् other

स्वरादि निपात उपसर्ग गति

The above chart shows the subject-matter and its broad distribution in the A.

P has thus identified all possible word-forms that appear in a sentence in Sanskrit. It is further interesting to note that none of the word-forms is derived in isolation i.e. without its connection with other items in a sentence. The inflectional derivation which is the final stage in each word takes place only after ascertaining the role of the word-form in a

certain sentence. This point will be made clear in the next chapter. Here it is enough to observe that P's शब्दानुशासन is virtually a वाक्यानुशासन.

The above diagram thus shows P's analytical and hierarchical approach which overrules the thematic principle. We have already seen that brevity being P's main concern he has given prime importance to the principle of अनुवृत्ति while arranging the subject matter. He has, therefore, brought together rules belonging to different topics whenever they share a common content and thus enable him to save some words. The thematic arrangement thus lies concealed behind the arrangement based on the principle of अनुवृत्ति. For instance, P. has put together both nominal and verbal derivations while dealing with the morphophonemic phenomenon called वृद्धि (which may be roughly described as lengthening of a short vowel) in order to achieve economy. The word वृद्धिः which is mentioned in P.7.02.114 in the context of verbal derivation continues not only across the second पाद into the third पाद but also covers both secondary derivatives and compounds. It is further clear from this illustration that the division of the chapters of the A. into पाद does not necessarily coincide with the division of topics. Although on the whole a पाद opens with a new topic and a topic ends with a पाद, the division into पाद does not always follow the thematic principle. At a few places a topic continues not only in the next पाद but also across the chapter. The topic 'प्रत्यय' (suffix) for instance continues from the third chapter across in to the fourth and the fifth chapters. Similarly, the topic 'दीर्घः' (long vowel) continues from P.6.3.111 upto P.6.4.18.

This takes us to another interesting feature of the arrangement of the subject-matter. Although P has not explicitly provided a table of contents, it is implicit in his grammar. A closer look at the A. reveals that P has grouped rules under different topics and his given a section heading to each group. If we put these section headings together we may .arrive at the *Pāṇinian* table of contents. The section-headings, traditionally called अधिकार consist of a word such as तद्धिताः, उदात्तः etc. or phrases such as समर्थानां प्रथमाद् वा ('after the first among the semantically connected words'). The अधिकार does not necessarily mention the topic

which forms the predicate alone of P's rules, but also contains other topics such as conditioning factor, the preceding unit etc.

A word or a phrase which is shared by a group of rules is put as the heading or अधिकार and is continued in the subsequent rules by अनुवृत्ति. The word 'topic' therefore means, in this context, a common denominator of the contents of a certain group of rules. It may be a predicate topic such as समास (compound), प्रत्यय (suffix), or it may be the subject of the rules in a certain group such as धातु. For example, the अधिकार "धातोः" (P.3.1.91) is a topic which governs 540 rules all of which prescribe various suffixes to a धातु. Here the suffix is predicated in the rules while धातु forms the subject of the statements made by the rules. The whole of the A can thus be divided into 55 sections on the basis of different अधिकारs. A chart given below illustrates P's arrangement of the subject-matter of his grammar. A casual glance at this chart confirms the earlier observation that both the subject-matter and its arrangement are governed by the dictates to अनुवृत्ति.

To sum up : P has not composed his grammar strictly in a topic-wise arrangement although he has chosen the thematic frame as the basis. Eventhough he has not provided a table of contents, nor has he always announced the grammatical topics he is dealing with, he has tacitly provided the subject-matter by announcing अधिकारs at the top of different sections. A unique feature of these अधिकारs is that they do not always convey the predicate but mention that item which is shared by all rules in group.

A chart showing the division of A into sections based on the अधिकार : (only 30 prominent अधिकार are mentioned out of 55).

1. आत्मनेपदम् I.3.12

2. एका सञ्ज्ञा I.4 1

3. प्राक्कडारात् समासः II.1.3

4. अनभिहिते II.3.1

5. एकवचनम् II.4.1

6. आर्धधातुके II.4.35

7. प्रत्ययः III.1.1

8. धातोः III.1.91

9. कृत्याः III.1.95

10. भावे III.3.18

11. अकर्तरि च कारके
    सञ्ज्ञायाम् III.3.19

12. स्त्रिया क्तिन् III.3.94

13. नपुंसके भावे क्तः III.3.114

14. धातुसम्बन्धे प्रत्ययाः III.4.1

15. लस्य III.4.77

16. ङ्याप्प्रातिपदिकात् IV.1.1

17. अनुपसर्जनात् IV.1 14

18. तद्धिता IV.1.76

19. समासान्ताः V.4.68

20. संहितायाम् VI.1.72

21. प्रकृत्यान्तःपादम् VI.1.115

22. आदिः उदात्तः VI.2.64

23. अन्तः उदात्तः VI.2.92

24. अलुगुत्तरपदे VI.3.1

25. संहितायाम् VI.3.114

26. अङ्गस्य VI.4.1

27. आर्धधातुके VI.4.46

28. उत्तरपदस्य VI.3.11

29. सर्वस्य द्वे VIII.1.1

30. संहितायाम् VIII.2.108

5. Pāṇini's Descriptive Technique

After having a glance at what P does let us now have a look at how he does it. We have noticed that the *sūtra* mode of composition and generative model form the infrastructure of his scheme. He has developed his machinery on the basis of this infrastructure. A peep into his workshop reveals to us the highly sophisticated character of his technical appliances. Modern linguists trained in the western discipline are taken aback by P's technical inventions and the highly advanced level of his machinery which displays his extraordinary genius. It is, indeed, his descriptive technique which is regarded as his greatest contribution not only to the science of language but also to the science in general. Here we are going to take a review of some outstanding features of his descriptive technique.

The most noteworthy aspect of the entire mechanism in the Pāṇinian workshop is economy. Economy reigns supreme in his grammar. Pāṇinian scholars today are often engaged in a debate on whether economy is the end or the means of P's linguistic description. Tradition has, time and again, recorded this distinct aspect of P's technique. There goes a funny remark :

अर्धमात्रालाघवेन पुत्रोत्सवं मन्यन्ते वैयाकरणाः ।

"The grammarians consider achievement of brevity by (saving-even) half a mora on par with the celebration of the birth of a son."

Patanjali, the celebrated author of the wellknown commentary of P's grammar, the व्याकरणमहाभाष्य, has taken a beautiful snapshot of P working with his grammar and has thus illustrated the supremacy of the principle of economy in the following words :

प्रमाणभूत आचार्यो दर्भपवित्रपाणिः शुचाववकाशे प्राङ्मुख उपविश्य महता यत्नेन सूत्राणि प्रणयति स्म । तत्राशक्य वर्णेनाप्यनर्थकेन भवितुम् ।

"The respected teacher functioning as the authority, holding the purifying bunch of darbha grass in his hands, having seated on a clean

ground and his face facing the East used to formulate *sūtras* with great effort. This being so. it is impossible for a single sound (in his *sūtra*) to be useless."

Both the fun and the faith apart, P's grammar is a model of a scientific work composed in the most succint style. A thorough inspection of the *Pāṇinian* workshop further shows that P has not only prudently set up his machinery but has also used it sparingly.

A brief survey, in what follows, of his technical tools will convince us that the principle of economy was dear to his heart.

I. Metalanguage :

P composed a grammar of the Sanskrit language in the Sanskrit language. However, his language of description i.e. the metalanguage is strikingly different from the language he describes i.e. the object language. The object language represents a stage in the development of Sanskrit which is closer to the Vedic language and anterior to the classical language (i.e. the post-vedic Sanskrit, the language of the whole non-vedic literature). The metalanguage is, however, the language of his grammar alone. It shows many deviations from the object language both in vocabulary and syntax. P has set up a special vocabulary consisting of technical terms which convey no meaning outside his grammar. He has, further, laid down special rules of syntax for his metalanguage. Thus, although the metalanguage is essentially Sanskrit, it is remarkably different from the Sanskrit language described by him. P must be credited with a sound mechanism for composing a grammar of a language in the same language by maintaining a clear distinction between the metalanguage and the object language. Let us now turn to his metalanguage. Following are the most striking characteristics of P's metalanguage:

1. Technical Terminology :

P has introduced about 200 grammatical technical terms in his gram-

mar. They are of two types · significant and meaningless. Terms such as परस्मैपद, आत्मनेपद, सार्वधातुक, आर्धधातुक and प्रत्यय are meaningful, while terms like हि, घु, घ, भ etc. have no meaning of their own. The former are borrowed by P from his predecessors, whereas the latter appear to be coined by him. Although the significant terms are accepted by P from the earlier tradition, he has changed their meaning The terms like परस्मैपद and आत्मनेपद do not, for instance, convey their original meaning which is roughly equivalent to active voice and middle voice respectively; they stand rather for two sets of verbal endings. P has thus reduced all technical grammatical categories such as tense, number and person to the linguistic elements expressing them. There are no seperate technical terms expressing any grammatical categories, apart from the terms expressing the actual grammatical elements which convey these categories. The terms एकवचन, द्विवचन and बहुवचन stand for the suffixes (both nominal and verbal) which convey singularity, duality and plurality respectively. Thus all abstract grammatical notions are reduced to their respective concrete linguistic expressions. P's grammar is therefore, described as formal rather than notional.

In addition to the significant terms described above we come across terms like नदी and तत्पुरुष which, besides being significant, are samples for the classes they denote. For instance, the term नदी means, in P's grammar, a feminine noun ending in ई or ऊ such as कामिनी and वधू. The noun नदी which ends in ई itself is an illustration of the technical concept called नदी. Similarly, the term तत्पुरुष itself is an illustration of तत्पुरुष compound. Use of sample terms as technical terms for different categories is a very interesting feature of P's technical terminology.

Apart from the meaningful terms P has used a few monosyllabic terms. The term घि which has no meaning of its own stands for masculine and feminine nouns ending in इ and उ other than those called नदी. Another term, भ, means a nominal stem before an affix beginning with a vowel or the semivowel य्. Artificial terms of this kind form part of P's scheme of economy in setting up his machinery. An antithesis to this scheme is, however, provided by his acceptance of lengthy

technical terms like सर्वनामस्थान (roughly corresponding to 'weak terminations' in modern linguistic terminology) and कर्मप्रवचनीय (a group of noun connectives) There is no better justification for P's acceptance of such terms which contradict the principle of brevity so strongly adhered to by him, than saying that he wanted to retain the older significant terms which were already established in Sanskrit grammar although they were lengthy.

2. Abbreviation

Abbreviations occupy a major portion of P's metalanguage. It is very interesting to see how a very ordinary linguistic phenomenon is raised to the level of a highly mechanical device. In the ordinary language usually the first letter of a word is chosen for abbreviating. In P's method the first joined with the last letter stands for the intermediate letters. For example, for the well-known abbreviation UNO which stands for United Nations' Organization the *Pāṇinian* abbreviation will be Un.

Such abbreviation in P's system is called प्रत्याहार. A प्रत्याहार is primarily an abbreviatory symbol which stands for a certain list of sounds. Reference was made earlier to the fourteen *sūtras* which emanated from the drum of the dancing Śiva when he was pleased with P's austere penance. These *sūtras*' known as Śivasūtras or Varṇasūtras appear at the opening of the A. They list the basic sounds of Sanskrit in a particular sequence. They are as follows :

अइउण् । ऋलृक् । एओङ् । ऐऔच् । हयवरट् । लण् । ञमङणनम् । झभञ् । घढधष् । जबगडदश् । खफछठथचटतव् । कपय् । शषसर् । हल् ।

A प्रत्याहार is formed by joining a letter such as अ, इ or ह with the final letter of any of the subsequent *sūtra* such as क्, च् or श्. Thus, we arrive at the following प्रत्याहारs which stand for the letters mentioned against them :

अक् : अ, इ, उ, ऋ, लृ

इच् : इ, उ, ऋ, लृ, ए, ओ, ऐ, औ

हश् : ह, य, व, र, ल, ञ, म, ङ, ण, न, झ, भ, घ, ढ, ध, ज, ब, ग, ड, द

It will be clear from the above description of the प्रत्याहारs that the final letters of the वर्णसूत्रs are not counted in the respective lists. For instance, the final letters ण् and क् are not counted in the प्रत्याहारs अक्. The final letter of every वर्णसूत्र is called इत्. अनुबन्ध is another term for इत् used by P's followers. The function of इत् in the present context is to support the letter in the formation of a प्रत्याहार. With the help of this technique P has set up a host of प्रत्याहारs which have enabled him to achieve brevity by avoiding mention of long lists. Thus अच् in his grammar means all vowels, while हल् means all consonants; अम् stands for all nasals, whereas यण् abbreviates all semi-vowels. Sometimes a Paninian *sūtra* is formed only of प्रत्याहारs For example ·

P.VI.1.70 : इको यण् अचि ।

This *sūtra* contains three words all the three of which are प्रत्याहारs.

Here

इक् stands for इ, उ ऋ, ऌ

यण् means य्, व्, र्, ल्

अच् means all vowels.

The *sūtra* means, "य्, व्, र्, ल् are replaced for इ, उ, ऋ, ऌ respectively when a vowel follows.

P. has used 41 प्रत्याहार in hundreds of rules. This extensive use of the प्रत्याहारs has also added to the cryptic nature of the *Paninian* rules. प्रत्याहारs are also formed of lists other than the वर्णसूत्रs. For instance, the list of the case-ending given in the *sūtra*.

स्वौजसमौट्छष्टाभ्यांभिस्ङेभ्याम्भ्यस्ङसिभ्यांभ्यस्ङसोसांङ्योस्सुप् P.IV.1.2

is abbreviated into the प्रत्याहार सुप् by P.

३. इत् or अनुबन्ध

We have seen above how इत् or अनुबन्ध letter such as क् or च् helps in the formation of प्रत्याहारs. In fact, formation of प्रत्याहार is the purpose of the अनुबन्ध added at the end of every वर्णसूत्र. अनुबन्धs are added also to

suffixes, substitutes, arguments and other metaelements. They perform different functions, although all of them disappear after having performed their respective functions. For example, the इत् letter ण् added to a suffix indicates वृद्धि (lengthening) in the first vowel of the root. Consider the following derivation :

वच् + ण्य → वाक्य

Here the अनुबन्ध ण् prefixed to the suffix ण्य causes lengthing of अ of वच्. The इत् letter क implies another grammatical function technically known as सम्प्रसारण (change of a semivowel into a corresponding vowel). For example,

वच् + क्त → उक्त

Here the अनुबन्ध क attached to the suffix causes the change of व् into उ (i.e. सप्रसारण). अनुबन्ध can be thus compared to symbols like traffic-signals which signify something and disappear. P has extensively used a large number of अनुबन्धs to perform a variety of functions. Sometimes a single अनुबन्ध performs multiple functions in diverse situations. All the functions are metalinguistic. इत् or अनुबन्ध is thus a multipurpose tool which is a significant *Pāṇinian* contribution to the concept of metalanguage. अनुबन्धs also form part of the *Pāṇinian* scheme of economy.

II. Conventions of interpretation

When P set up his metalinguistic mechanism he was aware that it was necessary for him to provide with a decoding mechanism. He has, therefore, provided a key to his metalanguage in the form of conventions of interpretation. We may call this set of rules of interpretation his metametalanguage. He has, for instance, stated a few rules to explain the metalinguistic use of different cases such as genitive and locative. The following rule discusses the meaning of the genitive :

P.I.4.49, षष्ठी स्थानेयोगा ।

"The genitive is connected with the word स्थाने 'in place of'."

While the genitive in the ordinary Sanskrit conveys the meaning 'of ', in P's rules it conveys a specific meaning, 'in place of'. Thus in the

following rule :

P.II.4.42, हनो वध लिङि।

The genitive हनः is understood as हन् स्थाने 'in place of हन्' and the rule is interpreted as "वध comes in place of हन् in the optative."

P has also laid down rules to explain the place of different metaelements in the process of derivation. He has labelled different grammatical units such as augments and substitutes with different अनुबन्धs to mark their respective positions.

It has been, however, generally observed that despite the set of conventions provided by P a major bunch of keys to his machinery is missing. For instance, the rules of the technique of information chain technically called अनुवृत्ति are nowhere stated by P nor has he mentioned the convertions of rule ordering which are so fundamental to his derivational system. It appears that he has taken for granted a significant part of the conventions required for understanding his code-language. In the course of time a whole range of conventions set up by his followers emerged as a separate form of grammatical literature called परिभाषाs.

III. The Manner of Description

1. General and Particular rules

There goes the story of Indra, the god of gods who wanted to learn about the language. Bṛhaspati, the Lord of learning was his teacher. He started teaching Indra word by word. The instruction continued for one thousand divine years (43,20,000 human years!) And yet he could not exhaust the whole lot of words. The word-by-word method of teaching language (प्रतिपदपाठ) thus proved a failure.

After narrating this story Patañjali, the ancient grammarian, informs us about the most suitable method of teaching language, the method which consists of general and particular rules. P has successfully used his method. Although P may not be credited with the invention of this technique which is the very essence of the concept of science, he must be acknowledged for its most successful

implementation.

All the rules in P's grammar are basically of two types : general and particular. Traditionally a general rule is known as उत्सर्ग, whereas a particular rule is called अपवाद. For example,

1.   P.IV.1.95, अत इञ् ।

'The suffix इञ् is added to a stem ending in अ in the sense "his offspring" (e.g. दशरथस्य अपत्यम् (offspring of दशरथ) → दशरथ + इञ् → दाशरथि)'

2.   P.IV.1.105, गर्गादिभ्यो यञ् ।

'The suffix इञ् is added to the words गर्ग etc. in the same sense (e.g. गर्गस्य अपत्यम् → गर्ग + यञ् → गार्ग्य)'

The first of the above two rules is उत्सर्ग, because it prescribes the suffix इञ् for any stem ending in अ in general, whereas the second rule is its अपवाद, because it recommends यञ् instead of इञ् for a group of stems गर्ग etc.

All grammatical phenomena are described by P in terms of generalization and particularization. P's grammar owes its mathematical character to this technique which was efficiently handled by him. This technique is responsible for the appearance of the A as a finite set of rules explaining an infinite number of word-forms.

Besides the उत्सर्ग and अपवाद types of rules there are other types such as rules of extension (अतिदेश), the rules governing a section of rules (अधिकार), etc. Tradition distinguishes six types of rules in P's grammar as described in the following verse :

सञ्ज्ञा च परिभाषा विधिर्नियम एव च

अतिदेशोऽधिकारश्च षड्विधं सूत्रमुच्यते । ।

A *sūtra* consists of the following six types : rule of definition, rule of interpretation, a general rule, a particular rule, a rule of extension and governing rule.

We have studied all these types in the foregoing pages except अतिदेश. Now let us try to see what अतिदेश is. The word अतिदेश literally means extension of a certain property to an object in which it does not exist. P has, again, borrowed this technique of superimposition from common practice.

P.I.1.56, स्थानिवदादेशोऽनल्विधौ ।

A substitute is treated as the basic element (for which it is substituted) when grammatical operations other than those involving a letter are to be effected.

By this rule P has extended the properties of the original element to its substitute. By this general rule of extension P has succeeded in maintaining status quo (in a limited sense) after substitution.

For instance,

P.II.4.52, अस्तेर्भूः ।

'Root अस् is substituted by भू (in आर्धधातुक formation).' By the rule of extension the substitute भू inherits from अस् the property of being called धातु and therefore is entitled for getting different suffixes recommended for a धातु.

2. Substitution and other processes

The theory of substitution is regarded by linguists all over the world as one of the major contributions of P to the field of structural linguistics. Substitution is one of the prominent processes a crude base has to undergo in the process of derivation. P has very widely used this process on all levels of derivation. A substitute is called आदेश while the original base for which a substitute comes is called स्थानिन् in P's grammar. Let us see a few examples :

P.II.4.52, इको यण् अचि । य, व, र्, ल् are substituted in place of इ, उ, ऋ, लृ, when a vowel follows (e.g. गति + अन्तर → गत्यन्तर here इ of गति is substituted by य् since it is followed by अ of अन्तर). A more complex working of substitution is noticed in the derivation of the nominative

singular form स् from the pronoun तद् as follows :

तद् + स्

तअ + स्

सअ + स्

स + र्

स +

सः

Here all the three letters, namely, त्, द् and स् are substituted by स, अ and : respectively. The root-suffix pair तद् + स् has to, in fact, undergo four substitutions, as shown above before it arrives at the final form सः All this may appear strange and complicated. However, a deeper look into the intricacies of this kind reveals that P must have done a lot of spadework before he could fix the amorphous mass of word-forms within a limited number of patterns of substitutes. To give one example from his system of verbal conjugation, P. has abstracted eighteen verbal endings which diversify, through a network of substitutes into one hundred and eighty endings covering all tenses and moods in both active and middle types of conjugation. Let us take an example of a verbal formation. The imperative second person dual of the root एध् ('to kindle') is derived in the following manner :

एध् + लोट्

एध् + अ + लोट्

एध + आथाम्

एध + आथ् ए

एध + इय् थ् ए

एधे य् थ आम्

एधे ० थ आम्

एधेथाम्

It will be clear from the above derivation that while the root remains unchanged the suffix undergoes five substitutions . the basic abstraction लोट् is replaced by one of the eighteen archetypal substitutes, namely, आथाम् The final आम् of आथाम् is replaced by ए which is again replaced by आम्. The initial आ is substituted by इय् of which य् is replaced by zero (i.e. deleted). The journey of the final part (आम्) of the suffix back to its own form is an interesting feature of this derivation. P has to prescribe this journey in order to maintain consistency and precision. It is only after studying all the derivations that one is able to understand the sound logical basis behind the whole process of substitution. This process is so pervasively used by P that he has not spared even zero, a nonentity, from becoming a substitute for something Zero is, indeed, a remarkable *Pāṇinian* invention. It is regarded as the greatest gift of P to the world of science. Let us study a few examples :

The vocative form देव 'O god' is derived in the following manner :

देव + स्

देव

Here the case-ending स् which conveys the meaning of the vocative is deleted In *Pāṇinian* terminology it is substituted by लोप 'nonappearance.' Although the vocative ending thus disappears it leaves behind its function (i.e. to indicate address or calling). Therefore, the crude base देव is raised to the status of a finished vocative form. In this way zero has a positive value. It does add to the meaning of what remains behind. Zero does not merely add to the meaning. It also causes modification in the stem. In the following example it is shown how a zero suffix triggers a series of grammatical operations.

The imperfect third person singular form of the root दुह् 'to milk' is अधोक् '(he) milked'. It is derived in the following way :

दुह् + लङ्

अ दुह् + ति

अ दु ह् + त्

अ दु ह् + ०

अ दु घ् + ०

अ धु घ् + ०

अ दु ग् + ०

अधोक्

The above form shows a chain of substitutions. Even though the archetypal verbal ending ति finally disappears, it causes the change of ह् into घ् which further generates substitution of घ् in place of the root initial द्. The substitute घ् is replaced by ग् which is in turn replaced by क्. After गुण substitution for उ, अधोक् is derived.

P has set up four kinds of zero-substitute and has assigned a different function to each one of them. Zero-substitute is an ingenious device in the *Pāṇinian* scheme which deserves a special attention. Let us not dwell upon it here since it is a topic of a separate study.

Besides substitution a few other processes such as augmentation, lengthening, shortening, reduplication, aspiration, deaspiration, and retroflection are used by P in his derivative mechanism. Modifications called गुण and वृद्धि represent another major phenomenon in the *Pāṇinian* generation of forms. While the term गुण conveys the three vowels अ, ए, and ओ, वृद्धि stands for आ, ऐ and औ. These appear either as substitutes in place of single vowel or as a single substitute in place of a pair of vowels in euphonic combination. For instance, while forming the patronymic दाशरथि from the noun दशरथ by adding the suffix इञ्, the vowel अ after द् undergoes वृद्धि modification.

On the other hand, in euphonic combination the word final अ combines with the initial ए ऐ or ओ औ of the following word into ऐ or औ.

e.g. देव + ऐश्वर्य → देवैश्वर्य

Similarly, गुण takes place in the following derivation:

इ + ति → एति

Here इ is substituted by गुण (i.e. ए)

तव + इदम् → तवेदम्

In the above example गुण (ए) is a single substitute in place of the final अ of तव and the initial इ of इदम्.

Many of these processes can be subsumed under the major process, namely, substitution.

IV. Ordering of rules

Anyone watching the process of derivation of word-forms in the *Pāṇinian* workshop will notice that the rules do not apply in the same sequence in which they appear in the A. Economy being the primary aim and general-particular (उत्सर्ग-अपवाद) being the principle mode of rule formation, it was impossible for P to arrange rules according to step by step formation either in general or in particular The order of rules in the A which is based on the principles of अनुवृत्ति hardly matches with the order of their application. How then does one select the rules for application? What are the criteria for selection? Although P has not explicitly stated all the criteria, they are discernible for a serious student. He has provided some guidelines for his followers.

First of all it is very obvious that one has to select that rule from this system, for the application of which there is a favorable situation. Any rule in the A which finds a scope in a given situation applies. For example, for deriving the nominative singular form of the noun देव one has to look for a proper case ending. The list of case-endings appears in the first पाद of the fourth chapter out of which the proper case-ending is selected on the basis of the guidelines provided in the fourth पाद of the first chapter.

Thus the ending is selected and added.

देव + स्

At this stage one has to search for a rule which prescribes a

modification either in the base or in the suffix. A rule prescribing substitution of र् in place of स् is found in the second पाद of the eighth chapter. Thus

देव + स् → देव + र्

One comes across a rule in the third पाद of the eighth chapter which teaches that the word-final र् is replaced by :. Thus we arrive at the final form देवः ← (देव + र्).

Often more than one rule find scope in a given situation. P has provided some clues to resolve conflict in such situations. Firstly, by applying the rule of succession the difficulty can be removed. P has, in fact, stated a rule that in case of mutual conflict between two rules the rule subsequent in order supersedes the earlier rule. This criterion is traditionally called परत्व 'posteriority'. For example, while deriving the dative plural of the noun वृक्ष (tree) we add the case ending भ्यस् provided by a *Pāṇinian* rule.

वृक्ष + भ्यस्

Our search for the next application ends with a couple of rules which become simultaneously applicable in this situation. They are :

1. P.VII.3.101, सुपि च । which prescribes lengthening of the stem final before an ending.

2. P.VII.3.102, बहुवचने झल्येत् । which prescribes substitution of ए in place of the final अ before a plural case ending which begins with यञ्

The principle of परत्व decides in favour of the latter rule (P.VII.3.102). Thus वृक्ष + भ्यस् → वृक्षे + भ्यस् → वृक्षेभ्यः. However, the rule of succession is not adequate to solve all the conflicts. Although according to tradition the principle governs the whole of the A, modern scholars have discovered that originally the scope of this principle was confined to a small portion of the A (P.I.4. to P.II.4). A glance through the traditional commentaries on P's grammar reveals that on a number of occasions the conflict between two rules has to be resolved in favour of the earlier rather than the latter rule. It must be remembered here that the principle

aim of P's grammar is to explain the existing usage and not to create a new usage. Therefore, if a certain theory is incapable of yielding the desired result (i.e. the existing usage), it has to be abandoned. Since the पर theory works within a restricted area, one has to look for another principle of ordering which may help in other situations. Tradition has, indeed, discovered the principle of नित्यत्व 'constancy' which supercedes the पर principle. 'Survival of the fittest' is the logic behind this principle. Let us try to understand it with the help of an example :

The present tense third person singular form of the root तुद् 'to injure' is derived as follows :

तुद् + लट्

तुद् + तिप्

तुद् + श + ति

तुद् + अ + ति

तुदति

At the stage तुद् + ति the following two rules are simultaneously applicable :

P.III.3.77, तुदादिभ्यःशः which teaches that the suffix श is added to roots तुद् etc.

P.VII.3.86, पुगन्तलघूपधस्य च which teaches गुण substitution for the penultimate उ.

If we apply the latter rule by invoking पर principle we will arrive at a wrong form (तोदति). Here the नित्यत्व principle comes to our rescue. A नित्य rule is defined as one of the two simultaneously applicable rules, which finds scope even after the other rule is applied. In the above example the addition of the suffix श is नित्य, because it can take place even after the other rule (गुण rule) is effected. On the contrary, गुण can not take place once the suffix श is added, because P has invested श with the अनुबन्ध श् having the power of stopping गुण and वृद्धि operations. गुण operation being thus अनित्य (impermanent), the श suffixation takes place

and the desired result is achieved.

Although नित्यत्व principle effectively operates throughout P's grammar and solves many conflicts, at times it is found incompetent to sort out some problems. It is incapable, for instance, when a conflicting situation arises by the simultaneous application of one and the same rule at two places. Let us consider the following example. The instrumental singular of the feminine of the adjective पटु 'skilled' is derived by simultaneously adding the feminine suffix ई and the instrumental singular case ending आ. Thus

पटु + ई + आ

At this stage P.VI.1.77, इको यणचि, the rule of सन्धि (euphonic combination) which prescribes substitution of य्, व्, र्, ल in place of इ, उ, ऋ, लृ before a vowel (अच्) is applicable at two places :

१. (पट्) उ + ई → वी

२. (पटु) + ई + आ → या

If we apply it first to उ + ई, then

उ + ई + वी

पट्वी + आ → पट्व्या will be derived

If we apply it first to the ई आ pair, then

ई + आ → या

पटु + या → पटुया will be derived

This second derivation is undesirable since it does not exist in the usage. Therefore, the first alternative leading to the desired formation is accepted and the ordering principle behind it is described as the principle of interior (अन्तरङ्ग). Between the two pairs under operation in the above formation the उ + ई pair is interior as compared to the ई + आ pair which can be described as exterior (बहिरङ्ग). This principle of interior, traditionally known as अन्तरङ्गत्व is again based on common sense logic which says that priority should be given to a nearer aim rather than a

distant aim. Thus in the *Pāṇinian* derivative process the direction of the operating rules is from inside to outside. This ordering principle is based not on the place of the rules in the A but rather on the sequence of the units in a given derivation.

The most powerful ordering principle however, which supplants all the previously mentioned principles is the principle of exception (अपवाद). It has been already mentioned that P taught his grammar in the general - particular mode. A general rule finds scope only where particular or special rules do not apply. This principle is also based on commonsense logic. There goes a story of Devadatta who invited all Brahmins in his village for lunch. He instructed his maid who was serving food,

सर्वेभ्यो ब्राह्मणेभ्यो दधि दीयताम् तक्रं कौण्डिन्याय ।

"Serve curds to all Brahmins, buttermilk to कौण्डिन्य"

Accordingly she served curds to all Brahmins but butter milk to कौण्डिन्य.

Since the maid had commonsense enough to distinguish between a general statement (उत्सर्ग) and a special statement (अपवाद) she served only buttermilk to कौण्डिन्य. Another maid with a lack of common sense would have served both curds and buttermilk thinking that he is entitled for curds by the general rule and for buttermilk because there is a special statement made for him. The general - particular relation is based on commonsense logic employed by the first maid in the above story. That principle of special statement overrules the general statement is widely applied throughout in the P machine. It can be illustrated by the following example :

P.III.3.18, भावे prescribes the addition of the suffix घञ् to a root in general in the sense of भाव 'action' or 'state' (e.g. पच् + घञ् → पाक 'cooking').

P.III.3.56, एरच् teaches that the suffix अच् is added to a root ending in इ in the sense of भाव (e.g. चि + अच् → चय 'collection').

This latter rule obviously makes a special case for roots ending इ. Therefore, in all situations involving a root ending in इ the latter rule (which is a special rule) supercedes the former (i.e. the general rule).

It must be again noted that once the special rule supercedes the general rule, the general rule does not operate in that area. In the above case, the possibility of an optional formation, for instance, चाय is ruled out.

Besides the four ordering principles mentioned above there is a more comprehensive ordering principle based on the arrangements of rules in the A. this principle is traditionally called असिद्ध. It implies the division of the text of the A into two parts : the first part consists of the first seven chapters and the first section of the eighth chapter, whereas the second part comprises the remaining three sections of the eighth chapter. The first part is known as सिद्धकाण्ड and the second part is known as असिद्धकाण्ड. The basic principle of application of rules, which was mentioned in the beginning of this section, namely, that any rule which finds a scope for its application in a given situation, applies, holds true of the सिद्धकाण्ड. In other words, no rule from the सिद्धकाण्ड is prohibited from taking an effect provided a situation favourable for its application exists. At a subsequent stage if it comes in conflict with another rule, the conflict is resolved by invoking one of the four ordering principles described above. The story is, however, different with the rules in the असिद्धकाण्ड which are treated as असिद्ध as long as the rules in the सिद्धकाण्ड become effective. It is the prerogative of the rule in the सिद्धकाण्ड to supercede the rules in the असिद्धकाण्ड. This ordering principle which is purely based on the sequential order of the rules in the A. is stated by P in the following rule :

P.VIII.2.1 : पूर्वत्रासिद्धम् ।

This rule, as traditionally interpreted, implies the following two principles based on the असिद्धत्व rule of ordering :

i.   In a conflict between a सिद्धकाण्ड rule and a असिद्धकाण्ड rule the सिद्धकाण्ड rule supercedes the latter.

ii. In a conflict between two rules belonging to the असिद्धकाण्ड the earlier rule supercedes the posterior.

Both these principles will be more clearly understood if we study the following examples :

The instrumental plural form of the noun राजन् 'king' is derived as follows :

राजन् + भिस्

राज ० + भिस्

राज + भिर्

राज + भिः

राजभिः

P.VII.1.9, अतो भिस ऐस् which teaches substitution of ऐस् in place of the case-ending भिस् when preceded by a stem ending in अ is applicable in the above derivation at the stage राज + भिस् since भिस् is preceded by राज ending in अ. However, since the deletion of न् is prescribed by the rule VIII.2.7, नलोपः प्रातिपदिकान्त्यस्य which belongs to the असिद्धकाण्ड, it is noneffective for any rule belonging to the सिद्धकाण्ड. Therefore, for the rule अतो भिस ऐस् which belongs to the सिद्धकाण्ड the stage राजन् + भिस् rather than the stage राज + भिस् exists. Thus the rule does not find scope for its application and the form is derived. (Had the rule अतो भिस् ऐस् applied, the form would have been राज + भिस् → राज + ऐस् → राजैः).

The past participle form of root पच् 'to cook' is पक्व 'that which is cooked'. It is derived as follows :

पच् + त

पक् + त

पक् + व

पक्व

Two rules are simultaneously applicable at the first stage :

P.VIII.2.30 चोः कुः prescribes substitution of a क class consonant in place of a च class consonant when a consonant other than semivowel follows.

P.VIII2.52 पचो वः which teaches substitution of व् in place of त् the past participle ending added to पच्.

If VIII.2.52 is applied first (i.e. पच् + व), P.VIII.2.30 will not find scope, because च will be then followed by the semivowel व्. However, for the derivation of the desired form application of VIII.2.30 also is required. The असिद्धत्व ordering principle solves this problem. Since both the rules above belong to the असिद्धकाण्ड, they apply in the same order in which they are stated. Thus substitution of क् in place of च् precedes the substitution of व् in place of त् and the desired result is attained.

The असिद्धत्व principle is indeed a very ingenious ordering device employed by P. It works well with hundreds of formations. It is here that modern scientists get a glimpse of P's computational abilities. Some modern scholars have not resisted the temptation of calling it the foremost computer program that could ever be written.

V. Information chaining

P excells in the technique of information chaining. We have already seen how the principles of अनुवृत्ति and the network of the अधिकारs have accomplished thematic unity among different groups of rules. There are a few other chaining devices due to which his rules appear as well-chiselled formulations. Here we are going to deal with the most noteworthy among them, namely, the device of the particle च. It is, indeed, interesting to see how an ordinary connective is raised to the status of a well-crafted instrument to secure precision in his grammar. The particle च which conveys the same meaning as in ordinary language, namely 'and' / 'or' is a multipurpose tool in the A . On the one hand it marks the boundaries of rules, while on the other, it controls the working of अनुवृत्ति. Let us see a few examples :

P.VII.3.101, अतो दीर्घो यञि (सार्वधातुके) ।

'The stem-final is lengthened before a suffix (belonging to the category सार्वधातुक) beginning with यञ् letter (यञ् is an abbreviation for semivowels, nasals, झ् and भ्)'.

e.g. पच् + अ + मि → पच + मि → पचा + मि → पचामि

P.VII.3.102, सुपि च (अतो दीर्घो यञि) ।

'And before a case-ending (beginning with यञ् the stem final अ is lengthened).'

e.g. देव + य → देवा + य → देवाय

P.VII.3.103, बहुवचने झल्येत् (अतः) ।

'Before a plural case-ending beginning with झल् (i.e. a consonant other than a semivowel the stem final अ) is replaced by ए'

e.g. देव + भ्यस् → देवे + भ्यस् → देवेभ्यः

(Note : the meaning of the part of the rule obtained by अनुवृत्ति is given in brackets)

The particle च in the middle rule performs the function of separating it from both the preceding and the succeeding rules. It must be first noted that the A. is composed by P as a single string of rules. He has not presented the text with its division into sections and further into individual *sūtras*. The credit of isolating individual *sūtras* from the string goes to the followers of P. Here the particle च performs a remarkable job. How does it separate the rule to which it is added? If we omit च from the text of the rule, the continuous text would read as follows :

अतो दीर्घो यञि सुपि बहुवचने झल्येत् ।

A student trained in the *Pāṇinian* terminology may split the text in to two rules as :

अतो दीर्घो यञि सुपि ।

बहुवचने झल्येत् ।

or as

अतो दीर्घो यञि ।

सुपि बहुवचने झल्येत् ।

If we add च after सुपि the expression means 'and before case-ending'. Thus the particle च separates the rule सुपि from the earlier rule and at the same time chains it with that rule through its connective function. Since it is thus both separated from and connected with the earlier rule, it is automatically separated from the subsequent rule. Hundreds of rules in A. are thus isolated by the presence of च.

Let us consider another group of *sūtras* where च performs the function of controlling अनुवृत्ति.

P.III.1.97, अचो यत् ।

'The suffix यत् is added to a root ending in a vowel'

e.g. गै + यत् → गा + यत् → गे + य → गेय 'to be sung'

P.III.1.106, वदः सुपि क्यप् च (यत्) ।

'(यत्) and क्यप् are added to root वद् when a nominal word-form precedes'.

e.g. सत्यम् + वद् + यत् → सत्यवद्य 'truth to be spoken'

सत्यम् + वद् + क्यप् → सत्योद्य

P.III.1.107, भुवो भावे (क्यप् सुपि)

'The suffix क्यप् is added to root भू in the sense of भाव 'state' when preceded by a nominal word-form'.

e.g. ब्रह्मन् + भू + क्यप् → ब्रह्मभूय 'the state of ब्रह्मन्'

The suffix यत् is continued from P.III.1.97 upto P.III.1.106. The suffix क्यप् mentioned in P.III.1.106 would have blocked अनुवृत्ति of यत्. It is, however, allowed to continue because of the mention of च. The suffix यत् which is thus continued in P.III.1.106 by the force of च does not, how-

ever, further continue in P.III.1.107. The particle च thus performs two opposite functions of releasing the blocked अनुवृत्ति and, at the same time, of stopping अनुवृत्ति in the subsequent rule. And what is more interesting to note is that च performs these diverse functions by merely conveying its ordinary sense 'and' or 'or'. There are also a few other functions performed by च. In fact, there is a separate book written on the role of the particle च in P's grammar. It is, indeed, a magical wand in P's hands.

6. The Language described by Pāṇini

1. Of which language did Pāṇini write a grammar?

Although it is well-known that P wrote a grammar of Sanskrit language, he has nowhere declared so Neither has he mentioned the word संस्कृत in connection with a language nor has he used any other name for the language he described. He has used the word भाषा a few times in his *sūtras* in order to record a few deviations from normal usage. According to some scholars the word भाषा here means vernacular speech of which P records some peculiarities, whereas according to other scholars it stands for stylistic discourse. In either case भाषा appears to be a phenomenon distinct from the language which is primarily described by P. Thus neither the word संस्कृत nor the word भाषा refers to the language described by P.

Linguists distinguish between two phases of Sanskrit language; Vedic and classical. Tradition believes that P's grammar is a वेदाङ्ग 'an ancillary to the वेद'. It implies that the grammar concerns the vedic language. However, it is clear even to a casual reader that P refers to Vedic language in so far as it deviates from the language which he primarily describes. Out of the nearly 4000 rules of his grammar, only about 300 rules describe Vedic peculiarities.

Therefore, the claim that his grammar is a वेदाङ्ग in the sense that it describes the language of the Vedas does not stand. His references to the Vedic literature with its various divisions such as ऋच् *'hymn'*, यजुस् 'sacrificial formula' etc. show his thorough acquaintance with the Vedic language. At the same time it implies that he treats the Vedic language as distinct from the language he describes. Several linguists tried to identify the phase of Sanskrit reflected in P's grammar. However, the language which can be reconstructed from his grammar is not found to match with any attested text. The well-known western scholar W. D.

Whitney, after having failed to trace attestations for the *Pāṇinian* verbs and other forms, concluded that the language described by P is a grammarian's language which is far from reality. Although the Whitney myth was soon dispelled by the efforts of other scholars who succeeded, to some extent, in obtaining attestations and establishing close correspondence with the language of some of the ancient *śrautasūtras* which form the last part of the Vedic literature, a substantial portion of the language known to P still remains unattested. A claim is therefore made that the language described by P belonged to the final phase of the Vedic language. This language which was probably the spoken language of the north western India (around the frontier between Punjab and Pakistan) was highly respected in ancient Vedic literature as a standard language. The *Kauṣītaki Brāhmaṇa* says

उदीच्यां ह दिशि प्राज्ञतरा वागुद्यते। उदञ्च एव यान्ति वाचं शिक्षितु यो वा तत आगच्छति तस्य शुश्रूषन्ति।

"In the northern direction a more mature language is being spoken. Therefore, people go to the north to learn speech or they desire to listen to him who comes from that direction".

Although P was thus primarily concerned with the north-western dialect of Sanskrit spoken during his period and secondarily with the Vedic language, he does not abstain from recording idiosyncracies in other dialects which were spoken in the neighboring regions. While on the one hand he registers some special usages in भाषा, on the other, he makes a note of dialectal features of the language spoken in the north as well as in the east. His grammar has thus covered a wide compass of the linguistic geography. The dialectal variations treated by him show that the dialects did not deviate much from one another except on phonetic and morphemic levels. It has been further observed that there was no distinction between spoken and written (composed) language.
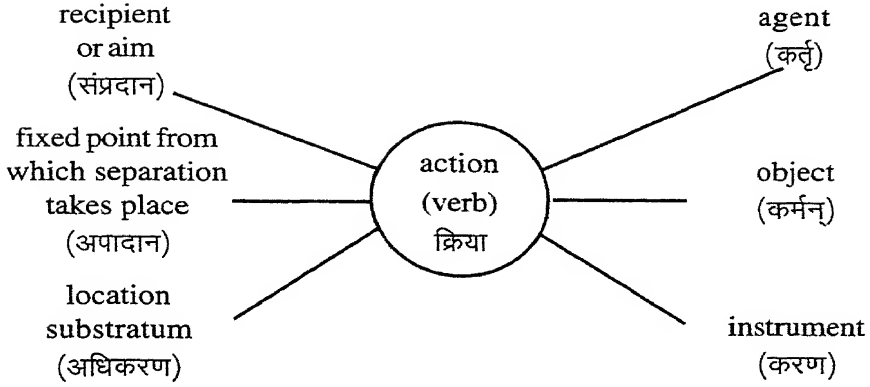
As stated earlier the *Pāṇinian* tradition believes that P wrote a grammar to standardize the language of the élite. A glance through the post-*Pāṇinian* literature in Sanskrit reveals that P did standardize the

language which we call classical Sanskrit. All the classical writers of Sanskrit have accepted the *Pāṇinian* language as a model and preferred to remain faithful to the *Pāṇinian* norms. This strict adherence to P's grammar has resulted in arresting the growth of the Sanskrit language which continued as a written rather than a spoken language. While P is accused of stopping the growth of the Sanskrit language as a living language, he is, at the same time, credited with providing it with a solid framework which can regularize all possible vicissitudes a language can have. For the first time, we come across a grammar of a natural language which presents it as a perfect system.

From the exterior of the language we now turn to its interior. From the enormous amount of word-formations belonging to different varieties that emerge from P's grammar it appears that the language known to P must have been a fully developed system of communication. It was a fully mature language with a colossal vocabulary, extraordinary suppleness and a marvellous capacity to communicate the subtle nuances. All these factors which enrich the Sanskrit literature have been preserved through the centuries by the *Pāṇinian* rules which have encapsulated them in a wonderfully eidetic fashion.

2. Language and Reality : *Pāṇinian* approach

The *Pāṇinian* world of words is full of actions. Looked through the *Pāṇinian* angle the reality consists of a series of activities. Mere existence is also an activity in this world. Action being at the centre of the world, a verb-form which necessarily conveys an action forms the nucleus of a linguistic utterance. For P every single utterance (वाक्य) reflects reality in terms of action and the objects. All possible relations between an object and an action are classified into six types according to which objects holding these relations are given six different lables technically called कारकs . The term कारक means that which accomplishes an action. Every object connected with an action is a कारक in so far as it participates in the generation of that action. The following figure with the action (i.e. the verb) at the centre illustrates the reality as captured by words in the *Pāṇinian* model.

recipient
or aim
(संप्रदान)

agent
(कर्तृ)

fixed point from
which separation
takes place
(अपादान)

action
(verb)
क्रिया

object
(कर्मन्)

location
substratum
(अधिकरण)

instrument
(करण)

Let us see with the help of a few illustrations how the linguistic world mirrors the reality.

देवदत्तः स्थाल्याम् ओदनं हस्तेन भक्षयति ।

"देवदत्त eats boiled rice in the dish with his hand".

Here the act of eating is the nucleus of the sentence. The agent (देवदत्त) is connected with the action through the relation of independence (this independence of the agent is relative, as compared to other कारकs which are dependent). Boiled rice, the object (कर्मन्) , is related to the action through the relation of being the most desired to be obtained by the action. The hand (हस्त) is the most effective instrument through which देवदत्त accomplishes the act of eating. It is therefore करण. The dish (स्थाली) is connected with the action of eating through the relation of holding rice (the object). It is thus the location, the substratum (अधिकरण) of the action through the object.

देवदत्तः यज्ञदत्ताय गां ददाति ।

"देवदत्त gives a cow to यज्ञदत्त."

In the above sentence देवदत्त is the agent (कर्तृ) of the act of giving, a cow is the object (कर्मन्) and यज्ञदत्त, the recipient (संप्रदान) is connected with the action through the relation of being aimed at by the agent.

वृक्षात् फलं पतति ।

" A fruit falls from the tree".

Here while the fruit is the agent of the act of falling, the tree (वृक्ष) is the fixed point from which fruit is separated; hence it is labelled as अपादान.

A sentence in the *Pāṇinian* language is thus, a representation of an event as a network of relations between an action and objects. An interesting feature of the linguistic world portrayed by P is that the role of each object is not fixed. Every object in this world can perform any role in relation to an action. It may change its role either from action to action or in the same action. Consider, for example the following sentences :

घटः भूमौ तिष्ठति "A pot is on the ground"

अह घटं पश्यामि "I see the pot"

अहं घटेन जलम् आहरामि "I fetch water by means of a pot"

In the above sentences घट (pot) is found to perform different कारक functions such as कर्तृ, कर्मन्, करण etc. with reference to different actions.

Now consider the following two sentences :

देवदत्तः स्थाल्याम् ओदनं पचति "देवदत्त cooks rice in a dish"

स्थाली ओदनं पचति "The dish cooks rice"

स्थाली (dish) performs two distinct roles, that of अधिकरण and of कर्तृ with reference the same action. Both these expressions are correct in the light of P's grammar. The later grammarians developed the theory of विवक्षा 'speaker's intention' which states that the कारक role of an object in the world is ascertained by the speaker's intention. The speaker's intention is thus sometimes responsible for a distorted view of the reality (as the expression स्थाली पचति in the above example). The *Pāṇinian* world of language does not represent the reality as it exists, but rather as it is understood by the speaker. For P therefore language is not a faithful mirror to the reality. It is the reality coloured by the speaker's understanding, reflecting his idiosyncracies.

3. Words in the world of grammar

From language in general let us now turn to the conventional speech units which are the final products of the Pāṇini machine. All the words in the language are divided into two types : nominal forms (सुबन्त) and verbal forms (तिङन्त) While a nominal form is derived by adding a case-ending to a nominal base, a verbal form is derived by adding a verbal ending to a verbal root.

3.1 Verb-forms

The Sanskrit language projected through the Pāṇini machine is very rich in verbal forms. The *dhātupāṭha* appended to P's grammar contains around 2000 verbal roots which are classified into ten classes traditionally known as गणs on the basis of stem-formation. The following table shows examples of different गणs roots belonging to different गणs and their respective stem-formations:

Class (गण)	Root	Present Stem
I	बुध्	बुध् + अ → बोध
II	हन्	हन् → हन्
III	भिद्	भिद् + अ → बिभिद्
IV	तृप्	तृप् + य → तृप्य
V	आप्	आप् + नु → आप्नु
VI	तुद्	तुद् + अ → तुद
VII	रुध्	रुध् + न् → रुन्ध्
VIII	तन्	तन् + उ → तनु
IX	क्री	क्री + ना → क्रीणा
X	गण	गण + अय → गणय

Every root appears in its present stem form in the conjugation of the present tense as well as in a few more conjugations.

There is a semantic basis for the whole verbal conjugation in general. P describes two conjugation types, namely, परस्मैपद and आत्मनेपद. There are two distinct sets of verbal endings for each type. A root is conjugated in the आत्मनेपद if the fruit of the action accrues to the agent; if not, then the root is conjugated in परस्मैपद. For instance,

राजा यजते ।

"A king performs a sacrifice"

The ritual texts in Sanskrit prescribe that a king should perform a sacrifice if he has a desire for a son, for heaven, etc. Thus the result of the act of the sacrifice being connected with the agent (the king) the verb is used in the आत्मनेपद.

विप्रः यजति ।

'A priest performs a sacrifice'

When a priest performs a sacrifice not for his own purpose but for the sake of the king who wants to achieve something, the verb is used in परस्मैपद.

Thus basically each root can be conjugated in the two conjugation types as described above. In every type á root is conjugated for six different tenses and four moods. Again, in every tense or mood it is conjugated for three persons, whereas in each person it is further conjugated for three numbers. First we try to acquaint ourselves with the tenses and moods and then take up an illustration. The following table describes tenses and moods in their *Pāṇinian* abstractions :

abstraction	tense	abstraction	mood
लट्	present	लिङ्	optative
लङ्	imperfect	लृङ्	conditional
लिट्	perfect	लेट्	subjunctive
लुङ्	aorist	लोट्	imperative

लुट्	future I
लृट्	future II

Due to the common ल् in each abstraction, all of them together are called ten लकारs. Let us see how the root यज् 'to perform a sacrifice' is conjugated in the present tense in both परस्मैपद and आत्मनेपद for three persons and three numbers.

	परस्मैपद				आत्मनेपद	
singular	dual	plural		singular	dual	plural
यजामि	यजावः	यजामः	← first person →	यजे	यजावहे	यजामहे
यजसि	यजयः	यजथ	← second person →	यजसे	यजेसे	यजध्वे
यजति	यजतः	यजन्ति	← third person →	यजते	यजेते	यजन्ते

Here the form यजामि means 'I sacrifice for someone else' whereas the form यजे means 'I sacrifice for myself'. The function of the आत्मनेपद conjugation is somewhat analogous to that of reflexive verb-form in the modern terminology.

It will thus be clear that each root derives 18 forms in each लकार. All together 180 verbal-forms are derived form each root. However, in the post-vedic language the use of the forms of लेट् discontinued. Similarly, the twofold division of verbal conjugation seems to have lost its semantic basis in the language during P's time. Roots in the *Pāṇinian dhātupāṭha* can be classified in to three groups : those which belong to both the conjugation types, those which are conjugated in परस्मैपद alone and those which are conjugated in आत्मनेपद alone irrespective of the fact whether the result of the action accrues to the agent or not.

Besides the roots listed in the *dhātupāṭha* there are derivative roots which are formed by adding different suffixes in diverse meanings. P. provides for derivation of desiderative, frequentative and other types of derivative roots. It is further interesting to note that the derivative roots are derived from both verbal as well as nominal bases. Let us see a

few examples :

The root गम् 'to go' derives the following derivative roots :

गम् + णिच् → गमय 'to cause to go'

गम् + सन् → गिजमिष 'to wish to go'

गम् + यङ् → जगम्य 'to go again and again'

The noun पुत्र 'son' develops into a number of derivative roots in the following manner :

पुत्र + क्यच् → पुत्रीय 'to desire a son for oneself'

पुत्र + क्यच् → पुत्रीय 'to treat as a son'

पुत्र + काम्यच् → पुत्रकाम्य 'to desrie a son for oneself'

Thus any number of derivative verbs can be formed not only from the verbal roots but also from nouns in Sanskrit to convey diverse shades of meanings. All these roots are conjugated for ten लकारs, three persons and three numbers. Over and above this multitude of finite verb-forms there exists a long array of primary verbal derivatives including infinitives, gerunds, gerundives and participles. A few primary derivatives from root पच् produced by *Pāṇini* machine are given below as an illustration :

पच् 'to cook'

पच् + शतृ → पचत् 'one who cooks'

पच् + तृच् → पक्तृ 'one who cooks'

पच् + क्त → पक्व 'that which is cooked'

पच् + क्तवत् → पक्ववत् 'one who cooked'

पच् + क्त्वा → पक्त्वा 'after having cooked'

पच् + तुमुन् → पक्तुम् 'in order to cook'

पच् + घञ् → पाक 'the act of cooking'

पच् + क्तिन् → पक्ति 'the act of cooking

Besides these regular formations which are shared by other roots, special formations such as ·

मितम् + पच् + अ → मितंपच 'one who cooks limited food'

प्रस्थम् + पच् + अ → प्रस्थपच '(a vessel) which cooks one प्रस्थ of a food-item' (प्रस्थ is a kind of measurement)

P. has derived a number of special formations from different verbs. Quite a few interesting expressions collected from different contexts and situations show P's keen insight into the linguistic phenomena around him. We come across, for example, the following primary derivatives treated by P.

तुन्दपरिमृज 'one who strikes his belley' i.e. sluggish

कर्णेजप 'one who mutters in the ear' i.e. an informer, backbiter

चाटुकार 'sweet tongued'

शकृत्क रि 'one who creates excrement' i.e. a calf

मुष्टिन्धय 'one who sucks fist' i.e. a child

स्तनंधय 'one who sucks breast' i.e. child

असूर्यपश्य 'one who does not see the sun' i.e. a woman of a royal family

कपाटघ्न 'one who is capable of breaking a door' i.e. a thief

The meanings conveyed by some of the derivatives are drawn from the world of emotions. For instance, the derivative जीवक 'one who lives' is derived from the root जीव् with the undertone of the blessing 'let him live'. Similarly, देवदत्त is derived in the following manner :

देवेन + दा + क्त → देवदत्त literally meaning 'given by god'

देवदत्त means, according to P. a person who was sought as a blessing from the god.

P's penetrating eye catches excitement while performing an action conveyed by some expressions. For example, in the utterance शय्योत्थाय धावति 'runs out straight away from the bed' (in excitement, even without dressing himself) the form is derived in the following manner :

शय्यायाः + उद् + स्था + णमुल् → शय्योत्थायम्

P has prescribed the णमुल् suffixation to convey the sense of hurry, excitement. When however excitement or hurry is not conveyed the expression is derived with the addition of the suffix क्त्वा instead of णमुल् :

शय्याया उत्थाय

'getting up from the bed'.

A journey through the Pāninian world of verbal derivatives is indeed very interesting.

3.2 Nominal forms

Every noun is basically inflected for seven cases and the supplementary eighth case called vocative, which is not treated separately from the nominative. We have tried to understand in brief the notion of कारक and seen that each कारक is expressed by a case. The following chart shows the interrelationship between कारक and cases.

Meaning	कारक	Case
स्वतन्त्रः independent	कर्तृ	तृतीया instrumental
कर्तुरिप्सिततमम् most desired to be reached by the agent	कर्मन्	द्वितीया accusative
साधकतमम् the most instrumental	करण	तृतीया instrumental
कर्मणा यमभिप्रैति सः that which is intended	संप्रदान	चतुर्थी dative

by the agent through action

ध्रुवम् अपाये fixed point in separation	अपादान	पञ्चमी ablative
आधार substratum	अधिकरण	सप्तमी locative
सबन्ध relation		षष्ठी genitive
सबोधन call		vocative (nominative)

The genitive and the vocative are not connected with any कारक since the meaning they convey is not directly connected with action. According to P. the genitive conveys relation in general, whereas call or address is the function of the vocative.

There are two types of nominal bases, just as there are, as we have seen, two types of verbal bases : primary and derivative. Unlike the *dhātupāṭha* which contains an exhaustive lists of verbal bases, there exists no exhaustive list of primary nominal bases. P. has, however, supplied different short lists of nouns put together on the basis of grammatical functions shared by them. We arrive at a text called *gaṇapāṭha* after putting these lists together. The *gaṇapāṭha* thus constitutes another appendix to P.'s grammar. The nouns listed in the *gaṇapāṭha* are of various types such as indeclinables, prefixes, pronouns etc. Reference has already been made to an interesting feature of the *Pāṇinian* structural analysis, namely, that even the so called indeclinables have to be declined in order to be eligible to appear in a sentence. For example, in the sentence.

अहं प्रातः उद्यानं गच्छामि

'I go to the garden early morning'

प्रातः 'early morning' is an indeclinable which is inflected in the

nominative as follows .

प्रातर् + स् → प्रातर् + ० → प्रातः

P. teaches that in order to raise the prefixes and indeclinables to the status of a linguistic unit a case-ending is first added to them and then deleted. Therefore, according to P. in the sentence

देवदत्तः आ गच्छति

'देवदत्त comes'

the prefix आ is inflected as follows

आ + स् → आ + ० → आ

It is, indeed, a separate word although in the convention of writing it is joined to the verbal form and written as :

आगच्छति

After having glanced through the primary nouns let us take an excursion into the homeland of secondary derivatives. This indeed is a rich soil producing an infinite variety of linguistic expressions. On the one hand there exists a wealth of compound formations of diverse types, while on the other there is a variegated storehouse of nouns derived from nouns. समास 'Compound' is a unique phenomenon of Sanskrit. P. has classified it into four main types with a few subdivisions as shown in the following chart :
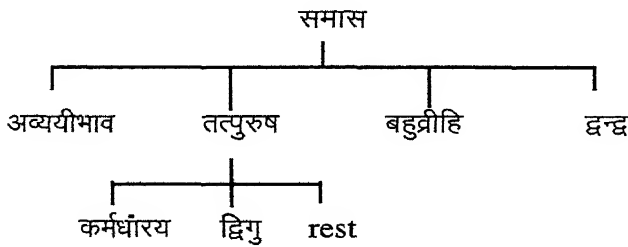
Often we come across compound expressions in Sanskrit like प्रतिदिनम् 'everyday' (अव्ययीभाव), राजपुत्रः 'prince' (तत्पुरुष), पीताम्बरः 'one wearing a yellow cloth' (बहुव्रीहि) and रामकृष्णौ 'राम and कृष्ण (द्वंद्व)'.

In Sanskrit classical language we find a growing tendency for the use of compounds. It is one of the most favored types of derivative expressions. P. has described all the compounds in terms of their formal rather than semantic structure. A compounded expression is, according to P. an alternative expression for the same content which is preferred for its brevity and unified meaning. Thus, for instance, the non-compounded expression राज्ञ पुरुष and the compound राजपुरुषः are to a certain extent of discussion in Up. 14 synonymous expressions. Often a compound expresses an additional meaning. Consider the following examples :

खट्वरूढः is a compound formed form the expression खट्वाम् आरूढः one who has climbed the bed. In the compound form it conveys an additional meaning, namely, 'a low person'.

काकपेया is a compound derived from the expression काकैः पेया 'that which is to be drunk by crows'. This is a description of a river whose water is so scarce that only crows can satiate their thrust on it.

Throughout the classical period in the history of Sanskrit literature the Sanskrit language has grown into an enormous mass of lengthy compounds sometimes extending over many lines. Linguistic acrobatics of this type however are performed in the light of the guidelines provided by P.

Another chamber in this rich storehouse of nominal derivatives which is the fountainhead of Sanskrit vocabulary is the corpus of तद्धित formations. तद्धित is a kind of a secondary noun derived from a noun. P. has collected millions of word-forms of this type and has classified them into more than three hundred meanings. There are, for instance patronymics such as :

दशरथस्य अपत्यम् → दशरथ + इञ् → दाशरथिः 'son of दशरथ'

गर्गस्य अपत्यम् → गर्ग + यञ् → गार्ग्यः 'son of गर्ग'

Collective such :

भिक्षाणां समूहः → भिक्षा + अण् → भैक्षम् 'collection of alms'

राज्ञां समूहः → राजन् + क → राजकम् 'group of kings'

जनानां समूह → जन + तल् + आ → जनता 'group of people'

possessives such as .

रस अस्य अस्ति → रस + मतुप् → रसवान् 'juicy'

प्रज्ञा अस्य अस्ति → प्रज्ञा + ण → प्राज्ञ 'intelligent'

सिकता अस्मिन् अस्ति → सिकता + इलच् → सिकतिल 'sandy'

abstract nouns such as :

शूरस्य भावः → शूर + त्व → शूरत्वम् 'bravery'

स्तेनस्य कर्म → सेवन + य → स्तेयम् 'theft'

In our voyage through this infinite ocean of तद्धित word-forms we come across several amusing items some of which are displayed below :

Place names both derive names of products, people etc. and are derived from the items they produce and from the names of people who inhabit them. For instance, place-names :

शिबीनां निवासो देश → शिबि + अण् → शैबः 'A country inhabited by शिबि ' (शिबि is a name of a family of people)

उदुम्बराः सन्ति अस्मिन् देशे → उदुम्बर + अण् → औदुम्बरः 'A country which is full of उदुम्बर trees'

कुशाम्बेन निर्वृत्ता → कुशाम्ब + अण् → कौशाम्बी 'A city built by कुशाम्ब'

विदिशाया अदूरमवम् → विदिशा + अण् → वैदिशम् 'a town not far away from विदिशा'

Products, people etc. from place names :

कापिश्यां निर्वृत्ता → कापिशी + ष्फक् + ई → कापिशायनी 'wine produced in the place कापिशी'

कच्छे भवम् → कच्छ + क → काच्छकम् 'product of कच्छ'

मथुरा निवासः अस्य →' मथुरा + अण् → माथुरः 'resident of मथुरा'

Following is a small list of word-forms connected with food items :

शरावे उद्धृत → शराव + अण् → शारावः 'removed in a platter'

भ्राष्ट्रे संस्कृत → भ्राष्ट्र + अण् → भ्राष्ट्र 'cooked in an oven'

दघ्ना संस्कृतम् → दधि + ठक् → दाधिकम् 'mixed with curds'

मरीचिभिः संसृष्टम् → मरीचि + ठक् → मरीचिकम् 'tossed with black pepper'

चूर्णेन उपसिक्तम् → चूर्ण + इन् → चूर्णि 'sprinkled with powder'

The whole range of eatables which derive their epithets from the vessels in which they are cooked, from the ingredients with which they are mixed, boiled, tossed, sprinkled etc. as well as from the toppings and seasonings is seen here.

Even small creatures and trible objects have not escaped P.'s notice. Honey is called क्षौद्र because it is collected by क्षुद्रा (bees). The word गोमय meaning 'cowdung' is derived by him from the noun गो with the addition of the suffix मयट् which conveys the meaning. The long range of as many as eight words conveying the meaning 'flat-nosed' is as follows :

अवटीट, अवनाट, अवभ्रट, निबिड, निबिरीस, चिकिन, चिपिट, चिक्क

While giving such derivations P. has shown his concern for aesthetics!

One can go on citing interesting expressions of the above type which are recorded and provided with a sound derivative mechanism by P. His minute observation not only of the linguistic events but also of the human behaviour reflected in these formations clearly exhibits his deep understanding of human psychology. He has, for example, duly taken note of the human tendency to abbreviate names of persons. Often the desire to abbreviate is accompanied by a feeling such as compassion. Thus in the *Pāṇinian* language देवदत्त is reduced to देव and

further is subjected to different suffixes like क and इल्. The abbreviated synonyms of देवदत्त are, देविक, देविल and देविय all of which along with another synonym देवदत्तक mean 'poor देवदत्त'.

At another place, a suffix is added to a word only to convey appreciation. Thus मृद् 'soil' has two synonyms, मृत्सा and मृत्स्ना which are derived by adding the suffixes स and स्न respectively to convey appreciation. The meaning 'good soil' is understood from both the words. After wayfaring through the thick forest of the verbal and nominal derivatives of diverse designs sometimes conveying 'meaningful' meanings one is fully convinced of Yuan Chwang's observations about P. According to the on-the-spot information collected by Yuan Chwang P was well-informed about men and things right from his birth; he travelled widely, toiled hard and collected an enormous amount of linguistic data. P. excelled not only in collecting an extensive linguistic material but also in systematically arranging it in a computational model from which it can be retrieved.

Rightly does *Patañjali* describe P. as अनल्पमतिः 'infinitely intelligent'.

7. The Aṣṭādhyāyī as a Historical Document

I. Pāṇini and the science of linguistics

It was stated before that the discovery of P. by the west was said to be responsible for the birth of the science of comparative and historical linguistics. In the study of this science Sanskrit language occupied a central position, because it was believed that it was the ancient most language that contained traces of the Proto-Indo-European language. Consequently P.'s grammar was raised to significance. However, later with the discovery of Greek which was found to be richer than Sanskrit in preserving the Indo-European elements, both Sanskrit and P.'s grammar were relegated to secondary position. P. is, however, still one of the major topics in the area of descriptive linguistics. If we look at P.'s grammar through the angle of modern linguistics, the following picture emerges:

Of the major components of modern descriptive linguistics phonetics and semantics are missing in P.'s grammar. Morphology is the major component of his grammar. Syntax is not treated separately but is described as a part of morphology. Semantics, the science of meaning, has no place in this formal grammar. Yet it forms the background of P.'s structural analysis. Meaning is taken for granted. While on the one hand P. has used semantics as a tool for his descriptive analysis, on the other, he has prepared a ground for the later semantic, on the other, he has prepared a ground for the later semantic categories. His distinct contribution lies in his hypothesis that every word is a bundle of meanings of all sorts, factual and emotional and even a single phoneme can reflect a certain shade of meaning. For example, the compound चौरस्यकुलम् 'family of thieves' which retains the case-ending स्य has the undertone of censure against the compound ब्राह्मणकुलम् 'family of Brahmins' which is a mere statement of fact. The case-ending स्य thus signifies the understone of censure. Similarly, between the two expressions, सुसिक्तम् and सुषिक्तम् both literally meaning "wellsprinkled" the former conveys appreciation, whereas the latter implies a sarcastic

comment. Both the nuances can be correlated with the two sounds सु
and षु respectively, the remaining part of the expression being the same.
Not only the bases and suffixes, the syllables and letters, but also the
prosodic features such as the length and accent are invested with mean-
ing according to P. For instance, the initial accent on the
compound ओदनपाणिनीयः 'a follower of P. for the sake of rice implies
that a person has entered the Pāṇini school with the hope not to learn
but to get some rice! Treatment of attitudinal and emotive meanings and
their correlation with smaller linguistic units is a distinct feature of the
Pāṇinian descriptive linguistic.

II. Pāṇini and the history of ancient India

Although importance of P's grammar as a document for historical
linguistics has receded, its value as a testimonial for the history of
ancient India has been recognized by Indologists who have approached
it as a rich mine of information on different aspects of ancient Indian
culture. The huge linguistic data collected by P reflects the geographi-
cal, political, economical, social, literary and religious aspects of
ancient India. Historians believe that the picture of India that emerges
from P's grammar belongs to the period between 5th and 4th century B.C.
and tallys with the picture depicted in the well-known work called the
Arthaśāstra by Kauṭilya who belonged to the fourth century B.C. Let us
take a journey back into the antiquity and try to catch a glimpse of the
Pāṇinian India.

The country the geographical extent and boundaries of which are
obviously different from those today is divided into जनपदs or small
states. जनपदs were further divided into नगरs 'towns' and ग्रामs 'villages'.
The जनपदs named such as पञ्चाल and काम्बोज, the cities called सङ्काश
and सैन्धव, mountains like त्रिककुत्, forests like कोटरावण, rivers named
such as सिन्धु and सुवास्तु are located here. Hundreds of names of different
geographical areas have provided substantial food for thought for the
historians. Similarly, the name of the kingdom and of types of govern-
ment mentioned by him such as संघ, गण, राजन्य, पार्वतीय, आयुधजीविन्, etc.
have provided evidence for various theories about ancient Indian polity.

Scholars are of the opinion that different forms of government such as monarchy, republic and league existed in different parts of the country

The society in this country is based on the system with the priest-class heading the whole community. References to words such as अनुलोम and प्रतिलोम indicate existence of mixed castes. Although शूद्रs were treated the same way as described in the ancient law-books, a certain group of them was allowed to stay within the boundaries of town or a village. The position of women is not much different from that reflected in the ancient धर्मशास्त्र. However, expressions such as आचार्या 'a female teacher' and implied references to girl-students studying the Veda as well as references to names of children based on the names of their mothers such as काल्याणिनेय and भाद्रमातुरः imply a better position of woman who is allowed the right of education. A woman can remain unmarried and can take to a life of renunciation. Reference to कौमार 'a child of a virgin' reflects the the problem of illegal progeny which is looked down upon.

The country during P's time has considerably progressed in the production of foods and drinks. In fact, certain regions have become famous for the drinks enjoyed by their inhabitants. Certain wines are named after the countries in which they are produced. Expressions like सुरापाणाः प्राच्याः 'the people in the eastern region drink wine' क्षीरपाणा उशीनराः and 'the people in उशीनर country enjoy milk' which are given by commentaries as illustrations of *Pāninian* rule indicate the prominent position of a drink as an indentity mark of state. The *Pāninian* India abounding in several varieties of grains, such as rice with its varieties, barley, नीवार etc. and pulses such as मुद्ग and माष must have been a heaven for eaters. Various types of food, boiled, steamed, baked and various modes of combining food ingredients such as mixing, topping and seasoning show the sophisticated food habits of the ancient Indians. P.'s reference to पलल (meat) implies the existence of non-vegetarian food. Taste-makes such as गुड 'molasses' and तिल 'sesame' are used to add to the flavour of the food.

The life of people in the *Pāninian* India was on the whole a happy

life. We can add many more details to the picture drawn above from the evidence supplied by P's grammar. P has, in fact, depicted through his analysis not only the external world but also the inner world of feelings and emotions, attitudes and approaches. We can conclude after a casual study of all such references to human inner world that although the material world has totally changed the world of feelings and emotions has not changed since *Pāṇinian* times. Dr. P. Filliozat has rightly described P's grammar as an "invaluable document on the cultural awareness of an educated Indian of antiquity" (Pierr-Sylvain Filliozat, "The Sanskrit Language : An Overview, English translation from original French by T. K. Gopalan, p.25).

Apart from being a valuable historical document P's grammar has provided a model of language description which treats both matter and mind together.

□□

Resume

In the foregoing pages we tried to take a quick snap-shot of the magnificent personality of Bhagavan Pāṇini, the greatest grammarian the world could ever produce. Here we will try to summarise his achievements as a grammarian and his contribution to the world of knowledge.

We have already seen how, according to Hsuan Tsang's report the main task before P was to reduce the amorphus size of the already existing Sanskrit grammar to a sizable compendium. Almost all the modern Indologists beginning with Wilhelm Von Schlegel (beginning of 19th century) have remarked that P's aphorisms could be compared with algebraic formulae. The foremost achievement of the Gandhar grammarian Pāṇini thus consists in presenting a mathematical model for language analysis which consists of a finite set of rules for explaining a an infinite number of speech units.

Structural approach is another outstanding feature of the Pāṇinian model. Linguists all over the world are impressed by this method of language description successfully implemented by P. It is believed that the Sanskrit language owes its perspecuity and built-up character to P's grammar. While the Greek grammarians stopped with the word, the conventional speech unit, P pierced through it and discovered the two basic building blocks, the archetypes, from the combination of which evolves the wonderful fabric called language. As demanded by the structural approach P. set up a very sophisticated machinery in the form of technical terminology, abbreviatory tools, devices for information chaining and he did not forget to provide decoding mechanism. Due to his workmanship of a very high rank his work emerges as a perfect model of *sūtra* mode of composition. Techniques such as additional and substitution used by P. in his step-by-step construction have functional basis which give his analysis a mathematical foundation.

P is highly respected both in the indigenous tradition and among the stalwarts of science in the world today. Recognition of his grammar as a Vedānga 'an ancillary to Veda' has sown the seed of deep devotion for P and his work which eventually formed part of the sacred literature of the ancient Indians. However, it is the inherent merit of his work rather that its recognition as a Vedānga (which can be questioned due to the footnote like nature of his Vedic rules), that has fetched him great fame. The magnificent superstructure of the language with the wonderful Pāninian setting is accepted by all the writers in Sanskrit. As observed by a linguist P's grammar is, through the ages, made subservient to the practical aim of controlling the correct speech of Sanskrit. This happy wedding of the Sanskrit language with his grammar is a unique phenomenon in the history of languages of the world.

P's etymological approach and detailed analysis of the exhaustive linguistic data collected from various social strata have a great value as a document throwing light on many a forgotten chapters in the cultural history of India.

In spite of a long array of works of great scholars, traditional as well as modern, who devoted themselves to this great grammarian, he has remained a challenge for Indologists. In this connection the remark of the wellknown Pāninian scholar O. Bohtlingk is worth mentioning. He says, "The more thoroughly one studies Pānini's grammar the more one is struck by the acuteness and the successful mastery of the vast matter, shown in it. It is indeed in its kind a masterpiece of the first rank."

Descriptive linguists are still engaged in unearthing his refined tools which are likely to sharpen their insights into linguistic facts.

Paul Thieme, one of the great linguists of this century says, "Studying Pānini's science of Vyakarana we are in the presence of a momentous hour in the history of the development of human thinking. It is an hour of birth. It is the birth of science out of magic."

□□

Pāṇini, the greatest grammarian of the world, belonged to the period between 5th and 4th century B C. He is indeed the first grammarian to go deeper into the conventional speech units known as words and recognise the basic elements of meaning which combine into different meaningful units. Thus his *Vyākarṇa Aṣṭādhyāyī* contains not only an analysis of speech units into their ultimate constituents but also lays down rules of their combinations leading to a variety of linguistic expressions. The most noteworthy aspect of the entire mechanism in the Pāṇinian workshop is economy. Economy reigns supreme in his grammar. The foremost achievement of the Gāndhar grammarian Pāṇini thus consists of a finite set of rules for explaining an infinite number of speech units. Linguists all over the world are impressed by this method of language description successfully implemented by Pāṇini. Due to his workmanship of a very high rank his work emerges as a perfect model of *sūtra* mode of composition. In this way, apart from being a valuable historical document Pāṇini's grammar has provided a model of language description which treats both matter and mind together.

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