



Research Paper

“The Role of Specific Grammar for Interpretation in Sanskrit”

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Abstract: Sanskrit enjoys a place of pride among Indian languages in terms of technology solutions that are available for it within India and abroad. The Indian government through its various agencies has been heavily funding other Indian languages for technology development but the funding for Sanskrit has been slow for a variety of reasons. Despite that, the work in the field has not suffered. The following sections do a survey of the language technology R&D in Sanskrit and other Indian languages. The word ‘Sanskrit’ means “prepared, pure, refined or perfect”. It was not for nothing that it was called the ‘devavani’ (language of the Gods). It has an outstanding place in our culture and indeed was recognized as a language of rare sublimity by the whole world. Sanskrit was the language of our philosophers, our scientists, our mathematicians, our poets and playwrights, our grammarians, our jurists, etc. In grammar, Panini and Patanjali (authors of Ashtadhyayi and the Mahabhashya) have no equals in the world; in astronomy and mathematics the works of Aryabhata, Brahmagupta and Bhaskar opened up new frontiers for mankind, as did the works of Charak and Sushrut in medicine. In philosophy Gautam (founder of the Nyaya system), Ashvaghosha (author of Buddha Charita), Kapila (founder of the Sankhya system), Shankaracharya, Brihaspati, etc., present the widest range of philosophical systems the world has ever seen, from deeply religious to strongly atheistic.

Key Words: Grammar, Sandhi, Vedic Grammar, Dhatu, Phonology, Hindu Grammar, Karaka, Participles, Infinitives and Gerunds.

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I. INTRODUCTION

The foundation of India culture is based on the Sanskrit language. There is a misconception about the Sanskrit language that it is only a language for chanting mantras in temples or religious ceremonies. However, that is less than 5% of the Sanskrit literature. More than 95% of the Sanskrit literature has nothing to do with religion, and instead it deals with philosophy, law, science, literature, grammar, phonetics, interpretation etc. In fact Sanskrit was the language of free thinkers, who questioned everything, and expressed the widest spectrum of thoughts on various subjects. In particular, Sanskrit was the language of our scientists in ancient India. Today, no doubt, we are behind the Western countries in science, but there was a time when India was leading the whole world in science. Knowledge of the great scientific achievements of our ancestors and our scientific heritage will give us the encouragement and moral strength to once again take India to the forefront of science in the modern world.

Jaimini’s Mimamsa Sutras laid the foundation of a whole system of rational interpretation of texts which was used not only in religion but also in law, philosophy, grammar, etc. In literature, the contribution of Sanskrit is of the foremost order. The works of Kalidas (Shakuntala, Meghdoot, Malavikagnimitra, etc.), Bhavabhuti (Malti Madhav, Uttar Ramcharit, etc.) and the epics of Valmiki, Vyas, etc. are known all over the world. These and countless other Sanskrit works kept the light of learning ablaze in our country upto modern times.

In many temples of Shiva, in the South of India, you can find a room specially built for the study of grammar. This room is called *vyakarana-dāna-maṇḍapa*. The construction of the *maṇḍapa* reveals the sanctity of the study of grammar. The vehicle for communicating the Vedas always has been in the form of words, thus to the study of grammar has been given the same reverence than to the Vedas.

This recognition was the importance of grammar for the study and interpretation of the Scriptures. And I want to emphasize that the grammar was not a complementary subject but **fundamental requirement** for

any student or disciple who was interested in the study of any of the six Orthodox systems) *darśanas*) of Hindu thought. In addition, grammar not is only revered as a means to know the meaning of the words and language, but that it recognized as **instrument to purify speech and discipline for the intellect**.

Of nine known grammar systems, more comprehensive work is the Aṣṭādhyāyī of Pāṇini, which gained importance as a basis for different Sciences tool and *ŚāSTRAS*. It says in a verse that **the grammar was present in all assemblies where a discussion of philosophical nature took place**.

1.1 Role of Sanskrit in Translation among Indian Languages (IL)

Sanskrit is probably the oldest and genealogically most connected language of the Indian sub-continent. Besides, almost all major Indian languages have inherited lexical, linguistic and stylistic features from Sanskrit. The common cultural heritage of the speakers of Indian languages also makes Sanskrit a connecting link between them.

Linguists like Emenou have explored the possibility of a ‘linguistic area’ in India. The fact that there are obvious linguistic similarities among Indian languages, need to be exploited for machine translation among Indian languages. There is an urgent need to develop linguistic resources and tools based on Pa_inian frame-work using Sanskrit as Interlingua for MT among Indian languages.

Sanskrit has been a ‘donor language’ in the Indian context. Not only the modern Indo-Aryan languages like Hindi, Panjabi, Bangla, Marathi, Gujrati (These languages are called *janya-bha_a*-s, the languages evolved from Sanskrit) etc. but also Dravidian languages like Kannada, Telugu, Malayalam and Tamil (to some extent) are beneficiaries of vast vocabulary of Sanskrit. The structure and semantics of these languages owe a great deal to Sanskrit. Whenever there is a need for a new technical word to be coined that can be accepted and integrated in these languages, Sanskrit is the sole source. The Sanskrit words appearing in these languages without any change are called – *tatsama* (equivalent to itself) words. It is said that about 36% of the words in Bangla are *tatsamas*.

Sanskrit words which are integrated into these languages with some modifications are called – *tadbhava*-s (derived from it). For e.g., *rathya _ rasta* (Hindi); *prakasa* (Sanskrit) _ *parkas* (Panjabi); *mahara_ ra _ mara ha* (Marathi); *lak_a_a* (Sanskrit) _ *ilakka_am* (Tamil); *pustaka* (Sanskrit) _ *hottige* (Kannada); *vithi* (Sanskrit) _ *vidi* (Telugu).

The traditional grammars of the Modern Indian languages which are used till date are based on the Paninian structure. The grammatical categories in these languages are classified in Paninian way and bear the same names. The nominal paradigms are treated in seven cases as in Sanskrit. The south Indian languages though belong to a different family of Dravidian languages they have been highly influenced by Sanskrit.

In the field of NLP, Paninian frame-work has been applied on most of the Indian languages, and is tested to be best for the Indian languages.⁷⁸ There have been attempts to use Sanskrit as Interlingua for MT among Indian languages.⁷⁹ Such being the close affinity between Sanskrit and other Indian languages there is a need to speed up research on applying the Sanskrit *Sastraic* techniques of Paninian Grammar, Navya Nyaya and Mima_sa for language processing in Indian languages especially in automatic translation systems among Indian languages.

II. MEANING OF THE WORD 'GRAMMAR'

The meaning of the word *vyākaraṇa* (grammar) is analyzed in this way: $VI+\bar{A}\bar{N}+ \sqrt{kr+lyut}$, which means "separate, discern, explain"; It is the analysis and explanation of how the words and forms language are created. Grammar analyzes nouns and verbs and its constitutive elements such as roots, affixes, etc. The Sanskrit language has a grammar framework that allows to form numerous varieties of compound words and morphological derivations. With this feature, **there is no Sanskrit a comprehensive dictionary**. He can go to look up the meaning of a word or compound words. **Only the knowledge of grammar provides access to the meaning and allows a correct interpretation**.

There is the tradition in a *maṅgalaśloka* that sums up very well the importance of grammar:

*vyākaraṇāt padaśuddhiḥ padaśuddheḥ arthanirṇayo bhavati /
arthāt tattvajñānam tattvajñānād mokṣaḥ bhaven //*

"The purity of words comes from the grammar; the purity of words comes from the full establishment of the meaning; meaning emerges the knowledge of reality [and] knowledge of reality, arises the release [end] ."

If the student knows the language and the grammar, you will be trained to be able to read the original work. Otherwise, the student will depend on second-hand interpretations. The use of a dictionary is very limited because there are a lot of referrals and compound words will not appear or that, without knowing grammar, they won't be able to find. If the student knows the language you can detect errors and distinguish whether an interpretation is correct or deviates much from the meanings and possible interpretations. **It is very common to accept interpretations and translations of authors who do not know the language at all** and they offer very subjective meanings according to the knowledge they have of the matter. These authors have some spiritual

weight or authority on the subject, but maybe its interpretation is not faithful to what the author in his work or I away from the most important comments.

On the other hand, it might be the case of people who know the language but do not know the matter and method. If the student has not been exposed to the tradition of teaching and has not learned from a master, the meaning can be merely **literal and 'dry'**, without the weight of the view of teachers and the teaching method. The ideal way to know the matter is through of the **exposure to a traditional teacher**. In the West, it is common to accept that know matter is doing a PhD or academic knowledge. This type of knowledge is welcome and valued but is not sufficient and complete. And it is not, especially in Vedanta, because this knowledge has to be exposed by someone who knows the technique and method but also assimilated education in its entirety and is seated in the vision. It may even be counterproductive that someone start a study independently and learn a self-taught.

The Sanskrit language is difficult and complex. Their study to become an intellectual discipline well suited for the necessary degree of abstraction in the philosophical study.

There are two other *maṅgalaśloka*-s who comment this double benefit:

*yena dhautā girāḥ pūṁsām vimalaiḥ śabdavāribhiḥ /
tamaś cājñānaḥ bhinnaṁ tasmai pāṇinaye namaḥ // 2 //*

"Greetings to Pāṇini, that cleaned up the speech of people with the pure waters of [Science] of the words, and that dispelled the darkness created by ignorance." "I bow before the three wise men: Varuci, the composer of the lipglosses, Patanjali, the author of the comments and Pāṇini, the author of aphorisms."

*yena śabdamaḥāmbhodheḥ kṛto vyākaraṇaplavaḥ /
Śabdaratnārthinām loke tasmai pāṇinaye namaḥ //
ajñānatimirāndhasya jñānānjanaśalākayā /
cakṣur unmīlitaṁ yena tasmai pāṇinaye namaḥ //*

"Greetings to Pāṇini, that has made the grammar boat for those who want to [have] the jewel of speech in [this] world [in order to cross] the great ocean of words." Greetings to Pāṇini, that opens, with the drops of knowledge, the eyes of those who are blind by the darkness of ignorance."

Within the tradition it is necessary to protect and preserve the methods of oral and written and so it is necessary to know the *vedāṅga*-s. The *sandhi* an incorrect pronunciation can change the meaning and the effect of the words and without knowledge of the etymology is not possible to know the meanings of the words and roots.

2.1 Grammar is the Analysis and Explanation of the Linguistic Forms.

Without these forms it is not possible to make correct use of the **rituals**, Since them depending on the purpose and actions to be carried out in a ritual it is necessary to change the case, number, gender, and to change them, it is necessary to know the grammar.

The Paṇiniya-sikṣā of a history of the Taittirīy-samhitā (2.4.12) on a rite, in which Tvaṣṭā prayed for a demon (asura) to destroy Indra. His prayer was recited incorrectly. Phonetically, it was incorrect. And all for an error in the recitation of the mantra: *indraśasttrvardhasva*. "Is born / grow him who will be the murderer of Indra". By reciting incorrectly Tvaṣṭā said: "That one who is born Indra is his murderer"

Levels of Speech

The various ancient texts speak of the levels of speech, which, generally, are taken to be four. Each School – Grammarians, Mimamsa, Upanishads, Tantra, Yoga, mythology etc – offers its own understanding and explanation of the four levels of speech. These levels are variously explained as the varieties of speech that are said to be spoken either in four regions of the universe; or spoken by divine beings and humans; or as speech of the humans, animals, birds and creatures. These four are even explained as four levels of consciousness.

For our limited purpose, let us briefly scan through other interpretations, before we discuss the Grammarians' views and their explanations of the four levels of speech.

The *Asya-vamiya – sukta* (Rig Veda: 1.140- 164) which is one the most philosophical, but rather enigmatic Suktas (hymns) of Rig Veda, ascribed to Rishi Dīrghatamas Aucathya (son of Ucathya), who was also called as Mamateya (son of Mamata), mentions about the levels of speech, among many other things.

According to Rishi Dīrghatamas, there are four levels of speech. Only the wise who are well trained, endowed with intelligence and understanding know them all. As for the rest; the three levels remain concealed and motionless. Mortals know only the fourth.

*Chatvaari vaak parimitaa padaani / taani vidur braahmaanaa ye manishinaah. Guhaa trini nihita nengayanti /
turiyam vaacho manushyaa vadanti. (Rigveda Samhita – 1.164.45)*

But, he does not specify what those four levels of speech are.

The notion that there are four quarters or four levels of existence; and of which, only one quarter is within the experience of mortals also appears in the *Purusha-sukta* (Rig-Veda 10.90.3) ascribed to Rishi Narayana – *Paadosya Vishva Bhutaani Tri-Paada-Asya-Amrtam Divi*.

There are similar notions with regard to *Pranava Om* where the three syllables *A*, *Vu*, and *Maare* normally visible. But it is its fourth element the *Anusvara (Brahma-bindu)* that leads from being to non-being; and , from the word to the silence beyond it.

svarena samdhayed yogam asvaram bhāvayet param asvarena hi bhāvena bhāvo nābhāva isyate–
Brahmabindu Upanishad

And, there is also the *Turiya paada (Chaturtha or Fourth)* the fourth line of the Gayatri mantra. It is said; while the traditional three lines of Gayatri mantra can be grasped by reason, the fourth line, which is mystical in its import, and can be comprehended only through intuition. The fourth line (*Turiya paada*) which reads ‘*paro rajas ya tapati*’ is said to be hidden (*darshatasya*) or un-manifest (*apad*); beyond intellect; resplendent, shining beyond the worlds known; and , which is the support of the Gayatri itself and of the Universe.

That idea of four quarters is extended to speech as well. The texts of several traditions speak of four levels of speech. For instance :

The *Maitrayaniya (Maitri) Upanishad (1, 11.5)*, of Krishna Yajur-Veda, mentions the four quarters of speech as those belonging: to the upper region – the heavens (*Divi*); to the intermediate space (*Antariksha*); and, to the region of earth (*Prithvi*) as spoken by the humans (*Manusi*); and, to the animals (*Pashu*) – *vāk sṛṣṭā caturdhā vyabhavad eṣu lokeṣu trīṇi turīyāni paśuṣu turīyaṃ yā pṛthivyāṃ sāgnau sā rathantare yāntarikṣe*.

The *Atmavadins* (mainly those belonging to Nyaya and Vaisesika Schools) say: the four fold speech can be found in the animals; in musical instruments (such a flute); in the beasts ; and, in the individuals (*Atmani*) – *pasusu tunavesu mrgesu atmani ca iti atmavadinah*

The *Satapatha Brahmana (1.3.16)* categorizes the speech into four kinds: as that of the humans; of animals and birds (*vayamsi*); of reptiles (snakes); and, of small creeping things (*kshudram sarisrpam*)

– *varsā vā ṛḍa iti hi varsā ṛḍo yadidaṃ kṣudraṃ sarisrpam 1.5.3.11*

Similarly, those who believe in myths and legends say that – the serpents; birds; evil creatures; as also the humans in their dealings with the rest of the world – all use speech of their own.

Sarpanam vagvayasam ksudrasarispsya ca caturthi vyavaharika-ityaitihāsikah

The *Jaiminiya-Upanishad-Brahmana (1.40.1)* deals with the four levels of speech in a little more detail. In a verse that is almost identical to the one appearing in *Rig-Veda Samhita – 1.164.45*, it mentions that the discriminating wise know of four quarters of speech. Three of these remain hidden; while the fourth is what people ordinarily speak.

Chatvaari vaak parimitaa padaani / taani vidur braahmaanaa ye manishinaah. Guhaa trini nihita nengayanti / turīyam vaacho manushyaa vadanti //

Then, the text goes on to explain that of the four quarters of speech: mind is a quarter, sight is another quarter, hearing is the third quarter; and, speech itself is the fourth quarter.

tasya etasyai vaco manah padas caksuh padas srottram pado vag eca caturtah padah

Further, it says: what he thinks with the mind, that he speaks with speech; what he sees with the sight, that he speaks with the speech; and, what he hears with hearing, that he speaks with speech.

tad yad vai manasa dyayanti tad vaco vadati; yac caksus pasyati tad vaca vadati; yac srotrena srnoti tad vaco vadati/

Thus, finally, all activities of senses unite (*Sam*) into speech. Therefore speech is the *Saman*.

Nageshabhatta (Ca. between 1670 and 1750), in his commentary on Patanjali’s *Mahabhashya*, accepts the four forms of Vac; and, explains the expression ‘*Catvari padjatani namakhyato-upasargani-patah*’ as referring to Para, Pashyanti, Madhyama and Vaikhari :

“*Bhashya padajatani Para-Pashyanti-Madhyama- Vaikhari rupani / ata evagre nipatah ceti cakaraha sangacchate*”

In the later Upanishads, speech is said to be assimilated with consciousness. The four divisions of speech are explained as four states of consciousness. For instance; Sri Gauda-Paada, the *Parama-Guru* of Sri Sankara (the teacher of his teacher) , in his celebrated commentary (*Gaudapada-karika*) on the *Mandukya Upanishad* while explaining his concept of *Asparsha Yoga* or pure knowledge, identifies the four levels of speech with the four states of consciousness : *Vishva or Vaisvanara* in wakeful state (*Jagrat*); *Taijasa* in dream state (*Svapna*); *Prajna* in deep-sleep (*Shushupti*); and, *Pranava AUM* with *Turiya*, the fourth, the Absolute state which transcends all the three states and represents Ultimate Reality .

Sri Sayana in his *Rg-Bhashya* deals with the subject of four levels of speech in a little more detail. He says, people use speech in a variety of ways to fulfil their roles and responsibilities in life. And, similarly, the animals, birds, creatures and objects in nature do use their own sort of speech to serve their needs. He then , while explaining these four levels or quarters of speech (*ani tani catwari itya atra bahavah*) , remarks that each School offers explanations (*bahudha varnayanti*) according to its own tenets (*sva- sva-mantanu-rodhena*). He, next, briefly mentions what those explanations are:

: – According to Vedantins, the four levels of speech could be the *Pranava* (*Aum*) – which is the sum and substance of all the Vedic terms (*sarva-vaidika-vag-jalasaya*), followed by three *Vyahritis* (*Bhu, Bhuh and Suvah*).

Thus the *Pranava* along with three *Vyahritis* form the four quarters of speech.

: – According to Nirukta (Etymology), the language of the three Vedas (*Rik, Yajus and Saman*) and the speech commonly used for dealings in the world, together make the four quarters of speech – (*Rg-yajuh-samani-caturdhi vyavharikiti nairuktah – 13,8*)

: – The four levels of speech could also be related to four regions representing four deities : on the Earth as *Agni* (*yo prthivyam sa-agnau*); in the mid-air as *Vayu* (*Ya-antarikshe sa vayau*); and, in the upper regions as *Aditya* (*Ya divi saditye*). And, whatever that remains and transcends the other three is in *Brahman* (*Tasya-mad-brahmana*).

: – The speech, though it is truly indivisible, is measured out or analyzed in the Grammar as of four kinds or four parts-of-speech (*akhandayah krtsnaya vacah caturvidha vyaktatvat*). Accordingly, the four divisions of speech are named by the followers of the various Schools of Grammar (*vyakarana-matanus-arino*) as: *Naaman* (Nouns), *Akhyata* (Verbs), *Upasarga* (prepositions or prefixes) and *Nipata* (particles)

:- According to the wise who are capable of exercising control over their mind; the Yogis who have realized *Sabdabrahman*; and, others of the Mantra (Tantra) School, these four levels of speech (*Evam catvari vacah padani parimitani*) are classified as : *Para, Pashyanti, Madhyama* and *Vaikhari*.

The Power of the Spoken Word

In the Indian traditions, it is believed that it is only in its oral form that the language becomes fully alive and reveals its true nature, provided it is spoken properly. For Indian thinkers, language was primarily the spoken word or speaking itself (*vac*); while the written word, as a secondary aid, was only a coded-representation of the spoken word; but, without its nuances. Perhaps the most salient feature of ancient Indian linguistic culture was its concern for preserving the purity of the spoken word.

It was the speech, the spoken word not the written letter that is at the base of the Sanskrit grammar. All speculations and practices are concerned with the oral. Panini’s *Astadhyayi* is also based on the sounds of spoken Sanskrit. The spoken language in Sanskrit was/is the real language.

Therefore, right from the earliest period, the study of speech has been one of the major concerns of various Schools of Indian traditions. The power of the spoken word or still more of the potent un-spoken sound was well recognized.

Levels of Awareness and Speech

The notion of various levels of awareness and speech is accepted and discussed in almost all the Schools of Indian philosophy and Grammar. Although numerous meanings are read into the term *catvari vak* (four kinds or levels of speech), the one that is commonly understood and commented upon by most Grammarians and philosophers is the classification of speech into four strata: *Para; Pashyanti; Madhyama*; and, *Vaikhari*.

The entire system of such classification is rooted in the faith that at the top of this language hierarchy, there is only One-indivisible (*ekameva*) Reality; and, it transforms itself (*Vivarta*), manifests itself, resulting (*Parinama*) in variety of sounds, word, sentence etc.

The theory underlying the evolution of speech is an extension of that faith; and it asserts, though there are several levels in the hierarchy of language, they all emanate from one indivisible reality *Sabdabrahman*. And again, the *Sabdabrahman* is identified with *Para Brahman*, the Absolute.

The principle that is involved here is also based in the dictum that diversity essentially pre-supposes an underlying unity (*abedha-purvaka hi bhedah*). In other words, it says, where there is difference or division there must be a fundamental identity underneath it; else, each cannot relate to the other; and, each object in the world would be independent of, or unconnected to every other thing in existence.

This concept provides the foundation for treating all forms of speech as emanating from a single source. The various levels of language from the most subtle to the gross are, therefore, treated as hierarchy or the levels of a unitary language-system. Most of the philosophical speculations on the process of manifestation of language; and, the discussions upon its various stages – from the subtlest (*Para*) to the most explicit (*Vaikhari*) – are based in that principle.

2.3

Grammarians’ View

Each of the major schools of Indian philosophy and Grammar tried to explain the origin and nature of the Universe by exploring the nature and manifestations of the sound. They built elaborate philosophical edifices around the concepts they evolved during that process. Those traditions considered sound as one of the most important principles of existence; as the source of matter; and, also the key to be free from it. They described Sound as the thread-like link connecting the material and spiritual realms.

The analysis of the speech by the Grammarians is not merely an intellectual exercise, but is also a philosophical quest in an attempt to identify all forms of speech as originating from *Sabda-Brahman*, the

ultimate ground of all speech phenomena. The study of Grammar was itself looked upon as a means or as a right-royal-path to liberation (*moksha-manamam ajihma raja-paddhatih*).

Speech was regarded as the verbal expression of a thought that arises in a person’s consciousness. If there is no consciousness, there would be no speech. Speech (*Vac*) is indeed an outward form of consciousness (*chetana*). *Vac* is the word principle that gives expression to the latent or unmanifest thoughts and feelings.

That was meant to say; thinking is, in fact, a sort of internal speaking. Such inaudible speech was regarded the seed or the potent form of explicit speech that is heard by others. It was also said; all knowledge is interpreted in terms of words; and, it is quite not possible to have any sort of cognition that is free from words (*tasmād arthavidhāḥ sarvāḥ śabdām- ātrāsu nīśritāḥ- Vakyapadiya: 1.123*)

The process of transformation of a thought or an impulse arising in ones consciousness into a cognizable, explicit speech is said to resemble the evolution of the Universe from the un-manifest (*A-vyakta*) to the manifest (*Vyakta*) material world.

Such process of unfolding is said to take place, at least, in two stages. The first one is the thought that flashes and takes a form within. And, the other is that which comes out as audible speech riding the vehicle of words and sentences; attempting to convey the idea that arose within. The former is intuition that springs up; and, the latter is the effort that is exerted, both internally and externally, to put it out.

Here, the latent, unspoken form of thought that instinctively springs up and is visualised, within one’s self, is called *Pashyanti Vak* (thought visualized). The *Pashyanti*, which also suggests the visual image of the word, is indivisible and without inner-sequence; in the sense, that the origin and destination of speech are one. Here, the ‘internal speech’ or ‘thought’ stands for what is intended to be conveyed. That intention is instinctive (*prathibha*) and immediate; and, it does not involve stages such as: analysis, speculation, drawing inferences and so on. At the level of *Pashyanti Vak*, there is no distinction between word and meaning. And, there is also no temporal sequence.

The *Pashyanti Vak* thereafter transforms into an intellectual process, the level of thought (*Buddhi*), during which the speaker looks for and identifies appropriate words, phrases, and their sequence, which are capable of conveying his intention candidly. That sequence of thoughts results in definite and clear array of words. As that cognition arises and takes a form within, he grasps it. This is the intermediate stage – *The Madhyama vak*, a sequenced but a pre-vocal thought – described as the voice of silence; perhaps best understood as internal speaking. Here, there is no perceptible sound (*Nada*). *The Madhyama vak* is in an inaudible wave or vibratory (*spandana*) form.

And, the *Madhyama*, when it is put out explicitly through uttered words and sentences; and, when it comes out of the speaker’s mouth in sequenced and verbalized speech-form, it is called *Vaikhari Vak*. For the purpose of putting out the *Vaikhari Vac*, the speaker employs a sentence comprising words uttered in a sequence. The word itself comprises letters or syllables (*varnas*) that follow one after the other in space and time.

Thus, the *Vaikhari* is the articulated speech, which, as sound waves, reaches the ears of the listener and then on to her/his intellect. The *Vaikhari* is the physical or gross form of the subtle thought or is the outward expression of the intention of the speaker. And, when it emerges as the spoken-word, it is the one that is heard and apprehended by the listener, in a flash of understanding (*Sphota*).

[The process of Hearing, that is what is heard and grasped by the listener, of course, operates in the reverse direction.]

The spoken word comes out of one’s mouth, no doubt. However, it needs the assistance of breath and of several body parts in order to manifest itself (*Vikhara* literally means body; and, *Vaikhari* is that which employs bodily organs). The head, throat, tongue, palate, teeth, lips, nose, root of the tongue and bosom are said to be the eight places which assist the sounds of the letters to become audible and explicit.

When a person wills to express a thought orally, the air (*Prana*) inside his body spurs and moves up. *Sabda* or the *Vac* (speech or utterance) then manifests through *Dhvani* (sound patterns), with the assistance of appropriate organs.

Thus, the transformation of a thought into spoken-words involves two kinds of effort: the internal process (*abhyantara prayatna*) and the external effort (*bahya prayatna*). The former is classified into two kinds (*Pashyanti* and *Madhyama*), while the latter (the external) is said to be of eleven kinds.

And, of the three levels or stages of speech, *Pashyanti* is regarded the subtle forms of *Vac*; while *Madhyama* and *Vaikhari* are its gross forms.

The chief characteristic of *Vaikhari Vak* is that it has a fully developed temporal sequence. At this level, the speaker’s individual peculiarities (such as accent, voice modulation etc) are present, along with relevant parts of speech. Though the *Vaikhari* gives expression to subtler forms of *Vac*, it is not considered as the ‘ultimate’.

Grammar is the system of rules, implicit in a language, governing the structural and functional relationships of the language including word components, phonology, morphology and syntax.

Pāṇini's Aṣṭādhyāyī is the text meant when one refers to the grammar of Sanskrit without any qualification. This is called Aṣṭādhyāyī because it contains eight chapters; each of these is further divided into four quarters. In total, there are 3,978 sūtras. This text, composed more than 2,400 years ago, remains the most comprehensive grammar of Sanskrit and is still taught and studied in a slightly re-arranged manner in India and elsewhere. It is also one of the most comprehensive grammars of any language in the world. Yet for such a comprehensive grammar, it is remarkably short, it is composed of 1,000 ślokas. To give an idea of how long this is, it would fit into fifty A4 sheets, typed normally. This extreme terseness is mainly due to the nature of the sūtra^[1]-type of literature.

In addition to Pāṇini's work, three other works – all related and closely dependent on the Aṣṭādhyāyī – need to be mentioned with respect to grammar. They are the vārtikas by Kātyāyana or Vararuchi, the bhāṣya by Patanjali, and the rearrangement into chapters by Bhattoji Dīkṣita in the form of Siddhāntakaumudī. An edition of the Mahabhāṣya contains the original sūtras, the vārtikas and the bhāṣya; similarly Siddhāntakaumudī contains the original sūtras, many of the vārtikas, and notes by Bhattoji Dīkṣita.

Ground Rules

The first chapter of the Siddhāntakaumudī puts together most of the Definitions (sanjñā rules) and the Rules of Interpretation (paribhāṣa) before dealing with the subject proper.

2.4 Sandhi

Sandhi is the coalescence of two letters in immediate contact. For instance, cup+board results in cupboard with the conjunct syllable 'pb' being pronounced as 'bb'. Thus, sandhi is something which is common to all languages, not merely Sanskrit. At any rate, to a large extent this is true of Indian languages. We find that the rules of sandhi in Sanskrit are sometimes not followed in Dravidian languages. For instance a + u results in o in Sanskrit, as in sūrya + udayam = sūryodayam. However, bengala + ūru = bengalūru, not bengaloru, but when it comes to sūryodaya, the Sanskrit rule is followed. Even in Sanskrit, we have exceptions to the general rule. To continue with the 'a + u' combination, akṣa + ūhini = akṣauhini (a military unit consisting of 21,870 chariots, 21,870 elephants, 65,610 horses and 1,09,350 foot soldiers), not akṣohini; pra + ūdha = prauḍha (full grown, mature), not proḍha.

The vowel 'o' is by definition the combination of 'a' and 'u' (hence it has no short form in Sanskrit, unlike in Dravidian languages) and when such a combination results in a diphthong 'au' (a diphthong is a combination of two vowels; 'ai' and 'au' are the diphthongs in Sanskrit, as the term is used in English), or does not result in the combinatorial vowel 'o' (though the two vowels forming this sound are not clearly discernible, 'e' and 'o' are referred to as diphthongs by Sanskrit grammarians).

In the above examples, we see that exceptions to the pure, technical rules are found. These exceptions occur by force of usage. Linguists have observed several tendencies – towards simplification in most cases – which go against strict, narrow technical rules. The rules of Sandhi in grammar deal with both the generic, technical rules and rules which take note of the convention of usage. For those who argue that Paninian grammar is prescriptive and has frozen Sanskrit, this should make it clear that the Paninian grammar was descriptive when it was composed.

The Sandhis are classified as vowel sandhis, non-sandhis (that is rules describing the occasions where sandhi does not occur), visarga sandhi and hal-sandhi (coalescence of final consonants with vowels and consonants). Another useful classification is internal sandhi and external sandhi. Internal sandhi refers to the sandhi amongst case endings, verbal affixes, prefixes and suffixes which results in the formation of a word; external sandhi is what occurs between words, whether they form a compound or not.

External sandhi is more familiar to speakers of other Indian languages. In the earlier example, sūryodaya, we see an external sandhi. In saṁ + kṛta = saṁskṛta (put together, well done, refined), we find an example of both an internal sandhi and a description of usage, rather a prescriptive rule.

As will be seen later, modern English differs from Sanskrit in treatment of compound words. This tendency to split compound words is observed in several Indian languages as well. Here it is pertinent to note that sandhi is nitya, that is, sandhi rules ought to be always followed in case of internal sandhi and in case of compound words. External sandhi, not amongst compound words, is up to the speaker in speech or prose, but compulsory in verse.

For a beginner, external sandhi is taught, while rules governing internal sandhi are passed over. Actually the rules governing sandhi apply equally to internal and external sandhis, but certain rules are exclusively or mostly applicable to internal sandhi; these are the rules which are not taught to beginners. Also, the examples given are mainly those of external sandhi.

Declensions

A noun changes its form depending on the number and case of the noun. For instance book is a singular; books, plural. Case is the English word for vibhakti. We have rules such as the karta, doer or subject, is in prathamā vibhakti; the karta, or object, is in dvitīyā vibhakti; and the karaṇa, instrument is in the tritīyā vibhakti.

The first three cases are respectively called nominative, accusative and instrumental cases; the next four are dative, ablative, genitive and locative. The sambodhana prathamā vibhakti is called the vocative.

The various forms of the noun in different cases and numbers are called 'declensions' and a noun (or adjective or pronoun) is said to decline. Such changes are also called inflections. Inflection, technically, has a larger scope since it includes the changes in verbs, called 'conjugation'. Nouns do not decline much in English except for number (singular and plural); another common occurrence is the genitive, formed by the addition of an apostrophe and 's'. Sanskrit nouns (and six other parts of speech, that is, all except verbs) decline profusely, with the addition of a dual number, not common in other familiar languages. While, technically every subanta has 21 (or 24) forms, distinct forms are lesser than that. The dual number has only three forms (nominative and accusative; instrumental, dative and ablative; genitive and locative), while the plural has only six forms (the dative and the ablative are always identical). There are a class of words called avyayas or indeclinables which do not decline. In other words, they have an identical form in all the three numbers and seven cases.

Nominally, a noun form is formed by the addition of a case affix called a 'sup' to the noun stem. They are 21 case affixes, starting with 'su', 'au', 'jas' and ending with 'ni', 'os', 'sup'. By combining the first letter of these affixes 'su' with the last letter 'p', we get 'sup' which refers to the set of 21 affixes.

The addition of these affixes is far from simple. They usually change depending upon the gender of the noun stem, prātipadika. Then they are elaborate sandhi rules. At the end of it all, a noun declines as illustrated below:

akārāntaḥ pulliṅgaḥ rāma śabdaḥ

rāmaḥ	rāmau	rāmāḥ	prathamā vibhaktiḥ
rāmam	rāmau	rāmān	dvitīyā vibhaktiḥ
rāmeṇa	rāmābhyām	rāmaiḥ	tritīyā vibhaktiḥ
rāmāya	rāmābhyām	rāmebhyaḥ	caturthī vibhaktiḥ
rāmāt	rāmābhyām	rāmebhyaḥ	pañcamī vibhaktiḥ
rāmasya	rāmāyoḥ	rāmāṇām	ṣaṣṭhī vibhaktiḥ
rāme	rāmāyoḥ	rāmeṣu	saptamī vibhaktiḥ
he <u>rāma</u>	he rāmau he rāmāḥ	sambodhana	prathamā vibhaktiḥ

The process of deriving each of the above forms is called rūpasiddhi (literally, attainment of form) which demonstrates one's mastery of grammar. This process is so complicated that vibhakti forms are learnt by heart, independently of grammar. These forms vary depending on the gender of the noun (and the other six parts of speech, henceforth noun in this context shall include the other subantas as well) and the last letter of the noun. A traditional text, śabdamañjarī, lists about 175 of these forms. A Kerala version lists 200.

For a beginner, the rules of grammar relevant to declensions are usually not taught; instead a sub-set of the vibhakti forms are taught, usually masculine and neuter nouns ending in a, i, u, ṛ, ṭ; feminine nouns ending in ā, ī, ū, ṛ; and a few pronouns. Even advanced learners tend to learn the rest of the vibhaktis first and attempt rūpasiddhi, if at all, later.

A verse which lists the singular forms of rāma in various cases and also demonstrates the basic syntax of the usage of case is given below. This verse is found in the Ramaraksha Stotra composed by Sage Budha Kausika[1]:

rāmo rājamaṇiḥ sadā vijayate rāmam ramesam bhaje,
rāmeṇābhihatā niśācaracamū rāmāya tasmai namaḥ |
rāmānāsti parāyaṇam parataram rāmasya dāso'smyaham,
rāme citta laya sadā bhavatu me bho rāma māmuddhara ||

Indeclinables

As mentioned earlier, an avyaya or an indeclinable has the same form in all numbers and cases, and also the three genders. Additionally, there are a few nouns called nipātas, which have an identical form everywhere: anyat, astam, om, canas, cātu, namas, nāsti, bhūr, bhuvan, vadi, śam, śudi, sudi, samvat, svāhā, svadhā, svar and svasti.

The different types of indeclinables are

- **prepositions,**
- **adverbs,**
- **particles,**
- **conjunctions and**

• **interjections.**

There are about 20 prepositions, called upasargas; about 300 words used adverbially, 9 particles (ad, kā, ku, cana, cit, na, sma, vit and svī), about fifty conjunctions and about forty interjections.

Of these, the upasargas are the most important. They combine with verb stems and multiply the available vocabulary. Then, they combine with other nouns to form compound words called avyayībhāvas, which are themselves indeclinable.

A beginner is usually introduced only to upasargas; the other indeclinables are explained as and when they are encountered, rather than being taught formally as a component of grammar.

2.5 Formation of Feminine Bases

In Sanskrit, nouns, adjectives and the subantas are formed from verbal roots by the additions of krit and other affixes. The word so formed is usually masculine. To these masculine words, addition of 'ā', 'ī', 'ū' and 'i' results in the feminine. This addition is subject to a set of rules collated under the chapter formation of feminine bases. A beginner usually understands the application of the more important of these rules by exposure. A formal study is taking up in advanced stage.

Cases (kārakas)

Kāraḥ prakaraṇa is the part of grammar that deals with syntax. To be sure, Sanskrit syntax properly extends beyond the kārakas to include concordance (agreement of the adjective with the noun and agreement of the verb with the subject), usage of pronouns and the usage of numerous participles. Many of these are by convention and usage by respected authors. This situation led to the comment amongst western Indologists that if Sanskrit grammar is lacking in any area, it is in syntax. To quote Dr. H. Kern in his introduction to 'Sanskrit Syntax' by Dr. J. S. Speijer (published by E. J. Brill, Leyden, 1886), “Indian grammar, which is virtually the same as saying Pāṇini's grammar, superior as it is in many respects to anything of the kind produced among other civilized nations of antiquity, is profoundly deficient in its treatment of syntax”.

There are six kārakas corresponding to the seven cases, save the genitive.

Karaka	Case	Usage	Example
kartā	Nominative (prathamā)	Naming or default case; denotes the subject when used with a verb	<u>Rama</u> is a jewel among kings.
<u>karma</u>	Accusative (dvitīyā)	Denotes the object	[I] <u>worship Rama</u> .
karana	Instrumental (trīṭīyā)	Denotes the agent or instrument of action	The army of demons is killed by <u>Rama</u> .
sampradāna	Dative (caturthī)	Denotes the person to whom something is given or offered; or an object with reference to which an action of offering is made	I offer salutations to <u>Rama</u> (this translation is to convey the sense of the dative; the proper translation is 'I bow to Rama'.)
apādāna	Ablative (pañcamī)	The primary sense is that of separation and moving away from, real or figurative.	There is no higher path than [that of] Rama.
<u>adhikarana</u>	Locative (saptamī)	Denotes the place where an action takes place, with reference to the subject or object.	May my heart always be fixated upon Rama.

All senses not expressed by the kārakas are expressed by the genitive. Technically, the genitive expresses the relation of one noun to another in a sentence. In 'rāmasya dāsaḥ asmi aham' (I am the servant of Rama), the speaker belongs to Rama, in the capacity of a servant and hence Rama is expressed in the genitive case. Additionally, we have the vocative case, treated as a variant of the nominative case which denotes the person being addressed, as in 'bho rāma! māṃ uddhara' (O Rama! Uplift me).

There are two other cases called the locative absolute and the genitive absolute. It is best to introduce the Absolute case by quoting Alexander Bain from his “Higher English Grammar” (published by Longmans & Co., London, 1879):

When the participle agrees with a Subject different from the Subject of the Verb, the Phrase is said to be in Absolute Construction: 'the sun having risen, we commenced our journey'; 'this said, he sat down'.

Whereas the nominative is used as the absolute in English, the locative absolute is the most popular in Sanskrit, and referred to as 'sati saptamī'. The genitive absolute, used less frequently to show contempt or disregard, is referred to as 'sataḥ ṣaṣṭhī'. It may be noted that both 'sati' and 'sataḥ' are the locative and genitive singulars of the word 'san', to be. The absolute case is used to convey the sense of English particles 'when', 'while', 'since' and 'although'.

A good understanding of the common usage of the various cases is fundamental to make any progress in learning Sanskrit. Though the absolute case is somewhat difficult to initially master, it is used very frequently and the beginner should be at least able to identify the absolute case, if not be actually able to use it properly. The less frequent usages of different cases may be initially omitted.

Here it is pertinent to note a tendency amongst schools to make children learn up to 20 vibhakti patterns by rote, but omitting to properly introduce the kārakas. The declensions, learnt with such difficulty, make sense only when the student knows how to use them and for that a preliminary understanding of the matter treated above is absolutely essential. If the object being learnt has a purpose, it makes the act of learning less of a chore and more interesting. This is recognised by agencies outside the school system, who in the name of 'Spoken Sanskrit' introduce copious sentences in all the cases.

Compound Words

When two or more words are joined together, a compound word is formed, called samāsa (sam, together + as, be) in Sanskrit. Usually the relation between the words is not mentioned. When required, the compound is resolved, giving the relationship between the words joined. For instance, 'lokanātha' can mean 'the lord of the world' or 'one to whom the world is the lord'. The sentence which resolves a compound is called a vighraha vākya.

The rules of sandhi are observed when the words forming a compound come together. In all respects, the compound word behaves like a word and takes case affixes and can form other compounds. One criticism of later developments in Sanskrit is that the compounds became very long – often running to a full page – doing the duty of full fledged sentences. Compounds are variously classified in four, five or six groups, with further sub-classification. The samāsakusumāvalih gives examples of about a hundred types of samāsas, with examples of compounds along with their resolutions.

A note about writing compound words is in order. English has developed a convention of writing compound words such as 'civil servant' with a space in between. In contrast, German is more insistent that a compound word retain its fundamental character of being a single word. Thus, we have the German Nationalsozialistische Deutsche Arbeiterpartei (National Socialist German Workers Party) shortened to Nazi Party using the first two letters of the two words in the first compound. It may also be noted that the last word, 'workers party' is also a compound. Following the English convention, Indians started writing names as Pāmūlaparti Venkaṭa Narasimha Rao, whereas the correct way of writing such a name ought to be Pāmūlaparti (called the upanāma in Sanskrit) Venkaṭanarasimharao. The same convention extends to ShivaKumar, Nārāyaṇ Dutt and so on. However Indirā Priyadarśinī maybe written as such, as Priyadarśinī can also be an adjective describing Indirā. Having said this, it must be mentioned that conventions develop over time and the general usage becomes the standard usage.

A mastery of kārakas is required to write the vighraha vākyas, resolution of compounds. The beginner need not bother with all the classifications and sub-classifications or with the vighraha vākyas, as long as the sense conveyed by the samāsas is adequately understood. Once the basics are learnt, a working knowledge of compounds ought to be acquired for it is almost impossible to find any fragment of non-vedic Sanskrit without compounds.

Taddhitas or Secondary Derivatives

Vritti is the general term for any complex formation in Sanskrit requiring explanation or resolution. We have just examined one such vritti, the samāsa. The other vrittis are ekaśeṣa vritti (similar to the dvandvasamāsa), kridvritti (formation of words from roots or verb-stems by primary affixes), dhātuvritti (formation of derivative verbs from primary roots) and taddhitavritti (formation of derivative bases from nouns by secondary affixes).

For instance, Rama is referred to as dāśarathī, by virtue of being the son of Daśaratha. Bhārata, kaurava, pāṇḍava, pārtha, gāṅgeya, śāntanu, rāghava, pārvatī, draupadī, yādava, bhārgava, vāsudeva, and bhāradvāja are all examples of names derived from ancestors by addition of secondary affixes. Pitāmaha, mātula etc. are examples of nouns derived from descendants. Taddhithas are not restricted to persons alone. Often books are named as a secondary derivative of the author. Thus, Govindarājīyam is the commentary on Ramayana by Govindarāja and Śāṅkarabhāṣya is the bhāṣya written by Śāṅkara. Another taddhita pratyaya, 'in' conveys the sense of possession: thus, dandīn is somebody with a staff, danda; guṇin, with guṇa; cakrin, with cakra (Viṣṇu) and so on.

There are more than 70 taddhita pratyayas, and are most profusely used. Taddhitas seem to be preferred from a stylistic point as well, more so amongst the Southerners. One such excessive use of taddhitas by Kātyāyana led the bhāṣyakāra to comment 'priyataddhitāḥ dākṣiṇātyāḥ' and that lable stuck since then.

Conjugation of Roots

Conjugation refers to the changes that a verb undergoes. For instance, the verb 'boil' changes to 'boils' 'boiled', 'boiling', 'will boil' and so on. In Sanskrit the verb changes its forms in the three numbers – singular, dual and plural – and three persons: Third person, second person and first person. Thus, paṭh (to read) takes various forms depending on who the subject is: sā pāṭhati (she reads), chātrāḥ pāṭhanti (students read) or aham pāṭhāmi (I read). The various forms of the verb pāṭh in present tense are given below:

English Person Sanskrit Person Singular Dual Plural Third Person prathamapuruṣa paṭhati paṭhataḥ paṭhanti
Second Person madhyamapuruṣa paṭhasi paṭhatha paṭhathaḥ First Person uttamapuruṣa paṭhāmi paṭhāvah
paṭhāmah

The difference in nomenclature between English and Sanskrit is to be noted. The literal translation of prathamapuruṣa ought to be the first person, but it corresponds to the third person in English.

The Six Tenses

The three most familiar tenses or simple tenses are the present, past and future. Sanskrit has three more tenses: two more varieties of past tense and an additional variety of future tense. Additionally, there are four moods. We will examine each of these in turn.

One variety of the past tense is Past Perfect or simply Perfect, called parokṣabhūtaḥ in Sanskrit, meaning something which happened long ago. An example would be: rājādaśaratho nāma babhūva (there was a king called Dasaratha). That was thousands of years ago; Dasaratha is no longer around. This is the perfect past; the Imperfect Past is the opposite of it: bālaḥ phalaṃ akhādat (boy ate fruit). Conceivably, this happened sometime back. The technical rule is that this ought to be used when the event is capable of being witnessed by the speaker. In practice that is often not the case. Then, there is a third kind of past tense, which is supposed to be indefinite about whether the action is complete or not. Based on the Greek word for indefinite, this is called the Aorist. A lot of this terminology came from early studies in Indo-European languages, but the labels can sometimes confuse the beginner. From the above description, a sensible approach would be to use the Aorist heavily and use the Perfect and Imperfect tenses with precision and clarity; that however is not the case. The most commonly used verb form of past tense is the Imperfect and the Sanskrit Imperfect is quite different from the English Imperfect (called the Past Continuous or Past Progressive). In English the Imperfect or Past Continuous requires the action to have started in the past and to continue into the present, as in “I was eating”. That is not the case in Sanskrit, as we saw in the example of “boy ate fruit”. This is not to say that the label-givers were wrong. In fact, in other Indo-European languages, the Imperfect indeed refers to only past actions; English is more the exception. The older names for these tenses were 1st Preterite (Imperfect), 2nd Preterite (Perfect) and 3rd Preterite (Aorist). Preterite, from the Latin equivalent of bhūta, is the same as past tense.

There are two future tenses, referred to as 1st Future and 2nd Future, or Periphrastic Future and Simple Future, in that order. Periphrastic is another unfamiliar technical word of grammar. ‘Peri’ is the prefix meaning about, around etc; ‘phrastic’ is derived from phrase. Thus, periphrastic means phrase-like. A periphrastic verb is a verb form constructed using an auxiliary verb, as in “he did say...”. This is, it will be observed, different from the simple inflected or conjugated verb form in “he said...”. A periphrastic verb is different from a phrasal verb, which is a verb combined with an adverb and/or a preposition, as “speak up”. The 1st future in Sanskrit refers to an action that would occur at a definite time in future but not this day, whereas the 2nd future refers to an action that would occur at an indefinite time in future including today, and to denote recent and future continuous time.

Thus, in place of three familiar tenses (actually there are more than three tenses in English such as past perfect and present perfect continuous), we have six tenses in Sanskrit.

The Four Moods

In addition to the six tenses, we have four 'moods'. Mood captures the 'attitude' of the speaker. Let us say the principal of the School sends a directive for school children regarding the Republic Day event at school. If the directive says, 'all teachers must attend', it is said to be in imperative mood; if it further states that 'all school buses would run in their normal routes as many children may attend', the bit about children is said to be in potential mood; if the directive ends with something along the lines of 'may our children strengthen this Republic further', it is in a benedictive mood. The fourth is called the conditional where the action of the verb is conditional upon another event. In English, an example would be “If it rains, he won't go”. There is another closely related mood called Subjunctive, which has a sense of “subject to”. In English and Classical languages of the West, the subjunctive requires an event contrary to the present state of affairs to take place. If we change the above cited example to “If it were to rain, he would not go”, it would convey the sense that the speaker does not wish 'him' to go and so wants rain, though there is no rain or indication of rain presently. This is the sense conveyed by the Subjunctive. The subjunctive, as used in the Vedic language, is slightly different. It is a composite mood, and may be considered to have six tenses (as per S. C. Vasu): Present, Imperfect, Present Conditional, Imperfect Conditional, Strong Present Conditional and Strong Imperfect Conditional. It conveys (according to the sūtra 3.4.8 of the Aṣṭhādhyāyī) the senses of 'upasaṃvāda' (contingent promise or reciprocal agreement as in 'If you do X, I will give you Y') and āśankā (apprehension, guess, estimate).

We have started the introduction saying there are four moods, but listed five: Imperative, Potential, Benedictive, Conditional and Subjunctive. This is so because the Potential and Benedictive are two forms of what is simply referred to as liṅ in Sanskrit. The Potential is called vidhiliṅ and the Benedictive is called āśriliṅ. Since the Subjunctive is not studied in the laukika grammar, the two liṅs are separately studied.

Alternative Names for Moods

Some books on Sanskrit grammar mention other moods such as the Injunctive, Optative and Precative. These are best understood by first knowing the meaning of these terms. The Injunctive is related to the word used so commonly in courts: 'injunction'. An injunction is an order, a command. The Optative is derived from the same root as 'option' and conveys a sense of choice. In grammar, the mood expressing a preferred choice amongst alternatives, that is a wish, is called the Optative. The precative is related to 'pray', and expresses an entreaty, supplication, a prayer. These terms are used in the grammar of Greek and Latin, and attempts were made to find equivalents in Sanskrit.

The equivalent in Sanskrit for the Injunctive is found in the Aorist. There are seven (according to M. R. Kale) or three varieties (according to Western grammarians of Sanskrit) of the Aorist, and the Injunctive is one of those. The difference between the Imperative and Injunctive is in terms of affixes, augmentation and historical development, rather than in usage. Similarly, the Precative and Optative are, in one interpretation, forms of the Aorist. S. C. Vasu however treats the Potential as the same as the Optative. In dealing with all these labels, the point of view of the author is of much significance. For somebody not interested in comparative studies, these labels are less than helpful. What is important, and which is clear enough in the traditional classification, is to know which form expresses a command, wish, blessing, prayer, possibility and conditionality.

One other label might be mentioned: the pluperfect, which may be roughly thought of as the complete or supremely perfect; in English it has an easier label, the past perfect tense. It is usually stated that Sanskrit has no pluperfect. This is true in the sense of comparison with Greek, but Sanskrit is perfectly capable of expressing actions fully completed in the past using the various participles, the locative absolute and such others. In the more advanced books on grammar, usually remarks are made as to how a given particle or tense serves the function of the pluperfect as well. There it is most useful to substitute past perfect for the pluperfect.

Pāṇini's labels are purely nominal, devoid of any meaning, as tabulated below:

S. No.	lakāra	Descriptive Label	Sense conveyed	3rd Person, Singular form of bhū
1	laṭ	Present tense	Action taking place at the present time, recently completed or in the immediate future (where are you going?); habitual or repeated action; and others.	bhavati
2	liṭ	Perfect tense or 2nd Preterite	Action done before the current day and not witnessed by the speaker; action which takes place when the speaker was unconscious or distracted	babhūva
3	luṭ	First future or Periphrastic future tenses	Definite futurity, not today (he would donate food on the amāvāsya).	bhavitā
4	lṛiṭ	Second future or simple future tense	Indefinite futurity (he would donate food life-long); including today; and others.	bhaviṣyati
5	leṭ	Subjunctive mood	Wish etc. subject to action contrary to present state taking place (If I were the Prime Minister of India,...); and others. Used only in the <u>Vedas</u> .	
6	loṭ	Imperative mood	Command; entreaty; benediction; courteous enquiry; gentle advice and others.	bhavatu, bhavatāt
7	lañ *	Imperfect tense or 1st Preterite	Past action not done today, and others. Presently, the most commonly used form of the past tense.	abhavat
8	liñ	vidhiliñ Potential mood	<u>Vidhi</u> (duty), <u>nimantrana</u> (invitation), <u>āmantrana</u> (permission), adhīṣṭa (attend honorary office), sampraśna (courteous enquiry), prārthana (prayer) and others.	bhavet
		āśīrliñ Benedictive mood	Blessings	bhūyāt
9	luñ	Aorist or 3rd Preterite	Past action indefinitely, without reference to any particular time; and others	abhūt
10	lṛiñ	Conditional mood	Action conditional upon something	abhaviṣyat

lañ is pronounced like the English 'lung'; similarly others are pronounced as ling, lung, and lring.

There remain two more details of the verb to be noticed: the voice (active, passive, impersonal) and the personal terminations. There are two personal terminations called parasmaipada and Atmanepada that roots take to form verbs. Theoretically, when the fruit of action of a verb accrues to the speaker, Atmanepada is used; when it does not accrue to the speaker, parasmaipada is used. Some verbs are exclusively parasmaipada verbs, others exclusively Atmanepada verbs; some admit both affixes, and are called ubhayapadas. There are a few which change from one category to another, if preceded by certain prefixes. The terminations for the Atmanepada verbs are different from the parasmaipada terminations. To give a feel for the difference between

parasmaipada and Atmanepada conjugations, the Atmanepada verb, labh (to gain), is conjugated in the present tense below:

English Person Sanskrit Person Singular Dual Plural Third Person prathamapuruṣa labhate labhete labhante Second Person madhyamapuruṣa labhase labhethe labhadhve First Person uttamapuruṣa labhe labhāvahe labhāmahe

It may be noted that Atmanepada conjugations for the ten tenses and moods are distinct from the parasmaipada conjugations in those ten lakāras.

Verbs which admit an object, or karma, are called sakarmakadhātus, or transitive verbs. These may be expressed in the active voice or passive voice. For instance, ‘Rama reads the book’ (rāmaḥ pustakaṃ pāṭhati) is in active voice; in the passive voice, the sentence is rewritten as: The book is being read by Rama (rāmeṇa pustakaḥ pāṭhyate). Read is called a transitive verb. Some verbs do not admit an object, as in, ‘I sleep’. Such verbs are called intransitive verbs, or akarmakadhātus. For such verbs, the passive construction is called impersonal passive, or bhāve prayogaḥ. There is a third kind of passive called the reflexive, as in ‘rice is cooked’ (odanaḥ pacyate). Irrespective of which passive the verb takes, the conjugation of the verb in the passive voice is similar. As it happens, it is identical with the conjugation of verbs of the 4th class Atmanepada verbs.

Thus, we see that verbs can be conjugated in ten tenses and moods, nine forms in each tense or mood, corresponding to the three numbers and the three persons; that is each verb changes itself into ninety forms. Then we need to add the forms in passive voice, which adds another 90 forms. Since the passive forms and Atmanepada forms are identical, for every verb a student needs to learn 180 verb forms. Since this may be quite daunting, during the initial stages only five lakāras are introduced: present, imperfect and simple future tense; imperative and potential moods. This cuts the load in half, but knowing these forms and declension of about twenty of the more important noun and pronoun forms is essential to be able to read anything in Sanskrit.

Derivative Verbs

There are four kinds of derivative verbs, called pratyayāntadhātus: Causals (ñijantas), Desideratives (sannantas), Frequentatives (yañantas) and Denominatives (nāmadhātus).

A causal verb is different from an ordinary verb in that the agent of action, karta, causes another to do the action rather than do it himself. Thus, “Rama makes [the students] read”, rāmaḥ pāṭhayati. These are formed by the addition of the affix ‘ñic’ (which is actually a plain ‘i’ with a head, ‘ñ’ and tail ‘c’, for ease of pronunciation). Words ending in ‘ñic’ are ñijantas (the transformation of the last harsh ‘ca’ into the softer ‘ja’ being a feature of sandhi). This is another ‘artificial’ or nominal non-descriptive lable of Pāṇini. Other teachers refer to this also as prayojakārthakas. The conjugation of these causal verbs is exactly similar to the conjugation of verbs in the tenth class. This somewhat reduces the burden on the student.

The Desiderative verb expresses the desire of the agent of action to perform the action, or to be in the condition, denoted by the root or the desiderative base. pīṭhīṣati, [he] wishes to study, is derived from the root, pīṭh. Nominal and participle derivatives of the desiderative verb are fairly common, not only in Sanskrit but in other Indian languages as well. Śuśrūṣā, the desire to listen, has acquired the meaning of ‘service’ as a student desirous of learning more would serve his guru with obedience and diligence. The rūdhi or established meaning of ‘service’ is so prominent that we have nursing homes named somewhat inappropriately, if only etymologically speaking, Śuśrūṣā. Another common noun derived from the desiderative is ‘mumuṣu’, the one desirous of mokṣa, liberation.

The Frequentative or Intensive verb expresses repetition or intensity of the action conveyed by the base verb. From ‘dīp’, to shine, is derived ‘dedīpyate’ [it] shines brightly; and dedīpyamāna, shining brightly.

Sanskrit nouns (and others together known as subantas) are formed from verb-roots, but a class of verbs called Denominatives are formed from the nouns. A good modern example in English would be ‘googling’. Verbs putrīyati, rājīyati, from putra and rājan, express the desire of the speaker for a son and a king. Some of the denominatives are used to convey the sense of treating like, as in ‘he treats his student like a son.’ There is a list of 50 roots starting with kaṇḍu, referred to as kaṇḍvādigaṇa, which are both roots and nouns; these also form denominatives similarly.

Kridantas or Krit affixes

The affixes starting with ‘krit’ are called krit affixes and words formed by the addition of krit affixes are called kridantas, [words] ending in krit. The name krit itself is derived from a sūtra of Aṣṭādhyāyī: 3.1.63 krit-atiñ, all affixes except tiñ are krit. Addition of krit affixes results in the formation of declinable and indeclinable participles. Participle, as in the past participle ‘broken’ is well known, with students reciting lists such as ‘break, broke, broken’. At the stage where these lists are taught, the meaning of a participle is not explained in great detail.

A participle gets its name because the word called the participle does the job of an adjective by ‘participating’ in the action denoted by the verb. For instance, in the sentence, ‘The Australian leg spinner carried many cans of baked beans’ the word ‘baked’ describes beans and thus works like an adjective; yet like green, large of fresh, baked is not really an adjective; rather it is closely associated with the verb, ‘bake’. Similarly in a

'broken widow pane' and 'a burning train', a word derived from a verb serves as an adjective. Applying the same lable to kridantas in Sanskrit is somewhat amusing, as all the adjectives (and nouns and other parts of speech, together referred to as subantas) are held and shown to be derived from verbal roots; so participles are not really a separate class in Sanskrit. With this quirk of the descriptive lable 'participle' being kept in mind, we will examine the kridantas proper.

The Present Participle is formed by the addition of 'at' (with the addition of a head and tail, it is usually referred to as śatṛ) to the root, as in paṭhat (reading). This is possible only for parasmaipada roots; for Atmanepada roots, another affix 'āna' (śānac) is added, as in vardhamāna (growing). The past participles are formed by adding 'vas' and 'āna' to parasmaipada and Atmanepada verbs. The past passive participle is formed by 'ta' (ktavat) to the verb as in bhūta (become) or snāta (bathed). Potential participles are formed by addition of 'tavya', 'anīya' and 'ya' as in kartavyam or karaṇīyam (that which ought to be done, therefore, duty). These and the other participles of the future tense and past active are all adjectives and decline as subantas do.

The gerund formed by the addition of 'ktvā' (to simple words) or 'ya' (lyap, in case of words with a prefix) are indeclinable. Thus, we have jñātva (having known) from the root jñā (to know); if we add a prefix, say 'vi', the gerund is formed differently: vijñāya (having known well). The gerund or the indeclinable past participle is formed by addition of other affixes as well. Another important indeclinable participle is the infinitive, formed by the addition of 'tum' (tumun), as in kartum (in order to do) or paṭhitum (in order to study). The krit affixes are quite numerous. In addition to those briefly mentioned above, another 60 are listed in M. R. Kale's 'A Higher Sanskrit Grammar'.

The krit affixes are the key behind the huge vocabulary of Sanskrit and its potential to coin new words to keep pace with technological developments. This potential, in fact, is realised through other Indian languages like Hindi, with new words being coined to describe modern developments. To give one example of how important the krit affixes are in usage, given below is a list of 31 words formed by addition of krit affixes to the root 'bhū' listed in the 'brihaddhāturatnākaraḥ' of Harekānta Miśra: bhavitavyam, bhavanīyam, bhavyam, bhāvyaḥ, bhūtavaḥ, bhūtavān, bhavan, bhavanī, bhaviṣyan, bhaviṣyatī, bhaviṣyantī, bhavitum, bhūtva, sambhūya, bhavitā, bhavitṛ, bhūṣṇuḥ, bhaviṣṇuḥ, bhāvukāḥ, vibhuḥ, prabhuḥ, bhūti, bhāva, prabhavaḥ, bhavaḥ, bhavanam, bhuvanam, bhūmih, adbhutaḥ.

Uṇādi Sūtras

The best way to introduce and describe these sūtras would be to quote Srisa Chandra Vasu, in the introductory passage to uṇādi sūtras, in his translation of the Siddhāntakaumudī: “The Uṇādi suffixes, though as necessary as the Kridanta ones, and as important as the taddhita suffixes added to the nouns of the gana-pāṭha are seldom treated of in ordinary treatises of grammar as an essential subject of grammatical instruction. Pāṇini himself, though diffuse in other respects, stops short when treating Uṇādi by saying “Unādyo bahulam”, (they are too many). Moreover the formation of Uṇādi words are so very arbitrary and complicated on account of the insertion, transposition, substitution and transmission of the letters by the indeterminate laws of prosthesis, epenthesis, metathesis, paragoge, synalepha, synesis, synacresis, synecphonesis and others, that it can hardly be brought under the definite rules of permutation by sandhi, or reduced under the strictest forms of grammar for the adhesion of these suffixes. The primary significance of the root is utterly lost in the derivative word formed from it.”

There are 751 Uṇādi sūtras in addition to the nearly 4,000 sūtras of the Aṣṭādhyāyī. The Uṇādi affixes themselves number 325.

2.6 Vedic Grammar and Rules Governing Accents

The rules pertaining to the Vedic usage have been collated and given in eight chapters under the heading vaidikī prakriyā towards the end of the Siddhāntakaumudī. The rules in each chapter correspond to the rules found in that particular adhyāya of the Aṣṭādhyāyī. Along with the various vedic diversities, this section also deals with 'leṭ', the Vedic Subjunctive, which turns out to be a composite mood, with six tenses: Present, Imperfect, Present Conditional, Imperfect Conditional, Strong Present Conditional, and Strong Imperfect Conditional – with each of them having two alternate forms in the third person and middle person.

The vaidika prakaraṇa is followed by the svāra prakaraṇa, or the section on accents. It is curious that these rules have not been clubbed with rest of the Vedic Grammar. Here the accents of words, verb-stems or roots and affixes are given, but not the accents of nominal bases. The accents of nominal bases are listed separately under the heading 'Phit Sūtras', 'phit' being the technical name for nominal bases.

Liṅgānuśāsanam

Liṅgānuśāsanam lists 189 sūtras to determine the gender of words. This is different from the nāmaliṅgānuśāsanam of Amar Singh, or amarasiṃha, which is more commonly referred to as amarakośam. The amarakośam is like a thesaurus listing groups of words with similar meanings. Along with the words, the gender is also clarified, where required. The pāṇinīyaliṅgānuśāsanam on the other hand gives rules governing the gender of words. The liṅgānuśāsanam is the first appendix to Siddhāntakaumudī. Some, mainly Western

Indologists, opine that this work is not composed by Pāṇini, but the traditional grammarians of India, including Bhattoji Dīkṣita, attribute this work to Pāṇini.

Sanskrit Sentence

What is the definition of *vakya*? How can computers identify it? If we look at the definition of *vakya* in historical perspective, Yaska’s fourfold division of language indicates that he is analyzing sentence through these four (*nama*, *akhyata*, *upasarga* and *nipata*) structural components. Though Paṇini does not define *vakya* explicitly, his notion of sentence is inferred mainly through *karaka prakara_a* and some other relevant *sutras*.

The notion of *samarthyā* is central to understanding the concept of *vakya* accepted by Panini. Later Katyayana introduced two definitions of sentence which Pata-jali quotes while commenting on *sutra*. According to first definition, *akhyata* with *karaka*, *avyaya* and *vise_a_a* is *vakya*. The second definition states that there should be one verb form in a single sentence but it seems that Panini doesn’t agree with this view point as he formulates the *sutra* that means a *tinanta* becomes *anudatta* when preceded by *atinanta*. From this, it can be concluded that Panini recognizes multi-verb sentences. Thus ‘*pasya m_go dhavati*’ can be called a single sentence according to Panini but not according to Katyayana. Bhart_hari puts eight views regarding sentence. Of these, three views are related to those who think *vakya* as an inseparable unit and five views are related to those who think *vakya* as a combination of words and so completely separable in words. Bhart_hari accepts the sentence *akrama* and *akha_a* against the view of Mimasa which accepts the sentence *sakrama* and *sakhana*. Bhart_hari also accepts *pratibha* as meaning of sentence and differs with Mimasa school which accepts *karma* and *prayojana* as meaning of sentence. Bhart_hari is nearer to *anvitabhidhanavada* than *abhihitavayavada* regarding sentence and has no scope for these two regarding sentential meaning.

Mimasakas give importance to mutual expectancy of words regarding the sentence. In Mimasa *sutra* Jaimini says that a group of words will form a *vakya* if the constituent words separately have expectancy for one another, uttered together and serve a single purpose. Nyaya holds the view that sentence is collection of *padas*, having *yogyata*, *aka_k_a* and *asakti*, and *pada* is defined as that which is capable of conveying the complete sense (*Tarka sa_graha-* p. 68).

After this long discussion among grammarians and philosophers, in this R&D we assume *vakyas* are those which have at least one verb form (*ekati_vakya*). Verbs play an important role in syntactico-semantic relations in the sentence and without identification of verb Sanskrit sentence can not be correctly analyzed. Identification and analysis of verb is very important in *karaka* analysis because through proper analysis of verb-

- structure of sentence can be identified
- kart_ and *karman* can be identified
- verb (semantics) related *karaka sutra* can apply

CHAPTER-III

3.0 Survey of Literature

According to Fink (1995) evaluators use the literature for reasons as diverse as gathering ideas for research designs and data collection and analysis methods and comparing data and conclusion across research. The term 'literature' means published and unpublished reports of studies or statistical findings. He also noted guidelines for using the literature in programme evaluation.

1. To set standards: The literature can provide information on the past performance of programmes and population. These may serve as a yardstick in planning an evaluation and is comparing the findings of one that already has been completed.
2. To define variables: The literature is a primary source of information about the ways others have defined and measured commonly used variables in education and psychology including achievement, development, child abuse and neglect, counselling and disability.
3. To determine sample size: Power calculations to arrive at sample sizes large enough to reveal the differences (if they exist) require an estimation of the variance - a measure of dispersion - in the sample or population. Sometimes, however, evaluators have no readily available data on the variance in the sample of interest. The evaluator can conduct a pilot study to obtain the data. Appropriate data may be available in the literature, however, enabling the evaluator to build on and expand the work of others.
4. To obtain examples of designs; measures and ways of analyzing the presenting data: The literature can be used as a source for obtaining sound information on research methods and data collection, analysis and reporting techniques.
5. To determine the significance of the evaluation and of its findings. The literature often is used to justify the need for the programmes and for the evaluation questions. It also is used to show whether the evaluation findings confirm or contradict the results of other studies and to identify areas to which little or no knowledge is currently available.

A six-step guide for reviewing the literature introduced by Arlene Fink (1995) as follows:

1. Assembling the literature: The key to an efficient search through the literature is specificity.

2. Identifying inclusion and exclusion criteria: Inclusion and exclusion criteria are used for deciding whether a study is appropriate or inappropriate for review.
3. Selecting literature: After the articles are assembled, they invariably need to be screened for irrelevant material.
4. Identifying the 'best' Literature. Regardless of the scope of the literature review, a method must be employed that distinguishes among articles with differing levels of quality. Selecting the best literature means finding the most methodologically rigorous studies.
5. Abstracting information: The most efficient way to obtain data from the literature is to standardize the abstraction process.
6. Unpublished Literature and negative results: What Gems are in the Fite? Various analysis of the published literature have suggested the existence of a bias in favour of positive results. This means that if a review is based solely on published articles, negative findings may be under represented. Finding unpublished articles however is not an easy task.

In the present study an elaborate attempt has been made to review the different studies about the factors affecting the achievement of the basic language skills especially in listening and reading comprehension in Sanskrit among secondary school pupils in order to study certain facts, principles and procedures followed by the researchers in this area. The related studies reviewed for the purpose of the present study have been classified under categories, viz.

A. Research Studies in Sanskrit Education.

B. Psycho-Socio Familial Studies in Language Comprehension.

(i) Psychological and sociological studies in Listening Comprehension.

(ii) Psychological and Sociological Studies in Reading Comprehension.

A. RESEARCH STUDIES IN SANSKRIT EDUCATION

After independence, several attempts have been made for the development of Sanskrit Education in India. The investigator has examined some important documents and research studies related with Sanskrit Education, since independence and a review of the same is given below under the titles, viz.

1. Review of Documents
2. Review of Research Studies
3. Sanskrit Studies in Abroad.

3.1

Review of Documents

The University Grants Commission (1948- 1949) indicated the place of Sanskrit in the scheme of general education in secondary schools and colleges. The commission specially refers to the knowledge of vedic music to be derived from the study of Samaveda, stressed the important of Sanskrit works which embody the element of morality and has also accepted the fact that Sanskrit was the 'lingua franca' for the world of learning in Ancient India.

The Secondary Education Commission (1952-53) has noted the importance of Sanskrit as a classical language and felt the need of encouraging it. The commission says - "To the bulk of Indian Sanskrit which is the mother of most Indian languages has always appealed both from the cultural and religious points of view. There is a great deal to be said in favour of the view of the study. This language should be given every encouragement possible.

The document reveals the fact that Sanskrit is somewhat totally neglected in most of the states. The position in Karnataka is somewhat satisfying where Sanskrit has the status as Language in secondary stage, and is learned by a good number of pupils more or less equal to Kannada. The same status is at present preserved by an order issued by the Government of Karnataka following the issues after the publication of the Gokak Committee Report which recommended that only Kannada should be the first language in secondary classes. The position of Sanskrit in Kerala is not so bad, comparing to other states, even if the number of pupils learning Sanskrit at the secondary level is considerably less. In West Bengal in Standards V to VIII Sanskrit is a compulsory language. In South India, Tamil Nadu is the only state which has eliminated Sanskrit totally from school education where Sanskrit flourished for about two decades after independence. This was done as in the case of Hindi following the issues on Hindi education in the late seventies. The revised National Policy on Education (1986) in a very vague manner proposes for the development of facilities for the intensive study of Sanskrit, to delve into Indian ancient fund of knowledge and to relate it to contemporary reality. The ministry of Human Resources and Development has announced a scheme in 1987 for propagation, preservation and development of Sanskrit and the same is being communicated to all state governments. The programmes under the scheme is broadly classified into three major categories aiming.

i) Preservation of Sanskrit Tradition

ii) Modernisation of the Content and Methodology of Teaching Sanskrit.

iii) Popularisation and promotion of Sanskrit.

The important aspects in the scheme to be noted are:

- i) For the preservation of Sanskrit Government of India assures financial assistance to State Governments to implement their own project.
- ii) For modernising 'The Rashtriya Samskrita Samsthan' an autonomous body under the ministry of Human Resources and Development is entrusted to carry on with such activities.
- iii) For popularisation of Sanskrit financial assistance is given to voluntary organisation up to 75 per cent of their expenditure. Similarly assistance is given to Sanskrit workers for the publication of their works upto 80 per cent of the expenditure.

President's awards to Sanskrit Pandits award of Scholarships to students etc. are measures under the scheme.

Shah (1979) conducted a comparative study of some personal and psychological variables and reading comprehension. There was significant difference in frequencies of high and low group pupils in the variables of parental income, parental education and parental occupation.

Rajagopalan (1980) measured the pupils level of Reading Comprehension, importance of vocabulary and their grammatical knowledge in their attainment of reading comprehension and suggested remedial measures for the improvement of reading comprehension.

Kantawala (1980) studied an investigation into reading attitudes of high school students. The findings were, reading attitude was a function of grade. The score did not indicate significant relationship with cultural settings, sex differences, age groups and birth order.

Agrawal (1981) conducted a study of reading ability in relation to certain cognitive and non cognitive factors. In his study a sample of 400 grade D(students was selected. Males and females differed significantly in reading ability, study habits, academic achievements, neuroticism, extraversion, parental attitude and ideal self (females scored higher than males only on reading ability and academic achievement). They did not differ statistically in verbal and non verbal intelligence, anxiety and actual self dimension.

Lionel (1982) found that the psycholinguistic strategy of reading comprehension was superior in effectiveness to the usual method.

Gaur (1982) conducted a psychological study of reading ability in relation to achievement, intelligence was significantly related to speed of reading comprehension and vocabulary of students.

Gupta (1982) studied the relationship between reading ability and father's professional and birth order. Father's profession did not bear any influence on reading performance.

Panini lists approximately 2000 *dhatu*s in the DP. Among these more than one *dhatu*s are used in the same meaning. For example, 182 *dhatu*s are used in the sense of *gati* (movement), whereas *_gam* is generally used in Sanskrit literature in this sense.

Whitney in his 'Review of recent studies in Hindu grammar' informs us that in the DP there are 'thousands or twelve hundred false roots' and declares that 'the fact their voices being not less carefully defined by the *Dhatupatha* than those of the eight or nine hundred genuine ones casts a shade of unreality over the whole subject of voice-conjugation'.

Georg Buhler objected to this remark by Whitney by saying that this couldn't have been Panini's or Whitney's invention.

It is fairly evident from the studies reviewed that no studies in Listening and Reading Comprehension in Sanskrit in the state of Kerala was attempted. Studies in Indian context and abroad was also seen limited. Correlates of Listening and Reading Comprehension in Sanskrit was also found to be less.

CHAPTER-IV

4.0 Sanskrit Verb and its Identification

Sanskrit verb forms are very complex and involve a balanced interplay of morphological and syntactic information. The structure of the verb may be given as follows *verb { (upsarga) dhatu vikara_a ti_ }*

For the purpose of isolating *dhatu* from the verb form, the above structure of verb has been accepted as basic structure. The following modules for Sanskrit verb analysis are proposed –

- TGL id (verb inflection, class and TAM id module),
- Verb derivation id,

George Buhler, 'The roots of the *dhatupatha* not found in the literature' from J.F.Stall (ed.), 'A reader on the Sanskrit grammarians', MLBD, Delhi, pp.194, 1985.

- Prefix ID module,
- *dhatu* id module

But before individual identification of these components it is important to know about them.

4.1 Dhatu

The verb is the most crucial and significant part of the sentence. It determines the nature of sentence on semantic as well as syntactic levels. According to Wikipedia 'a verb is a part of speech that usually denotes action ("bring", "read"), occurrence ("to decompose" (itself), "to glitter"), or a state of being ("exist", "live", "soak", "stand"). Depending on a language, a verb may vary in form according to many factors, possibly

including its tense, aspect, mood and voice. It may also agree with the person, gender, and/or number of some of its arguments (what we usually call subject, object, etc.).

Yaska classified words in four groups as *nama pada*, *akhyata pada*, *upasarga pada* and *nipata pada*. He says *bhavapradhanam akhyatam*. Sometimes *akhyata* is used for *dhatu*s only but generally for *ti*-ending forms. *bhava* means *sadhyabhava* or *kriya* here.

According to lexicographers, etymology of *akhyata* is - *akhyate pradhanabhavena kriya apradhanabhavena ca drvyam yatra tad akhyatam*. If in any sentence *nama* and *akhyata* both are present, *akhyata* still plays an important role. This classification of words was not done by Yaska alone. *Bhart_hari* discusses other thoughts related to this type of division in the third *kan_a* of *vakyapadiya*.

The verb has been defined by Panini as that which belongs to the class of *_bhu* (become), *_va* (blow) etc. Panini does not define *dhatu saj-a*. According to *Kasika* this *samj-a* is given by ancient grammarians. Panini says *bhuvadayo dhatava_* but does not explain *bhu* and *va*. *Pata-jali* says- ‘*kuto ayam vakara_ ? yadi tavat samhitaya nirdes_ kriyate ‘bhvadaya’ eti bhavitavyam*’. Generally grammarians have explained it in different ways.

According to *Kasika*, Panini has inserted *va* for auspicious reasons because in the http://en.wikipedia.org/wiki/Verb_tad_yatrobhe, *bhavapradhane bhavata_- Nirukta*, page no. 104.

dvidha kaiscit pada bhinna caturdha pa-cadhapi va- jatisamuddes of *vakyapadiya* third *kan_a*. *dhatu sabda_ purvacaryasaj-a* - *Kasika* page no.- 45. tradition of Sanskrit, generally all authors like to do *ma_galacara_a* (benediction) which can be done at start, middle or end of the text. According to this interpretation the *bahuvrihi* compound with its internal *dvandva*, will have analyzed form *bhusca vasca adisca bhuvadi adir ye_a te bhuvadaya_*.

Other explanation of this *sutra* is first *_bhu* and *_va* are combined to yield a *dvandva* compound *bhuvau* and *bhuvau* is combined with *adi* to yield a *bahuvrihi* compound *bhuvadaya_*. The analyzed form of this *bahuvrihi* compound with its internal *dvandva* would be *bhusca vasca adisca bhuvadi adir ye_am te bhuvadaya_*. Commentators explain *bhu* as signifying *vyavastha* (a definite arrangement of roots in different *ga_a*) and *va* as signifying *prakara* (type) therefore the interpretation of *bhuvadaya_* will be as which is listed in *_bhu* etc. *ga_a* and similar to *va*. According to this interpretation *vyavastha* will rule out those words which are not listed in *dhatupatha* and *prakara* will rule out those words which are actionless So *_bhu* can not be verb in the sense of earth because this is actionless and *_va* can not be verb in the sense of option because this is not listed in *dhatupatha*.

Puru_ottamadeva in his *Bha_av_tti* (06.01.77, *iko ya_ aci*) brings another explanation for *bhuvadaya_*. According to him grammarians like *Vya_i* and *Galava* insert *y, v, r, l* between *ik* and *ac* but according to Panini if *ik*-ending comes before *ac* then *ik* is subsequently replaced by *ya_*. Implementation of the rule of *Vya_i* and *Galava* in this *sutra* would be - *_bhu + adaya_ = _bhu + v + adaya_ = bhuvadaya_*.

If second explanation of this *sutra* is better than others then it seems *Pa_ini* listed only name and class of *dhatu*s in *dhatupatha* and later on, other grammarians added meanings of respective *dhatu*s. One more explanation of this *sutra* is as-. *Pa_ini* may have listed *_bhu* and *_va* for indicating *sakarmaka* and *akarmaka* as *_bhu* is an *akarmaka* and *_va* is a *sakarmaka*. *ma_galadini ma_galamadhyani ma_galantani hi sastra_i prathante virapur_u_a_i ca bhavantyayu_matpuru_a_i cadhyetarasca ma_galayukta* - *Mahabha_ya* page no. 153. 95 *bhuprabhritayo vasadrisasca ye te dhatusanj-aka* - *Balamananorama*, page no.- 33.

96 *ika ya_bhirvyavadhana vya_igalavayo_* - *Bha_av_tti.*, page no. 352.

Panini has one more *sutra*⁹⁷ for *dhatu samj-a* as one whose forms end in affixes *san* etc.

Panini lists *san* etc. - 11 affixes in *A_ adhyayi* from *sutra* no 3.1.5 to 3.1.30. If any form has ends in these affixes, then the complete word is known as *dhatu*. *Kasika*⁹⁸ explains *sanadyanta_* as *san adirye_am te sanadaya_*, *sanadayonte ye_a te sanadyanta_*. The compound of this *sutra* is *tadgu_asavij-anascayam bahuvrihi_*. A *tadgu_asavij-anascayam bahuvrihi_* entails construing one of its constituents with the verb. *Patañjali* explains the necessity of *antagraha_am* as in ‘*padasaj-ayamantavacanamanyatra saj-avidhau pratyayagraha_etadantavidhiprati_edhartha’ paribha_a*. Commentators explain the reason for this *sutra*, which is not written after *bhuvadayo dhatava_* (Panini 01.03.01) in *A_adhyayi*.

According to Prof. R.S. Sharma¹⁰⁰ ‘such a formulation would have lacked clarity with regard to the exact specification of desired affixes. With the rule formulated the way it is, and also sequenced where it is, only clearly understands *sanadi* as referring to the eleven (twelve if ‘*kvip*’ included¹⁰¹) affixes (*san, kyac, kamyac, kya_, kya_, ya_, _ic, yak, ay, iya_, _i_*) enumerated in the list headed by *san*’.

Classification of Dhatu

Sanskrit verb forms carry tense, aspect, person, number information all in the inflection forms. Besides, they can also contain derivations containing semantic information like causation, desire, repetition, negation etc. Therefore it becomes very difficult to split out the verb and separate the verb root and complex information units encoded in it. Sanskrit has about 2000 verb roots classified in 10 morphological and semantic classes called *ga_as*, and can also be further sub-classified as normal forms (without any of the 12 derivational affixes –

11 listed by Panini [P 3.1.32], one more ‘*kvip*’ added by Katyayana), and the derived forms with *_ijanta* (causative – *_ic*), *sannata* (expressing desire – *san*), *ya_anta* (duplicated – *ya_* and *ya_lu_anta*), *namadhatsu* (nominalized - *kyac*, *kamyac*, *kvip*, *kya_*, *kya_*, *_i_*, *yak*, *ay* and *iya_*). Further, these can have *atmane* and *parasmai* forms in 10 *lakaras* and 3 x 3 person and number combinations, and can *sanadyanta dhatava_* - Panini 03.01.32 Kasika 03.01.32, vol-I, page no. 165. Mahabhasya, vol-III, page no. 105.

The Anadhyayi of Panini, Sharma, Rama Nath, vol-III, page no. 267. *sankyackamyackya_jya_othacarakvib_ijya_au tatha. yagaya iya__i_ ceti dvadasami sanadaya_*. Balamanorama tika of Vaiyakara asiddantakaumudi 03.01.32, vol-III, page no. 130. also be potentially prefixed with 22 prefixes. Finally there could be innumerable *namadhatus* (nominalized verbs). According to a rough calculation, all potential verb forms in Sanskrit may be around 10,29,60,000 plus *namadhatus*. The distribution of

Sanskrit verbs can be understood as follows-
VR [2000] / ND (*namadhatus*)

_ *san* (A_. 3.1.5)
_ *kyac* (A_. 3.1.8)
_ *kamyac* (A_. 3.1.9)
_ *kvip* (*virtika*)
_ *kya_* (A_. 3.1.11)
_ *kya_* (A_. 3.1.13)
_ *_i_* (A_. 3.1.20)
_ *_ic* (A_. 3.1.21,25)
_ *ya_* (A_. 3.1.22)
_ *yak* (A_. 3.1.27)
_ *ay* (A_. 3.1.28)
_ *iya_* (A_. 3.1.29)
+ one normal form

TAM [10 *lakaras*]

-

parasmai atmane

10x9 forms 10x9 forms

22 upasarga 22 upasarga

Therefore the approach followed by many to store Sanskrit verb forms is not going to work. Hence a reverse Paninian approach is proposed for parsing the complex verb forms in Sanskrit in the following sequence –

- the verb inflection (*parasmai / atmane*) is identified from database and a rough guess is made about the verb,
- the *lakara* information based on inflection is obtained,
- each of the 12 derivational affixes is evaluated,
- each of the 22 *upasargas* (prefixes) is searched,
- the verb root is determined by weeding out other elements and database matching.

The verb root thus identified with all the other potential components and the grammatical information gathered in the form of verb tags can be potentially used in a machine translation system performing translation from Sanskrit.

Concept of *Lakara*

There are eleven *lakaras* in Sanskrit grammar in which ten are used in *laukika Sanskrit* (for example, *la*, *li*, *lu*, *lo*, *la_*, *vidhili_*, *asirli_*, *lu_* and *l_*) and one namely *le* *lakara* is used only in the Vedic text. For this, the term used is ‘the Vedic Subjunctive’.

The *la*, *lo*, *la_* etc. is the suffix which is counted by Panini in third chapter of Anadhyayi. In these suffixes, after *anubandha lopa*, the only remaining letter is ‘*l*’.

Therefore, the combined names of these are *lakara* and are counted in the sequence of *pratyahara*. These *lakaras* can classify in two groups as *it* (ending) and *_it* (ending).

Panini says the purpose of *it*102 that in these tenses ‘*i*’ (from the beginning of a word, last vowel is called ‘*i*’ *samj*-a103) of the *atmanepada* affixes change into ‘*e*’ and the purpose

of *_it*104 is in *lu_* (Aorist), *vidhili_* (Potential), *la_* (Imperfect) and *__lakara* (Conditional).

The ‘*s*’ is elided in the *uttama puru_a* (first person). According to Pa_nini in the derivation

of verb form after dhatu comes ‘l’ and in the place of ‘l’ will be substituted the 18 affixes which are counted in another sutra as *tipstasjhisiphasthamibvasmastatamjhathasathamdhvami_vahimahi_*.

4.2 Structure of Sentence

These *lakaras* always come with *sakarmaka* roots in the sense of *kart_* and *karma*, and with *akarmaka* roots in the sense of *kart_* and *bhava*. Panini accepts in this *sutra* three meanings of *lakaras*. Therefore there are three types of sentences as follows-

102 A__ 03.04.79.

103 A__ 01.01.64.

104 A__ 03.04.99.

105 A__ 03.04.77.

106 A__ 03.04.78.

107 A__ 03.04.69.

108 Shastri, Bhimasena, 1998, ‘Laghusiddanta-kaumudi’, Bhaimi Publication, Delhi. Vol-2, Page no 4.

• *kart_ vacya* (active voice) as *rama_ g_ham gacchati*. In *kart_ vacya*, *karta* plays an important role in the sentence. According to *karta*, *li_*, *vacana*, *vibhakti* or *puru_a* are used in the verb. In *kart_ vacya*, *dhatu* conjugates in *atmanepada* or *parasmaipada*. The basic structure of sentence in *kart_ vacya* is -

S = subject in first case + object in second case + verb according to subject.

• *karma vacya* (passive voice) as *rame_a phalam khadyate*. In *karma vacya*, *karta* is completely free and according to *karma*, *li_*, *vacana*, *vibhakti* or *puru_a* are used in verb. In *karma vacya*, *dhatu* conjugates only in *atmanepada*. The basic structure of sentence in *kart_ vacya* is -

S = subject in third case + object in first case + verb according to object.

• *bhava vacya* (impersonal voice) as *tena gamyate*. In *bhava vacya* subject is used in third case and verb is always used in *prathama puru_a eka vacana*. In *bhava vacya dhatu* conjugates only in *atmanepada*.

All *dhatu*s can be classified in three groups according to the sentence but in this division Panini neither discussed nature of *dhatu*s nor number of *dhatu*s. May be it is understood by name as *sakarmaka*, *akarmaka* and *dvikarmaka*. Later grammarians try to count the number of *dhatu*s in the above groups. Those are *sakarmaka dhatu*s which expect at least one object in the sentence for example, *sa_ g_ham gacchati*. Those *dhatu*s which do not expect any object are *akarmaka dhatu*s for example, *sa_ asti*. In the same meaning of *dhatu*s are *akarmaka* which are listed 109 as following *lajja-satta-sthiti-jagara_a v_ddhi-k_aya-bhaya-jivita-mara_a*. *nartana-nidra-rodana-vasa_ spardha-kampana-modana-hasa_*. *sayana-kri_a-ruci-diptyartha_ dhatava_ ete karma_i nokta_*.

109 Nautiyal, Chakradhar Hans, 1995, ‘B_hada-anuvad-candrika’ Motilal Banarasidass, Delhi. page no. 218.

Those *dhatu*s are *dvikarmaka* which have two objects in a sentence for instance *ga dogdhi paya_* (explanation of this example can be seen in the fourth chapter). In the same meaning of *dhatu*s are *dvikarmaka* which are listed 110 as following *duhyac-*

pac-da_-rudhi-pracchi-ci-bru-sasu-jimathmu_am.

karmayuksyadakathita tatha syannih_k_vaham.

All *dhatu*s are *sakarmaka* except *akarmaka* and *dvikarmaka*. According to conjugation verbs can be separated in three groups as *atmanepadi*, *parasmaipadi* and *ubhayapadi*.

Panini describes the rules of *atmanepada* in the preceding 66 *sutras* from A__ 01.03.12 to

A__ 01.03.77. Panini states that all those roots also conjugate in *atmanepada* which has an indicatory *anudatta* vowel after the root or an indicatory *_it*. Among 18 *ti_* verbal affixes last nine 113 (*ta_*), *sanac*, and *kanac* ending conjugate in *atmanepadi*. When the fruit of the action accrues to the agent 114 and after the verb is marked with a *svarita* or has an indicatory *-it* - all these types of verbs also conjugate in *atmanepada* but if the fruit of the action does not accrue to the agent then it will have *parasmaipada*. After the rest 115

(A__ 01.03.12 to A__ 01.03.77.) all roots conjugate in *parasmaipada*.

Another separation is possible according to the addition of affixes in conjugation of verbs.

Through this division, verbs can also divide in three groups as *se*, *ve* and *ani*. Those *dhatu*s are *se* in which ‘i’ is augmented between the *dhatu* and *ardhadhatuka pratyaya*, for example, *gam + i (i) + syati _ gami_yati*. If this ‘i’ is infixed optionally then *dhatu*s are *ve*, otherwise they are *ani*, for example, *da + syati _ dasyati*.

Except *udant* (*bhu*, *lu* etc.), *_dant* (*k_*, *t_* etc.), *yu*, *ru*, *k_u*, *si_*, *snu*, *nu*, *k_u*, *svi_*, *_i_*, *sri*, *v_* and *v_* all *dhatu*s are *ani* among *ekac* (monosyllabic) *ac*-ending verbs. The following verbs are *ani* among *hal*-ending (consonant ending) verbs –

Giridharsharma Chaturveda (ed), 2004, *Vaiyakaranasiddhantakaumudi* with Balmanorama and Tattvabodhini tika, page no. 605.

111 A__ 01.03.12.

112 A__ 03.04.78.

113 A__ 01.04.100.

114 A__ 01.03.72.

115 A__ 01.03.78.

sakl_, pac, muc, ric, vac, vic, sic, pracchi, tyaj, nijir, bhaj,
bha-j, bhuj, bhrasja, masji, yaj, yuj, ruj, ra-j, vijir, sva-ji, sa-j, s_j,
ad, k_ud, khid, chid, tud, nud, padya, bhid, vid, vinad,
sad, sad, svid, skand, had, krudh, k_udh, budh,
bandh, yudh, rudh, radh, vyadh, sudh, sadh, sidh,
man, han, ap, k_ip, chup, tap, tip, t_p, d_p,
lip, lup, vap, sap, svap, s_p, yabh, rabh, labh, gam, nam, ram, yam,
krus, dans, dis, d_s, bh_s, ris, rus, lis, vis, sp_s,
k_s, tv_i_, tu_, dvi_, du_, pu_ya, pis, vi_, si_, su_, sli_ya,
ghasl_, vasati, dah, dih, duh, mih, nah, ruh, lih and vah.

For those who aren't familiar with it, Sanskrit is the main liturgical language of Hinduism and used to be the lingua franca that helped all of the different regions of Greater India communicate with each other. Most of the greatest literary works to come out of India were written in Sanskrit, as well as many religious texts. Sanskrit is the language of Hindu and Buddhist chants and hymns as well. Today, only about 1% of the population of India speaks Sanskrit, though it is protected as a scheduled language and is the official language of one Indian state, Uttarakhand.

India, in its many different incarnations, has a history that dates back to before the Iron Age, when Vedic Sanskrit, the ancestor of Sanskrit, was first spoken. This later gave way to Classical Sanskrit, which was used to write many of the great Indian epics, such as the Ramayana. Besides all of this, however, there are a few specific reasons why Sanskrit should be taken seriously:

1. One of the first written records was in Sanskrit

It has been attested that one of the first written records may have been in Sanskrit. It was probably the texts that make up the Rigveda, which is a collection of Hindu hymns that dates back to ancient times. Though there isn't a large body of evidence to support this, but even though Vedic Sanskrit was a purely spoken language, complete memorization in order for proper pronunciation was crucial, so we can safely say that the written accounts we have now were most likely the same as the ones then. These religious and ceremonial texts were extremely important in terms of both religion and philosophy.

2. Sanskrit is the philosophical language for a few religions

Besides its importance to Hinduism, Sanskrit is also a philosophical language used in Jainism, Buddhism, and Sikhism. Jainism is a religion practiced by probably less than 1% of the population of India, and yet Jain literature has had a huge impact on Indian culture and history over the centuries. One of the main languages used to write this literature is Sanskrit. The main language of Buddhism was Prakrits at first, but later Sanskrit was adopted, with some of the most important Buddhist literature being written in Sanskrit. The Guru Granth Sahib, the most important Sikh religious text, is written in a few different languages, one being Sanskrit.

3. It has had a huge influence on other languages

One of the most popular languages in India today, Hindi, is hugely influenced by Sanskrit, and is in fact a register of the Khariboli dialect that has been “Sanskritised”. If you take a look at the modern Indo-Aryan languages, you will see that many of them directly borrow grammar and vocabulary from Sanskrit. Beyond those of modern India, other languages in nearby regions have been influenced as well. Austronesian, Sino-Tibetan, and many languages of Southeast Asia show Sanskrit influence as well. Some have said that there are even words in English that were originally Sanskrit words.

The grammar of the Sanskrit language has a complex verbal system, rich nominal declension, and extensive use of compound nouns. It was studied and codified by Sanskrit grammarians from the later Vedic period (roughly 8th century BCE), culminating in the Pāṇinian grammar of the 6th century BCE.

CHAPTER-V

5.0 Grammatical Tradition

Sanskrit grammatical tradition (vyākaraṇa, one of the six Vedāṅga disciplines) began in late Vedic India and culminated in the Aṣṭādhyāyī of Pāṇini, which consists of 3990 sūtras (ca. 5th century BCE). About a century after Pāṇini (around 400 BCE), Kātyāyana composed vārtikas (explanations) on the Pāṇinian sūtras. Patañjali, who lived three centuries after Pāṇini, wrote the Mahābhāṣya, the “Great Commentary” on the Aṣṭādhyāyī and Vārtikas. Because of these three ancient Sanskrit grammarians this grammar is called Trimuni Vyākaraṇa. Jayaditya and Vāmana wrote a commentary named Kāśikā in 600 CE. Kaiyata's (12th century AD) commentary on Patañjali's Mahābhāṣya also exerted much influence on the development of grammar, but more influential was the Rupāvatāra of Buddhist scholar Dharmakīrti which popularised simplified versions of Sanskrit grammar.

The most influential work of the Early Modern period was *Siddhānta-Kaumudī* by *Bhattoji Dīksita* (17th century) and its various derivate versions by *Varadarāja*. European grammatical scholarship began in the 18th century with *Jean François Pons* and others, and culminated in the exhaustive expositions by 19th century scholars such as *Otto Boehtlingk*, *William Dwight Whitney*, *Jacob Wackernagel* and others.

आसीत्कल्याणकटकवास्तव्यो भैरवो नाम व्याधः । स चै-
कदा मांसलुब्धः सन्धनुरादाय विन्ध्याटवीमध्यं गतः । तत्र तेन
मृग एको व्यापादितः । मृगमादाय गच्छता तेन घोराकृतिः
सूकरो दृष्टः । ततस्तेन मृगं भूमौ निधाय सूकरः शरेण हतः ।
सूकरेणाप्यागत्य प्रलयघनघोरगर्जनं कृत्वा स व्याधो मुष्कदेशे
हतश्छिन्नद्रुम इव पपात । यतः ।

जलमग्निं विषं शस्त्रं क्षुद्ध्याधी पतनं गिरेः ।

निमित्तं किञ्चिदासाद्य देही प्राणैर्विमुच्यते ॥

अचान्तरे दीर्घरावो नाम जम्बुकः परिभ्रमन्नाहारार्थी तान्मृ-
तान्मृगव्याधसूकरानपश्यत् । आलोक्याचिन्तयदसौ । अहो
भाग्यम् । महद्भोज्यं समुपस्थितम् । अथवा ।

अचिन्तितानि दुःखानि यथैवायान्ति देहिनाम् ।

सुखान्यपि तथा मन्ये दैवमन्नातिरिच्यते ॥

भवतु । एषां मांसेर्मांसत्रयं समधिकं भोजनं मे भविष्यति । ततः प्रथममुमु-
षायां तावदिमानि खादूनि मांसानि विहाय कौदण्डाटनीलप्रं स्नायुबन्धं खा-
दामीत्युक्त्वा तथाकरोत् । तत्रिच्छन्ने स्नायुबन्धे द्रुतमुत्पतितेन धनुषा इदि
भित्तः स दीर्घरावः पञ्चत्वं गतः । अतो ऽहं ब्रवीमि ।

कर्तव्यः संचयो नित्यं कर्तव्यो नातिसंचयः ।

अतिसंचयदोषेण धनुषा जम्बुको हतः ॥

आसीत्कल्याणकठकवास्तव्यो भैरवो नाम व्याधः। स चैकदा
मांसलुब्धः सन्धनुरादाय विन्ध्याटवीमध्यं गतः। तत्र तेन मृग एको
व्यापादितः। मृगमादाय गह्वता तेन घोराकृतिः सूकरो दृष्टः।
ततस्तेन मृगं भूमौ निधाय सूकरः श्रेणा हतः। सूकरेणाप्यागत्य
प्रलयघनघोरगर्जनं कृत्वा स व्याधो मुष्कदेशे हतश्चिन्नद्रुम इव
पपात। यतः।

जलमग्निं विषं शङ्खं क्षुब्धाधी पतनं गिरेः।

निमित्तं किञ्चिदासाद्य देही प्राणैर्विमुच्यते ॥

अत्रान्तरे दीर्घरावो नाम जम्बुकः परिभ्रमन्नाहारार्थी तान्मृता
न्मृगव्याधसूकरानपश्यत्। आलोक्याचिन्तयद्सौ। अहो भाग्यम्।
महद्भोज्यं समुपस्थितम्। अवथा।

अचिन्तितानि दुःखानि यथैवायान्ति देहिनाम्।

सुखान्यपि तथा मन्ये दैवमत्रातिरिच्यते ॥

भवतु। एषां मांसैर्मांसत्रयं समधिकं भोजनं मे भविष्यति। ततः प्रथमबुभुक्षायां
तावदिमानि स्वादूनि मांसानि विहाय कोदण्डाटनीलग्नं स्रायुबन्धं खादामीत्युक्त्वा
तथाकरोत्। ततश्चिच्छे स्रायुबन्धे द्रुतमुत्पतितेन धनुषा हृदि भिद्यः स दीर्घरावः पञ्चत्वं
गतः। अतो ऽहं ब्रवीमि।

कर्तव्यः संचयो नित्यं कर्तव्यो जातिसंचयः।

अतिसंचयदीपेण धनुषा जम्बुको हतः ॥

A.āsīt kalyāṇakāṭakavāstavyo bhāiravo nāma vyādhaḥ. sa cāi ’kadā mānsalubdhaḥ san dhanur ādāya vindhyāṭavīmadhyaṁ gataḥ. tatra tena mṛga eko vyāpāditaḥ. mṛgam ādāya gachatā tena ghorākṛtiḥ sūkarō drṣṭaḥ. tatas tena mṛgam bhūmāu nidhāya sūkaraḥ ṣareṇa hataḥ. sūkareṇā ’py āgatya pralayaghanaghoragarjanam kṛtvā sa vyādho muṣkadeṣe hataḥ chinnadruma iva papāta. yataḥ:

jalam agniṁ viṣam ṣastram kṣudvyādhiḥ patanam gireḥ,

nimittam kimcid āsādy dehī prāṇair vimucyate.

atrāntare dīrgharāvo nāma jambukaḥ paribhramann āhārārthī tān mṛtān mṛgavyādhasūkarān apaṣyat. ālokyā ’cintayad asāu: aho bhāgyam. mahad bhojyam samupasthitam. athavā:

acintitāni duḥkhāni yathāi ’va ’yānti dehinām,

sukhāny api tathā manye dāivam atrā ’tiricyate.

bhavatu; eṣām mānsair māsatrayam samadhikam bhojanam me bhavisyati. tataḥ prathamabubhukṣāyām tāvad imāni svādūni mānsāni vihāya kodaṇḍāṭanīlagnam snāyubandham khādāmī ’ty uktvā tathā ’karot. tataḥ chinne snāyubandhe drutam utpatitena dhanuṣā hṛdi bhinnāḥ sa dīrgharāvāḥ pañcatvaṁ gataḥ. ato ’ham bravīmi:

kartavyaḥ saṁcayo nityam kartavyo nā ’tisamcayaḥ;

atisamcayadoṣeṇa dhanuṣā jambuko hataḥ.

B. The following text is given in order to illustrate by a sufficient example the usual method of marking accent, as described above (87). In the manuscripts, the accent-signs are almost invariably added in red ink. The text is a hymn extracted from the tenth or last book of the Rig-Veda; it is regarded by the tradition as uttered by Vācvoice (i. e. the Word or Logos).

Hymn (X. 125) from the Rig-Veda.

Indic.	bhāve	babhūvé	bhaviṣyé	[bhavitāhe]
Opt.	bhāveya		[bhaviṣīyá]	
Impv.	bhāvāi			
Pple.	bhāvamāna	babhūvāna	bhaviṣyamāna	
Augm.-Pret.	ābhave		ābhaviṣi	

Pass. pple bhūtá; — Infin. bhávitum; — Gerunds bhūtṵá, -bhūya.
 √kṛ make.

Active:

Indic.	karómi	cakāra	kariṣyāmi	kartāsmi
Opt.	kuryām		kriyāsam	
Impv.	karāvāṇi			
Pple.	kurvánt	cakṛvāṅs	kariṣyánt	
Augm.-Pret.	ákaravam		ákāṛṣam	ákariṣyam

Middle:

Indic.	kurvé	cakré	kariṣyé	[kartāhe]
Opt.	kurvīyá		[kṛṣīyá]	
Impv.	karāvāi			
Pple.	kurvāṇá	cakrāṇá	kariṣyamāna	
Augm.-Pret.	ákurvi		ákṛṣi	

Pass.pple kṛtá; — Infin. kártum; — Gerunds kṛtvá, -kṛtya.

5.1

Verbs

Classification of verbs

Sanskrit has ten classes of verbs divided into two broad groups: athematic and thematic. The thematic verbs are so called because an *a*, called the theme vowel, is inserted between the stem and the ending. This serves to make the thematic verbs generally more regular. Exponents used in verb conjugation include prefixes, suffixes, infixes, and reduplication. Every root has (not necessarily all distinct) zero, guṇa, and vr̥ddhi grades. If V is the vowel of the zero grade, the guṇa-grade vowel is traditionally thought of as a + V, and the vr̥ddhi-grade vowel as ā + V.

Tense Systems

Sanskrit has ten tenses (plus one used in the Vedas, the "1eT"). The verb tenses (a very inexact application of the word, since more distinctions than simply tense are expressed) are organized into four 'systems' (as well as gerunds and infinitives, and such creatures as intensives/frequentatives, desideratives, causatives, and benedictives derived from more basic forms) based on the different stem forms (derived from verbal roots) used in conjugation. There are four tense systems:

- Present (Present, Imperfect, Imperative, Optative)
- Perfect
- Aorist
- Future (Future, Conditional)

Present System

The present system includes the present tense and the imperfect (past imperfective), the optative and imperative moods, as well as some of the remnant forms of the old subjunctive. The tense stem of the present system is formed in various ways. The numbers are the native grammarians' numbers for these classes.

Perfect system

The perfect system includes only the perfect. The stem is formed with reduplication as with the present system.

The perfect system also produces separate "strong" and "weak" forms of the verb—the strong form is used with the singular active, and the weak form with the rest.

Aorist system

The aorist system includes aorist proper (with past indicative meaning, e.g. *abhūh* "you were") and some of the forms of the ancient injunctive (used almost exclusively with *mā* in prohibitions, e.g. *mā bhūh* "don't be"). The principal distinction of the two is presence/absence of an augment – *a*- prefixed to the stem. The aorist system stem actually has three different formations: the simple aorist, the sibilant aorist, and the reduplicating aorist, which is semantically related to the causative verb.

Future system

The future system is formed with the suffixation of *sya* or *iṣya* and *guṇa*. Verbs then conjugate as though they were thematic verbs in the present system. The imperfect of the future system is used as a conditional.

Verbs: Conjugation

Each verb has a grammatical voice, whether active, passive or middle. There also is an impersonal voice, which can be described as the passive voice of intransitive verbs. Sanskrit verbs have an indicative, an optative and an imperative mood. Older forms of the language had a subjunctive, though this had fallen out of use by the time of Classical Sanskrit.

Basic Conjugational Endings

Conjugational endings in Sanskrit convey person, number, and voice. Different forms of the endings are used depending on what tense stem and mood they are attached to. Verb stems or the endings themselves may be changed or obscured by sandhi.

	Active			Middle			
	Person	Singular	Dual	Plural	Singular	Dual	Plural
Primary	1	mi	váḥ	máḥ	é	váhe	máhe
	2	si	tháḥ	thá	sé	áthe	dhvé
	3	ti	táḥ	ánti, áti	té	áte	ánte, áte
Secondary	1	am	vá	má	í, á	váhi	máhi
	2	ḥ	tám	tá	tháḥ	áthām	dhvám
	3	t	tám	án, úḥ	tá	átām	ánta, áta, rán
Perfect	1	a	vá	má	é	váhe	máhe
	2	tha	áthuḥ	á	sé	áthe	dhvé
	3	a	átuḥ	úḥ	é	áte	ré
Imperative	1	āni	āva	āma	āi	āvahāi	āmahāi
	2	dhí, hí,—	tám	tá	svá	áthām	dhvám
	3	tu	tám	ántu, átu	tám	átām	ántām, átām

Primary endings are used with present indicative and future forms. Secondary endings are used with the imperfect, conditional, aorist, and optative. Perfect and imperative endings are used with the perfect and imperative respectively.

Nominals

Sanskrit is a highly inflected language with three grammatical genders: masculine (पुंलिङ्ग *pumliṅga*), feminine (स्त्रीलिङ्ग *strīliṅga*), and neuter (नपुंसकलिङ्ग *napuṃsakaliṅga*); and three numbers: singular (एकवचनम् *ekavacanam*), dual (द्विवचनम् *dvivacanam*), and plural (बहुवचनम् *bahuvacanam*).

It has eight cases: nominative, vocative, accusative, instrumental, dative, ablative, genitive, and locative.

The number of actual declensions is debatable. Pāṇini identifies six kāraḥ corresponding to the nominative, accusative, dative, instrumental, locative, and ablative cases.^[1] Pāṇini defines them as follows (Ashtadhyayi, I.4.24 – 54):

1. *Apādāna* (lit. 'take off'): "(that which is) firm when departure (takes place)." This is the equivalent of the ablative case, which signifies a stationary object from which movement proceeds.
2. *Sampradāna* ('bestowal'): "he whom one aims at with the object". This is equivalent to the dative case, which signifies a recipient in an act of giving or similar acts.
3. *Karaṇa* ("instrument") "that which effects most." This is equivalent to the instrumental case.
4. *Adhikaraṇa* ('location'): or "substratum." This is equivalent to the locative case.
5. *Karman* ('deed'/object): "what the agent seeks most to attain". This is equivalent to the accusative case.
6. *Kartā* ('agent'): "he/that which is independent in action". This is equivalent to the nominative case. (On the basis of Scharfe, 1977: 94)

The genitive (*sambandha*) and vocative (*sambodhana*) cases are not equivalent to any kāraḥ in Pāṇini's grammar.

In this article they are divided into five declensions. The declension to which a noun belongs to is determined largely by form.

Basic Noun and Adjective Declension

The basic scheme of suffixation is given in the table below—valid for almost all nouns and adjectives. However, according to the gender and the ending consonant/vowel of the uninflected word-stem, there are predetermined rules of compulsory *sandhi* which would then give the final inflected word. The parentheses give the case-terminations for the neuter gender, the rest are for masculine and feminine gender. Both Devanagari script and IAST transliterations are given.

Case name	Case number	Singular	Dual	Plural
Nominative (कर्ता <i>kartā</i>)	1	-स् -s (-म् -m)	-औ -au (-ई -ī)	-अस् -as (-इ -i)
Accusative (कर्म <i>karma</i>)	2	-अम् -am (-म् -m)	-औ -au (-ई -ī)	-अस् -as (-इ -i)
Instrumental (करण <i>karaṇa</i>)	3	-आ -ā	-भ्याम् -bhyām	-भिस् -bhis
Dative (सम्प्रदान <i>sampradāna</i>)	4	-ए -e	-भ्याम् -bhyām	-भ्यस् -bhyas
Ablative (अपादान <i>apādāna</i>)	5	-अस् -as	-भ्याम् -bhyām	-भ्यस् -bhyas
Genitive (सम्बन्ध <i>sambandha</i>)	6	-अस् -as	-ओस् -os	-आम् -ām
Locative (अधिकरण <i>adhikaraṇa</i>)	7	-इ -i	-ओस् -os	-सु -su
Vocative (सम्बोधन <i>sambodhana</i>)		-स् -s (- -)	-औ -au (-ई -ī)	-अस् -as (-इ -i)

The final स् (s) characters in the above table are theoretical. In Classical Sanskrit, all of them become ः (ḥ) when the word is at the end of a sentence, and, if the word is followed by another in a sentence, the rules of *sandhi* for final "-ḥ" are applied.

a-stems

A-stems (/ə/ or /ɑ:/) comprise the largest class of nouns. As a rule, nouns belonging to this class, with the uninflected stem ending in short-a (/ə/), are either masculine or neuter. Nouns ending in long-A (/ɑ:/) are almost always feminine. A-stem adjectives take the masculine and neuter in short-a (/ə/), and feminine in long-A (/ɑ:/) in their stems. This class is so big because it also comprises the Proto-Indo-European o-stems.

	Masculine (<i>rāma-</i>)			Neuter (<i>āsyā-</i> 'mouth')			Feminine (<i>kāntā-</i> 'beloved')		
	Singul ar	Dual	Plural	Singul ar	Dual	Plural	Singul ar	Dual	Plural
Nominative	rāmaḥ	rāmau	rāmāḥ	āsyam	āsyē	āsyāni	kāntā	kānte	kāntāḥ
Accusative	rāmam	rāmau	rāmān	āsyām	āsyē	āsyāni	kāntām	kānte	kāntāḥ
Instrumental	rāmeṇa	rāmābhyām	rāmāiḥ	āsyēna	āsyābhyām	āsyaiḥ	kāntayā	kāntābhyām	kāntābhiḥ
Dative	rāmāya	rāmābhyām	rāmābhyāḥ	āsyāya	āsyābhyām	āsyebhyāḥ	kāntāya	kāntābhyām	kāntābhyāḥ
Ablative	rāmāt	rāmābhyām	rāmābhyāḥ	āsyāt	āsyābhyām	āsyebhyāḥ	kāntāyā	kāntābhyām	kāntābhyāḥ
Genitive	rāmasya	rāmāyoḥ	rāmānām	āsyasya	āsyāyoḥ	āsyānām	kāntāyā	kāntāyoḥ	kāntānām

Locative	rāme	rāmayoḥ	rāmeṣu	āsyē	āsyayoḥ	āsyēsu	kāntāyā m	kāntayoḥ	kāntāsu
Vocative	rāma	rāmau	rāmāḥ	āsyā	āsyē	āsyāni	kānte	kānte	kāntāḥ

i-and u-stems

i-stems

	Masc. and Fem. (<i>gāti-</i> 'gait')			Neuter (<i>vāri-</i> 'water')		
	Singular	Dual	Plural	Singular	Dual	Plural
Nominative	gātiḥ	gātī	gātayaḥ	vāri	vāriṇī	vāriṇi
Accusative	gātim	gātī	gātīḥ	vāri	vāriṇī	vāriṇi
Instrumental	gātyā	gātibhyām	gātibhiḥ	vāriṇā	vāribhyām	vāribhiḥ
Dative	gātaye, gātyāi	gātibhyām	gātibhyaḥ	vāriṇe	vāribhyām	vāribhyaḥ
Ablative	gāteḥ, gātyāḥ	gātibhyām	gātibhyaḥ	vāriṇaḥ	vāribhyām	vāribhyaḥ
Genitive	gāteḥ, gātyāḥ	gātyoḥ	gātīnām	vāriṇaḥ	vāriṇoḥ	vāriṇyām
Locative	gātāu, gātyām	gātyoḥ	gātiṣu	vāriṇi	vāriṇoḥ	vāriṣu
Vocative	gāte	gātī	gātayaḥ	vāri, vāre	vāriṇī	vāriṇi

u-stems

	Masc. and Fem. (<i>śātru-</i> 'enemy')			Neuter (<i>mādhu-</i> 'honey')		
	Singular	Dual	Plural	Singular	Dual	Plural
Nominative	śātruḥ	śātrū	śātravaḥ	mādhu	mādhunī	mādhūni
Accusative	śātrum	śātrū	śātrūn	mādhu	mādhunī	mādhūni
Instrumental	śātruṇā	śātrubhyām	śātrubhiḥ	mādhunā	mādhubhyām	mādhubhiḥ
Dative	śātrave	śātrubhyām	śātrubhyaḥ	mādhune	mādhubhyām	mādhubhyaḥ
Ablative	śātroḥ	śātrubhyām	śātrubhyaḥ	mādhunaḥ	mādhubhyām	mādhubhyaḥ
Genitive	śātroḥ	śātrvoḥ	śātrūnām	mādhunaḥ	mādhunoḥ	mādhūnām
Locative	śātrāu	śātrvoḥ	śātruṣu	mādhuni	mādhunoḥ	mādhūṣu
Vocative	śātro	śātrū	śātravaḥ	mādhu	mādhunī	mādhūni

Long Vowel-stems

	ā-stems (<i>jā-</i> 'progeny')			ī-stems (<i>dhī-</i> 'thought')			ū-stems (<i>bhū-</i> 'earth')		
	Singular	Dual	Plural	Singular	Dual	Plural	Singular	Dual	Plural
Nominative	jās	jāu	jās	dhīs	dhīyāu	dhīyas	bhūs	bhūvāu	bhūvas
Accusative	jām	jāu	jās, jās	dhīyam	dhīyāu	dhīyas	bhūvam	bhūvāu	bhūvas
Instrumental	jā	jābhyām	jābhis	dhiyā	dhībhyām	dhībhis	bhuvā	bhūbhyām	bhūbhis
Dative	jé	jābhyām	jābhyaḥ	dhiyé, dhiyāi	dhībhyām	dhībhyāḥ	bhuvé, bhuvāi	bhūbhyām	bhūbhyāḥ
Ablative	jās	jābhyām	jābhyaḥ	dhiyās, dhiyās	dhībhyām	dhībhyāḥ	bhuvās, bhuvās	bhūbhyām	bhūbhyāḥ

Genitive	jás	jós	jánām, jám	dhiyás, dhiyás	dhiyós	dhiyám, dhīnām	bhuvás, bhuvás	bhuvós	bhuvám, bhūnām
Locative	jí	jós	jásu	dhiyí, dhiyám	dhiyós	dhīśú	bhuví, bhuvám	bhuvós	bhūśú
Vocative	jás	jáu	jás	dhīs	dhiyāu	dhīyas	bhūs	bhuvāu	bhúvas

ṛ-stems

ṛ-stems are predominantly agental derivatives like *dātṛ* 'giver', though also include kinship terms like *pitṛ* 'father', *mātṛ* 'mother', and *svāsṛ* 'sister'.

	Singular	Dual	Plural
Nominative	pitá	pitárau	pitárah
Accusative	pitáram	pitárau	pitṛñ
Instrumental	pitrá	pitṛbhyām	pitṛbhih
Dative	pitré	pitṛbhyām	pitṛbhyah
Ablative	pitúr	pitṛbhyām	pitṛbhyah
Genitive	pitúr	pitróh	pitṛñām
Locative	pitári	pitróh	pitṛśu
Vocative	pítar	pitárau	pitárah

Numerals

The numbers from one to ten are:

1. *éka-*
2. *dvá-*
3. *trí-*
4. *catúr-*
5. *pāñca-*
6. *ṣáṣ-*
7. *saptá-, sápta-*
8. *aṣṭá-, áṣṭa-*
9. *náva-*
10. *dáśa-*

All numbers in Sanskrit can be declined in all the cases. Numbers above four are only declined in the plural. *Ēka* is declined like a pronominal adjective, though the dual form does not occur. *Dvā* appears only in the dual. *Trī* and *catūr* are declined irregularly:

	Three			Four		
	Masculine	Neuter	Feminine	Masculine	Neuter	Feminine
Nominative	trāyah	trīṇi	tisrá	catvárah	catvári	cátasra
Accusative	trīn	trīṇi	tisrá	catúrah	catvári	cátasra
Instrumental	tribhñih		tisñbhih	catúrbhñih		catasñbhñih
Dative	tribhyáh		tisñbhayah	catúrbhñayah		catasñbhñayah
Ablative	tribhyáh		tisñbhayah	catúrbhñayah		catasñbhñayah
Genitive	triyāñām		tisññām	caturnñām		catasññām
Locative	triśú		tisñśu	catúrśu		catasñśu

Personal Pronouns and Determiner

Sanskrit pronouns are declined for case, number, and gender. Many pronouns have alternative enclitic forms. The first and second person pronouns are declined for the most part alike, having by analogy assimilated themselves with one another. Ablatives in singular and plural may be extended by the syllable *-tas*; thus *mat* or *mattas*, *asmat* or *asmattas*. Sanskrit does not have true third person pronouns, but its demonstratives fulfil this function instead by standing independently without a modified substantive.

There are four different demonstratives in Sanskrit: *tat*, *etat*, *idam*, and *adas*. *etat* indicates greater proximity than *tat*. While *idam* is similar to *etat*, *adas* refers to objects that are more remote than *tat*. *eta*, is declined almost identically to *ta*. Its paradigm is obtained by prefixing *e-* to all the forms of *ta*. As a result of sandhi, the masculine and feminine singular forms transform into *eśas* and *eṣā*.

The enclitic pronoun *ena* is found only in a few oblique cases and numbers. Interrogative pronouns all begin with *k-*, and decline just as *tat* does, with the initial *t-* being replaced by *k-*. The only exception to this are the singular neuter nominative and accusative forms, which are both *kim* and not the expected **kat*. For example, the singular feminine genitive interrogative pronoun, "of whom?", is *kasyāḥ*. Indefinite pronouns are formed by adding the participles *api*, *cid*, or *cana* after the appropriate interrogative pronouns. All relative pronouns begin with *y-*, and decline just as *tat* does. The correlative pronouns are identical to the *tat* series.

In addition to the pronouns described above, some adjectives follow the pronominal declension. Unless otherwise noted, their declension is identical to *tat*.

- *eka*: "one", "a certain". (singular neuter nominative and accusative forms are both *ekam*)
- *anya*: "another".
- *sarva*: "all", "every". (singular neuter nominative and accusative forms are both *sarvam*)
- *para*: "the other". (singular neuter nominative and accusative forms are both *param*)
- *sva*: "self" (a reflexive adjective). (singular neuter nominative and accusative forms are both *svam*)

Compounds:

One other notable feature of the nominal system is the very common use of nominal compounds, which in the later literary language may be huge (10+ words) as in some modern languages such as German and Finnish. Nominal compounds occur with various structures, however morphologically speaking they are essentially the same. Each noun (or adjective) is in its (weak) stem form, with only the final element receiving case inflection. The four principle categories of nominal compounds are:

- Dvandva (co-ordinative)

These consist of two or more noun stems, connected in sense with 'and'. Examples are *rāma-lakṣmaṇau*—Rama and Lakshmana, *rāma-lakṣmaṇa-bharata-śatrughnāh*—Rama, Lakshmana, Bharata and Satrughna, and *pāṇipādam*—limbs, literally hands and feet, from *pāṇi* = hand and *pāda* = foot.

- Tatpuruṣa (determinative)

There are many *tatpuruṣas*; in a *tatpuruṣa* the first component is in a case relationship with another. For example, a doghouse is a dative compound, a house *for* a dog; other examples include instrumental relationships ("thunderstruck") and locative relationships ("towndwelling").

- Karmadhāraya (descriptive)

A compound where the relation of the first member to the last is appositional, attributive or adverbial; e.g., *uluka-yatu* (owl+demon) is a demon in the shape of an owl. *Karmadhārayas* are considered by some to be *tatpuruṣas*.

- Bahuvrīhi (possessive/exocentric)

Bahuvrīhi compounds refer to a compound noun that refers to a thing which is itself not part of the compound. For example the word *bahuvrīhi* itself, from *bahu* = much and *vrīhi* = rice, denotes a rich person—one who has much rice.

CHAPTER-VI

6.0 Phonology

Classical Sanskrit distinguishes about 36 phonemes. There is, however, some allophony and the writing systems used for Sanskrit generally indicate this, thus distinguishing 48 sounds. The sounds are traditionally listed in the order vowels (*Ac*), diphthongs (*Hal*), anusvara and visarga, plosives (*Sparśa*) and nasals (starting in the back of the mouth and moving forward), and finally the liquids and fricatives, written in IAST as follows:

Classification of Sanskrit Phonemes and Allophones Indicated in Writing - IAST

Romanisation

Type	Classification	Phonemes
Vowels	Plain	a ā i ī u ū
	Syllabic	ṛ ṝ ḷ ḹ
	Diphthongs	e ai o au
	Semivowels	y
Consonants	Anusvara	ṁ
	Visarga	ḥ
	Plosives	k kh g gh ṭ ṭh ḍ ḍh t th d dh p ph b bh
	Nasals	ñ ñ̄ ṇ n m
	Liquids	r l
	Fricatives and affricates	v ś ṣ s h c ch j jh

An alternate traditional ordering is that of the *Shiva Sutra* of *Pāṇini*.

It should be understood that, while the script used here is Devanagari, this has no particular importance. It just happens currently to be the most popular script for Sanskrit. The form of the symbols used to write Sanskrit has varied widely geographically and over time, and notably includes in modern times the Tamil and other modern Indian scripts. What is important is that the adherence to the phonological classification of the symbols elucidated here has remained constant in Sanskrit since classical times. It should be further noted that the phonology of modern Indian languages has evolved, and the values given to Devanagari symbols in, e.g. Hindi, differ somewhat from those of Sanskrit.

Vowels:

Further information: IPA chart (vowels and consonants) - 2015, and IPA vowel chart with audio

The vowels of Classical Sanskrit written in Devanagari, as a syllable-initial letter and as a diacritic mark on the consonant ष (/p/), pronunciation transcribed in IPA, IAST, and approximate equivalent in English:

Letter	प्	IPA	IAST	
अ	प	[ə]	a	Although, as a more closed vowel, it markedly differs in quality from ā, phonologically it functions as its short counterpart. ^[3]
आ	पा	[ɑ:]	ā	
इ	पि	[i]	i	
ई	पी	[i:]	ī	
उ	पु	[u]	u	
ऊ	पू	[u:]	ū	
ऋ	ृ	[r]	ṛ	syllabic <u>alveolar trill</u> : closest to <i>er</i> in <i>butter</i> in rhotic accents
ॠ	ॡ	[r:]	ṝ	syllabic <u>alveolar trill</u> : closest to <i>ir</i> in <i>bird</i> in rhotic accents
ऌ	ॡ	[l]	ḷ	syllabic <u>dental lateral approximant</u> : <i>le</i> in <i>turtle</i>
ॢ	ॣ	[l:]	ḹ	syllabic <u>dental lateral approximant</u> : longer <i>le</i>
ए	पे	[e]	e	long <u>close-mid front unrounded vowel</u> : <i>a</i> in <i>bane</i> (some speakers)
ऐ	पै	[əi]	ai	a <u>diphthong</u> : <i>i</i> in <i>ice</i> , <i>i</i> in <i>kite</i> (US, <u>Canadian</u> , and <u>Scottish English</u>)
ओ	पो	[o]	o	<u>close-mid back rounded vowel</u> : <i>o</i> in <i>bone</i> (<u>Scottish English</u>)
औ	पौ	[əu]	au	a <u>diphthong</u> : <i>ou</i> in <i>house</i> (Canadian English)

The long vowels are pronounced twice as long as their short counterparts. Also, there exists a third, extra-long length for most vowels. This lengthening is called *pluti*; the lengthened vowels, called *pluta*, are used in various cases, but particularly in the vocative. The *pluti* is not accepted by all grammarians. The vowels /e/ and /o/ continue as allophonic variants of Proto-Indo-Iranian /ai/, /au/ and are categorised as diphthongs by Sanskrit grammarians even though they are realised phonetically as simple long vowels.

Additional Points:

There are some additional signs traditionally listed in tables of the Devanagari script:

The diacritic ँ called *anusvāra*, (IAST: ṁ). It is a *pure* voiced *nasal* sound having no oral or oro-nasal articulation. (See also Anusvara § Sanskrit)

The diacritic ः called *visarga*, represents voiceless glottal fricative (IPA: [h]) whose voiced counterpart is the consonant *h* [ɦ]

		<u>Labial</u> ओष्ठ्य oṣṭhya		<u>Dental</u> दन्त्य dantya		<u>Retroflex</u> मूर्धन्य mūrdhanya		<u>Palatal</u> तालव्य tālavya		<u>Velar</u> कण्ठ्य kaṅṭhya		<u>Glottal</u>	
Sto p स्प र्श spa rśa	<u>Unaspirated</u> अल्पप्रा ण alpaprāṇa	p प [p]	b ब [b]	t त [t̪]	d द [d̪]	ṭ ट [ṭ̪]	ḍ ड [ḍ̪]	c च [t̪ʰ]	j ज [d̪ʰ]	k क [k̪]	g ग [g̪]		
	<u>Aspirated</u> महाप्राण mahāp rāṇa	ph फ [pʰ]	bh भ [bʰ]	th थ [t̪ʰ]	dh ध [d̪ʰ]	ṭh ठ [ṭ̪ʰ]	ḍh ढ [ḍ̪ʰ]	ch छ [t̪ʰʰ]	jh झ [d̪ʰʰ]	kh ख [k̪ʰ]	gh घ [g̪ʰ]		
<u>Nasal</u> अनुनासिक anunāsika		m म [m]		n न [n̪]		(ṅ ण [ṅ̪])		(ñ ञ [ɲ̪])		(ṇ ङ [ṇ̪])			
<u>Semivowel</u> अन्तस्थ antastha		v व [v]						y य [j]					
<u>Liquid</u> द्रव drava				l ल [l̪]		r र [r̪]							
<u>Fricative</u> ऊष्मन् ūṣman				s स [s̪]		ṣ ष [ṣ̪]		ś श [ɕ̪]				h ः [h̪]	h ह [ɦ̪]

The diacritic ̣ called *candrabinḍu* indicates the nasalization of a vowel or the semi-vowels y, v, l^[6]

If a lone consonant needs to be written without any following vowel, it is given a *virāma* (or *halanta*) diacritic below (प्).

The vowel /a:/ in Sanskrit is realised as being more central and less back than the closest English approximation, which is /ɑ:/. But the grammarians have classified it as a back vowel.

The ancient Sanskrit grammarians classified the vowels as velars, retroflexes, palatals and plosives rather than as back, central and front vowels.

Hence ए and औ are classified respectively as palato-velar (a+i) and labio-velar (a+u) vowels respectively. But the grammarians have classified them as diphthongs and in prosody, each is given two *mātrās*. This does not necessarily mean that they are proper diphthongs, but neither excludes the possibility that they could have been proper diphthongs at a very ancient stage. These vowels are pronounced as long /e:/ and /o:/ respectively by priests of today. Other than the "four" diphthongs, Sanskrit usually disallows any other diphthong—vowels in succession, where they occur, are converted to semivowels according to sandhi rules.

The vowels [r̪] and [r̪:] were syllabic rhotics, much the same as in English "butter" and the Hindi "patr", meaning letter. Indian descendant languages of Sanskrit lost the vocalic r, and Indian pandits came to pronounce it as variously "ri" in the North - as in the name of the god known there as "krishna" -, "ru" in the West - where the same god is commonly referred to as "krushna" -, and "ra" in the East. When vocalic r reappeared in modern Indian languages due to the loss of final "a" in Sanskrit loan words such as "patra" > "patr" in Hindi (ending in a vocalic r rather than short a, in accordance with Hindi phonology), replacing Prakrit and Apabramsha "patta" - the natural derivative of the Sanskrit - it was not recognised by modern speakers that this corresponded to the vocalic r of ancient Sanskrit.

Consonants:

Further information: [IPA chart \(vowels and consonants\) - 2015](#), and [IPA pulmonic consonant chart with audio](#)

IAST and Devanagari notations are given, with approximate IPA values in square brackets.

The table below shows the traditional listing of the Sanskrit consonants with the (nearest) equivalents in English (as pronounced in General American and Received Pronunciation or the Indian English pronunciation if specified), French and Spanish. Each consonant shown below is deemed to be followed by the neutral vowel schwa (/ə/), and is named in the table as such.

Stops—sparsā

	<u>Unaspirated</u> <u>Voiceless</u> alpaprāṇa śvāsa	<u>Aspirated</u> <u>Voiceless</u> mahāprāṇa śvāsa	<u>Unaspirated</u> <u>Voiced</u> alpaprāṇa nāda	<u>Aspirated</u> <u>Voiced</u> mahāprāṇa nāda	<u>Nasal</u> anunāsika nāda
<u>Velar</u> kaṇṭhya	क /kə/; English: skip	ख /kʰə/; English: cow	ग /gə/; English: game	घ /gʰə/; no equivalent	ङ /ŋə/; English: ring
<u>Palatal</u> tālavya	च /çə/; no equivalent	छ /çʰə/; no equivalent	ज /ʃə/; no equivalent	झ /ʃʰə/; no equivalent	ञ /ɲə/; French: agneau, Spanish ñ
<u>Retroflex</u> mūrdhanya	ट /ʈə/; English: stop	ठ /ʈʰə/; English: time	ड /ɖə/; English (Indian): door	ढ /ɖʰə/; no equivalent	ण /ɳə/; no English equivalent
<u>lamino-Dental</u> dantya	Non- Plosives/Sonorants	थ /tʰə/; Aspirated /t/	द /də/; French: dans, Spanish donde	ध /dʰə/; Aspirated /d/	न /nə/; English name
<u>Labial</u> oṣṭhya	प /pə/; English: spin	फ /pʰə/; English: pork	ब /bə/; English: bone	भ /bʰə/; no equivalent	म /mə/; English: mine

In the earlier language, व was pronounced as the labio-velar approximant [w], but it later developed into a labio-dental sound. To an English speaker's ear, this sound may be interpreted as the English "v" or the English "w", depending on context and precise articulation. Moreover, the Sanskrit व has a considerable range of articulation depending on position. It is nonetheless understood in the Sanskrit writing system, as well as by speakers of modern Indian languages, as one and the same phoneme.

Accent

Vedic Sanskrit has pitch accent; some syllables have a high tone, and the following syllable is a falling tone, though through ellipsis a falling tone may occur elsewhere.

6.1 Phonology and Sandhi

The Sanskrit vowels are as discussed in the section above. The long syllabic l (ḷ) is not attested, and is only discussed by grammarians for systematic reasons. Its short counterpart ḷ occurs in a single root only, kḷp "to order, array". Long syllabic r (ṛ) is also quite marginal, occurring in the genitive plural of r-stems (e.g. mātr "mother" and pitr "father" have gen.pl. mātrṇām and pitrṇām). i, u, r, ḷ are vocalic allophones of consonantal y, v, r, l. There are thus only 5 invariably vocalic phonemes: a, ā, ī, ū, ṛ.

Visarga ḥ is an allophone of r and s, and anusvara ṁ, Devanagari of any nasal, both in pausa (i.e., the nasalised vowel). The exact pronunciation of the three sibilants may vary, but they are distinct phonemes. Voiced sibilants, such as z /z/, ṣ /ṣ/, and ś /ś/ as well as its aspirated counterpart ṣh /ṣʰ/, were inherited by Proto-Indo-Aryan from Proto-Indo-Iranian but lost around or after the time of the Rigveda, as evidenced due to ḷh (an aspirated retroflex lateral consonant) being metrically a cluster (that was most likely of the form ṣḷh; aspirated fricatives are exceedingly rare in any language). The retroflex consonants are somewhat marginal phonemes, often being conditioned by their phonetic environment; they do not continue a PIE series and are often ascribed by some linguists to the substratal influence of Dravidian or other substrate languages. The nasal [ɲ] is a conditioned allophone of /n/ (/n/ and /ŋ/ are distinct phonemes—anu 'minute', 'atomic' [nom. sg. neutr. of an adjective] is distinctive from anu 'after', 'along'; phonologically independent /ŋ/ occurs only marginally, e.g. in prān 'directed forwards/towards' [nom. sg. masc. of an adjective]). There are thus 31 consonantal or semi-vocalic phonemes, consisting of four/five kinds of stops realised both with or without aspiration and both voiced and voiceless, three nasals, four semi-vowels or liquids, and four fricatives, written in IAST transliteration as follows: k, kh, g, gh; c, ch, j, jh; ṭ, ṭh, ḍ, ḍh; t, th, d, dh; p, ph, b, bh; m, n, ṇ; y, r, l, v; ś, ṣ, s, h or a total of 36 unique Sanskrit phonemes altogether.

The phonological rules which are applied when combining morphemes to a word, and when combining words to a sentence, are collectively called sandhi "composition". Texts are written phonetically, with sandhi applied (except for the so-called padapāṭha).

Phonological Processes

Abhinidhāna (lit. 'adjacent imposition'), (also known as *āsthāpita*, 'stoppage', *bhakṣya* or *bhukta*) is the incomplete articulation, or "'repressing or obscuring", of a plosive or, according to some texts, a semivowel (except *r*), which occurs before another plosive or a pause. It was described in the various Prātiśākhyas as well as the *Cārāyaṇīya Śikṣa*. These texts are not unanimous on the environments that trigger abhinidhana, nor on the precise classes of consonants affected.

One ancient grammarian, *Vyāḍi* (in *Ṛgveda Prātiśākhya* 6.12), states that *abhinidhāna* only occurred when a consonant was doubled, whereas according to the text of the *Śākalasit* was obligatory in this context but optional for plosives before another plosive of a different place of articulation. The *Śākalas* and the *Atharva Veda Prātiśākhya* agree on the observation that abhinidhana occurs only if there is a slight pause between the two consonants and not if they are pronounced jointly. Word-finally, plosives undergo abhinidhāna according to the *Atharva Veda Prātiśākhya* and the *Ṛgveda Prātiśākhya*. The latter text adds that final semivowels (excluding *r*) are also incompletely articulated. The *Atharva Veda Prātiśākhya* 2.38 lists an exception: a plosive at the end of the word will not undergo *abhinidhāna* and will be fully released if it is followed by a consonant whose place of articulation is further back in the mouth. The *Cārāyaṇīya Śikṣa* states that the consonants affected by abhinidhāna are the voiceless unaspirated plosives, the nasal consonants and the semivowels *l* and *v*.

According to Siddheshwar Varma, these differences may indicate geographical variation. It is not clear whether abhinidhana was present in the early spoken Sanskrit or it developed at a later stage. In Prakrit and Pāli abhinidhana was carried a step forward into complete assimilation, as for example Sanskrit: *sapta* to Jain Prakrit: *satta*.

Syntax

Because of Sanskrit's complex declension system, the word order is free.^[20] In usage, there is a strong tendency toward subject – object – verb (SOV), which was the original system in place in Vedic prose. However, there are exceptions when word pairs cannot be transposed.^[21]

Peculiar Characteristics

In the introduction to his celebrated translation of *Vidyakara*'s 'Subhashitaratnakosha', Daniel H.H. Ingalls describes some peculiar characteristics of the Sanskrit language. He refers to the enormous vocabulary of Sanskrit, and also of the presence of a larger choice of synonyms in Sanskrit than any other language he knew of. Further, he writes, just as there exist a vast number of synonyms for almost any word in Sanskrit, there also exist synonymous constructions. Ingalls writes that in elementary Sanskrit examinations he would ask his students to write in Sanskrit the sentence 'You must fetch the horse' in ten different ways.

Actually, Ingalls explains, it is possible to write the sentence in Sanskrit in around fifteen different ways 'by using active or passive constructions, imperative or optative, an auxiliary verb, or any of the three gerundive forms, each of which, by the way, gives a different metrical pattern'. Ingalls emphasizes that while these constructions differ formally, emotionally they are identical and completely interchangeable. He comments that in any natural language this would be impossible. As a general rule, Sanskrit was not the language of the family. It furnished no subconscious symbols for the impressions which we receive in childhood nor for the emotions which form our character in early adolescence.'

CHAPTER-VII

7.0 The Study of Hindu Grammar and The Study of Sanskrit

To the beginning study of Sanskrit it was an immense advantage that there existed a Hindu science of grammar, and one of so high a character. To realize how great the advantage, one has only to compare the case of languages destitute of it-as for instance the *Zend*. It is a science of ancient date, and has even exercised a shaping influence on the language in which all or nearly all the classical literature has been produced. It was an outcome of the same general spirit which is seen in the so careful textual preservation and tradition of the ancient sacred literature of India; and there is doubtless a historical connection between the one and the other; though of just what nature is as yet unclear. The character of the Hindu grammatical science was, as is usual in such cases, determined by the character of the language which was its subject.

The Sanskrit is above all things an analyzable language, one admitting of the easy and distinct separation of ending from stem, and of derivative suffix from primitive word, back to the ultimate attainable elements, the so-called roots. Accordingly, in its perfected form (for all the preparatory stages are unknown to us), the Hindu grammar offers us an established body of roots, with rules for their conversion into stems and for the inflection of the latter, and also for the accompanying phonetic changes-this last involving and resting upon a phonetic science of extraordinary merit, which has called forth the highest admiration of modern scholars; nothing at all approaching it has been produced by any ancient people; it has served as the foundation in no small degree of our own phonetics: even as our science grammar and of language has borrowed much from India. The treatment of syntax is markedly inferior-though, after all, hardly more than in a measure to correspond with the inferiority of the Sanskrit sentence in point of structure, as compared with the Latin and the Greek. Into any more detailed

description it is not necessary to our present purpose to enter; and the matter is one pretty well understood by the students of Indo-European language. It is generally well known also that the Hindu science; after a however long history of elaboration, became fixed for all future time in the system of a single grammarian, named Panini (believed, though on grounds far from convincing, to have lived two or three centuries before the Christian era).

Panini's work has been commented without end, corrected in minor points, condensed, re-cast in arrangement, but never rebelled against or superseded; and it is still the authoritative standard of good Sanskrit. Its form of presentation is of the strangest: a miracle of ingenuity, but of perverse and wasted ingenuity. The only object aimed at in it is brevity, at the sacrifice of everything else—of order, of clearness, of even intelligibility except by the aid of keys and commentaries and lists of words, which then are furnished in profusion. To determine a grammatical point out of it is something like constructing a passage of text out of an index verborum: if you are sure that you have gathered up every word that belongs in the passage, and have put them all in the right order, you have got the right reading; but only then. If you have mastered Panini sufficiently to bring to bear upon the given point every rule that relates to it, and in due succession, you have settled the case; but that is no easy task. For example, it takes nine mutually limitative rules, from all parts of the textbook, to determine whether a certain aorist shall be *ajdgari'sam* or *ajdgarisam* (the case is reported in the preface to Muller's grammar): there is lacking only a tenth rule, to tell us that the whole word is a false and never-used formation. Since there is nothing to show how far the application of a rule reaches, there are provided treatises of laws of interpretation to be applied to them; but there is a residual rule underlying and determining the whole: that both the grammar and the laws of interpretation must be so construed as to yield good and acceptable forms, and not otherwise—and this implies (if that were needed) a condemnation of the whole mode of presentation of the system as a failure.

Theoretically, all that is prescribed and allowed by Panini and his accepted commentators is Sanskrit, and nothing else is entitled to the name. The young pandit, then, is expected to master the system and to govern his Sanskrit speech and writing by it. This he does, with immense pains and labor, then naturally valuing the acquisition in part according to what it has cost him. The same course was followed by those European scholars who had to make themselves the pupils of Hindu teachers, in acquiring Sanskrit for the benefit of Europe; and (as was said above) they did so to their very great advantage. Equally as a matter of course, the same must still be done by any one who studies in India, who has to deal with the native scholars, win their confidence and respect, and gain their aid: they must be met upon their own ground.

But it is a question, and one of no slight practical importance, how far Western scholars in general are to be held to this method: whether Panini is for us also the law of Sanskrit usage; whether we are to study the native Hindu grammar in order to learn Sanskrit. There would be less reason for asking this question, if the native grammar were really the instrumentality by which the conserving tradition of the old language had been carried on. But that is a thing both in itself impossible and proved by the facts of the case to be untrue. No one ever mastered a list of roots with rules for their extension and inflection, and then went to work to construct texts upon that basis. Rather, the transmission of Sanskrit has been like the transmission of any highly cultivated language, only with differences of degree. The learner has his models which he imitates; he makes his speech after the example of that of his teacher, only under the constant government of grammatical rule, enforced by the requirement to justify out of the grammar any word or form as to which a question is raised.

Thus the language has moved on by its own inertia, only falling, with further removal from its natural vernacular basis, more and more passively and mechanically into the hands of the grammarians. All this is like the propagation of literary English or German; only that here there is much more of a vernacular usage that shows itself able to override and modify the rules of grammar. It is yet more closely like the propagation of Latin; only that here the imitation of previous usage is frankly acknowledged as the guide, there being no iron system of grammar to assume to take its place. That such has really been the history of the later or classical Sanskrit is sufficiently shown by the facts. There is no absolute coincidence between it and the language which Panini teaches. The former, indeed, includes little that the grammarians forbid; but, on the other hand, it lacks a great deal that they allow or prescribe.

The difference between the two is so great that Benfey, a scholar deeply versed in the Hindu science, calls it a grammar without a corresponding language, as he calls the pre-classical dialects a language without a grammar.' If such a statement can be made with any reason, it would appear that there is to be assumed, as the subject of Hindu grammatical science, a peculiar dialect of Sanskrit, which we may call the grammarians' Sanskrit, different both from the pre-classical dialects and from the classical, and standing either between them or beside them in the general history of Indian language. And it becomes a matter of importance to us to ascertain what this grammarians' Sanskrit is, how it stands related to the other varieties of Sanskrit, and whether it is entitled to be the leading object of our Sanskrit study.

Such questions must be settled by a comparison of the dialect referred to with the other dialects, and of them with one another. And it will be found, upon such comparison, that the earlier and later forms of the Vedic dialect, the dialects of the Brahmanas and Sutrās, and the classical Sanskrit, stand in a filial relation, each to its

predecessor, are nearly or quite successive forms of the same language; while the grammarians' Sanskrit, as distinguished from them, is a thing of grammatical rule merely, having never had any real existence as a language, and being on the whole unknown in practice to even the most modern pandits.

The main thing which makes of the grammarians' Sanskrit a special and peculiar language is its list of roots. Of these there are reported to us about two thousand, with no intimation of any difference in character among them, or warning that a part of them may and that another part may not be drawn upon for forms to be actually used; all stand upon the same plane. But more than half-actually more than half-of them never have been met with, and never will be met with, in the Sanskrit literature of any age.

When this fact began to come to light, it was long fondly hoped, or believed, that the missing elements would yet turn up in some corner of the literature not hitherto ransacked; but all expectation of that has now been abandoned. One or another does appear from time to time; but what are they among so many? The last notable case was that of the root *sligh*, discovered in the *Maitrayani-Safihita*, a text of the Brahmana period; but the new roots found in such texts are apt to turn out wanting in the lists of the grammarians.

Beyond all question, a certain number of cases are to be allowed for, of real roots, proved such by the occurrence of their evident cognates in other related languages, and chancing not to appear in the known literature; but they can go only a very small way indeed toward accounting for the eleven hundred unauthenticated roots. Others may have been assumed as underlying certain derivatives or bodies of derivatives-within due limits, a perfectly legitimate proceeding; but the cases thus explainable do not prove to be numerous. There remain then the great mass, whose presence in the lists no ingenuity has yet proved sufficient to account for. And in no small part, they bear their falsity and artificiality on the surface, in their phonetic form and in the meanings ascribed to them; we can confidently say that the Sanskrit language, known to us through a long period of development, neither had nor could have any such roots. How the grammarians came to concoct their list, rejected in practice by themselves and their own pupils, is hitherto an unexplained mystery.

No special student of the native grammar, to my knowledge, has attempted to cast any light upon it; and it was left for Dr. Edgren, no partisan of the grammarians, to group and set forth the facts for the first time, in the *Journal of the American Oriental Society* (Vol. XI, 1882 [but the article printed in 1879], pp. 1-55), adding a list of the real roots, with brief particulars as to their occurrence. It is quite clear, with reference to this fundamental and most important item, of what character the grammarians' Sanskrit is. The real Sanskrit of the latest period is, as concerns its roots, a true successor to that of the earliest period, and through the known intermediates; it has lost some of the roots of its predecessors, as each of these some belonging to its own predecessors or predecessor; it has, also like these, won a certain number not earlier found: both in such measure as was to be expected.

As for the rest of the asserted roots of the grammar, to account for them is not a matter that concerns at all the Sanskrit language and its history; it only concerns the history of the Hindu science of grammar. That, too, has come to be pretty generally acknowledged.¹ Every one who knows anything of the history of Indo-European etymology knows how much mischief the grammarians' list of roots wrought in the hands of the earlier more incautious and credulous students of Sanskrit: how many false and worthless derivations were founded upon them. That sort of work, indeed, is not yet entirely a thing of the past; still, it has come to be well understood by most scholars that no alleged Sanskrit root can be accepted as real unless it is supported by such a use in the literary records of the language as authenticates it-for there are such things in the later language as artificial occurrences, forms made for once or twice from roots taken out of the grammarians' list, by a natural license, which one is only surprised not to see oftener availed of (there are hardly more than a dozen or two of such cases quotable): that they appear so seldom is the best evidence of the fact already pointed out above, that the grammar had, after all, only a superficial and negative influence upon the real tradition of the language.

It thus appears that a Hindu grammarian's statement as to the fundamental elements of his language is without authority until tested by the actual facts of the language, as represented by the Sanskrit literature. But the principle won here is likely to prove of universal application; for we have no reason to expect to find the grammarians absolutely trustworthy in other departments of their work, when they have failed so signally in one; there can be nothing in their system that will not require to be tested by the recorded facts of the language, in order to determine its true value. How this is, we will proceed to ascertain by examining a few examples.

In the older language, but not in the oldest (for it is wanting in the *Veda*), there is formed a periphrastic future tense active by compounding a nomen agentis with an auxiliary, the present tense of the verb as 'be': thus, *ddta 'smi* (literally *dator sum*) 'I will give,' etc. It is quite infrequent as compared with the other future, yet common enough to require to be regarded as a part of the general Sanskrit verb-system. To this active tense the grammarians give a corresponding middle, although the auxiliary in its independent use has no middle inflection; it is made with endings modified so as to stand in the usual relation of middle endings to active, and further with conversion in 1st sing. of the radical *s* to *h*-a very anomalous substitution, of which there is not, I believe, another example in the language. Now what support has this middle tense in actual use? Only this: that in the *Brahmanas* occur four sporadic instances of attempts to make by analogy middle forms for this tense (they

are all reported in my Sanskrit Grammar, ?; further search has brought to light no additional examples): two of them are 1st sing., one having the form *se* for the auxiliary, the other *he*, as taught in the grammar; and in the whole later literature, epic and classical, I find record of the occurrence of only one further case, *dargayitdhe* (in *Nais. V 71.*)!

Here also, the classical dialect is the true continuator of the pre-classical; it is only in the grammarians' Sanskrit that every verb conjugated in the middle voice has also a middle periphrastic future. There is another and much more important part of verbal inflection—namely, the whole aorist-system, in all its variety—as to which the statements of the grammarians are to be received with especial distrust, for the reason that in the classical language the aorist is a decadent formation.

In the older dialects, down to the last Satra, and through the entire list of early and genuine Upanishads, the aorist has its own special office, that of designating the immediate past, and is always to be found where such designation is called for; later, even in the epos, it is only another preterit, equivalent in use to imperfect and perfect, and hence of no value, and subsisting only in occasional use, mainly as a survival from an earlier condition of the language. Thus, for example, of the first kind of aorist, the root-aorist, forms are made in pre-classical Sanskrit from about 120 roots; of these, 15 make forms in the later language also, mostly sporadically (only *gd*, *da*, *dhd*, *pa*, *sthd*, *bhAz* less infrequently); and 8 more in the later language only, all in an occurrence or two (all but one, in active precative forms, as to which see below).

Again, of the fifth aorist-form, the *is*-aorist (rather the most frequent of all), forms are made in the older language from 140 roots, and later from only 18 of these (and sporadically, except in the case of *grah*, *vad*, *vadh*, *vid*), with a dozen more in the later language exclusively, all sporadic except *anhk* (which is not a Vedic root). Once more, as regards the third or reduplicated aorist, the proportion is slightly different, because of the association of that aorist with the causative conjugation, and the frequency of the latter in use; here, against about 110 roots quotable from the earlier language, 16 of them also in the later, there are about 30 found in the later alone (nearly all of them only sporadically, and none with any frequency). And the case is not otherwise with the remaining forms.

The facts being such, it is easily seen that general statements made by the grammarians as to the range of occurrence of each form, and as to the occurrence of one form in the active and a certain other one in the middle from a given root, must be of very doubtful authority; in fact, as regards the latter point, they are the more suspicious as lacking any tolerable measure of support from the facts of the older language. But there are much greater weaknesses than these in the grammarians' treatment of the aorist.

Let us first turn our attention to the aorist optative, the so-called precative (or benedictive). This formation is by the native grammarians not recognized as belonging to the aorist at all—not even so far as to be put next the aorist in their general scheme of conjugation; they suffer the future-systems to intervene between the two. This is in them fairly excusable as concerns the precative active, since it is the optative of the root-aorist, and so has an aspect as if it might come independently from the root directly; nor, indeed, can we much blame them for overlooking the relation of their precative middle to the sibilant or sigmatic aorist, considering that they ignore tense-systems and modes; but that their European imitators, down to the very latest, should commit the same oversight is a different matter. The contrast, now, between the grammarians' dialect and the real Sanskrit is most marked as regards the middle forms.

According to the grammar, the precative middle is to be made from every root, and even for its secondary conjugations, the causative etc. It has two alternative modes of formation, which we see to correspond to two of the forms of the sibilant aorist: the *s*-aorist, namely, and the *is*-aorist. Of course, a complete inflection is allowed it. To justify all this, now, I am able to point to only a single occurrence of a middle precative in the whole later literature, including the epics: that is *rzriissta*, in the *Bhagavata-Purana* (III 9, 24), a text notable for its artificial imitation of ancient forms (the same word occurs also in the *Rig-Veda*); it is made, as will be noticed, from a reduplicated aorist stem, and so is unauthorized by grammatical rule. A single example in a whole literature, and that a false one! In the pre-classical literature also, middle precative forms are made hardly more than sporadically, or from less than 40 roots in all (so far as I have found); those belonging to the *s* and *is*-aorists are, indeed, among the most numerous (14 each), but those of the root-aorist do not fall short of them (also 14 roots), and there are examples from three of the other four aorists. Except a single 3d pl. (in *irala*, instead of *iran*), only the three singular persons and the 1st pl. are quotable, and forms occur without as well as with the adscititious *s* between mode-sign and personal ending which is the special characteristic of a precative as distinguished from a simply optative form.

Here, again, we have a formation sporadic in the early language and really extinct in the later, but erected by the grammarians into a regular part of every verb-system. With the precative active the case is somewhat different. This also, indeed, is rare even to sporadicness, being, so far as I know, made from only about 60 roots in the whole language—and of these, only half can show forms containing the true precative *s*. But it is not quite limited to the pre-classical dialects; it is made also later from 15 roots, 9 of which are additional to those which make a precative in the older language. Being in origin an optative of the root-aorist, it comes, as we may

suppose, to seem to be a formation from the root directly, and so to be extended beyond the limits of the aorist; from a clear majority (about three fifths) of all the roots that make it, it has no other aorist-forms by its side. And this begins even in the earliest period (with half-a- dozen roots in the Veda, and toward a score besides in the Brah- mana and Satra); although there the precative more usually makes a part of a general aorist-formation: for instance, and especially, from the root bha, whose precative forms are oftener met with than those of all other roots together, and which is the only root from which more than two real precative persons are quotable. How rare it is even in the epos is shown by the fact that Holtzmann' is able to quote only six forms (and one of these doubtful, and another a false formation) from the whole Mahabha- rata, one of them occurring twice; while the first book of the Ramayana (about 4500 lines) has the single bhzydat.

Since it is not quite extinct in the classical period, the Hindu grammarians could not, perhaps, well help teaching its formation; and, consi- dering the general absence of perspective from their work, we should hardly expect them to explain that it was the rare survival of an anciently little-used formation; but we have here another striking example of the great discordance between the real Sanskrit and the grammarians' dialect, and of the insufficiency of the information respecting the former obtainable from the rules for the latter.

Again, the reduplicated or third form of aorist, though it has become attached to the causative secondary conjugation (by a process in the Veda not yet complete), as the regular aorist of that conjugation, is not made from the derivative causative stem, but comes from the root itself, not less directly than do the other aorist- formations-except in the few cases where the causative stem contains a p added to a: thus, atisthipat from stem szithdpaya, root sthd. Perhaps misled by this exception, however, the gram- marians teach the formation of the reduplicated aorist from the causative stem, through the intermediate process of converting the stem back to the root, by striking off its conjugation-sign and reducing its strengthened vowel to the simpler root-form. That is to say, we are to make, for example, abzubhuval from the stem bhdvaya, by cutting off aya and reducing the remainder bhdv or bhdu to bliu, instead of making it from bhu directly! That is a curious etymological process; quite a side-piece to deriving vargyas and varistha from uru, and the like, as the Hindu grammarians and their European copyists would likewise have us do. There is one point where the matter is brought to a crucial test: namely, in roots that end in u or z7; where, if the vowel on which the redupli- cation is formed is an u-vowel, the reduplication-vowel should be of the same character; but, in any other case, an i-vowel. Thus, in the example already taken, bhdvaya ought to make abibhava/, just as it makes bibhdvayisati in the case of a real derivation from the causative stem; and such forms as abibhavat are, in fact, in a great number of cases either prescribed or allowed by the gram- marians; but I am not aware of their having been ever met with in use, earlier or later, with the single exception of apiplavam, occurring once in the (atapatha-Brahmana (VI ii, I, 8).

Again, the grammarians give a peculiar and problematic rule for an alternative formation of certain passive tenses (aorist and futures) from the special 3d sing. aor. pass.; they allow it in the case of all roots ending in vowels, and of grah, dr9, han. Thus, for example, from the root dd are allowed addyisi, ddyi?yate, ddyitd, beside adisi, ddsyate, dddt. What all this means is quite obscure, since there is no usage, either early or late, to cast light upon it. The Rig-Veda has once (I I47, 5) dlzdyis, from root dha , but this, being active, is rather a hindrance than a help. The Jaim. Brahmana has once (I 32I) dkhydyisyanfe; but this appears to be a form analogous with hvayis.yate etc., and so proves nothing. The Bhag. Purana has once (VIII I3, 36) tdyild, which the Peters- burg Lexicon refers to root {an , but if there is such a thing as the secondary root tdy, as claimed by the grammarians, it perhaps belongs rather there. And there remain, so far as I can discover, only aslhdyi.si (Dayak. [Wilson], p. I I7, 1. 6) and andyisata (Ind. Sprtiche2, 6I87, from the Kvalayananda); and these are with great probability to be regarded as artificial forms, made because the grammar declares them correct. It seems not unlikely that some misapprehension or blunder lies at the foundation of these rules of the grammar; at any rate, the formation is only gram- marians' Sanskrit, and not even pandits'; and it should never be obtruded upon the attention of beginners in the language.

Again, the secondary ending dhvam of 2d pl. mid. sometimes has to take the form '.dzvam. In accordance with the general euphonic usages of the language, this should be whenever in the present condition of Sanskrit there has been lost before the ending a lingual sibilant; thus: we have anedhvam from anes + dhvam, and apavidhvam from apavis + dhvam; we should further have in the precative bhavisi.zhvam from bhavih3-s- dhvam, if the form ever occurred, as, unfortunately, it does not. And, so far as I know, there is not to be found, either in the earlier language or the later (and as to the former I can speak with authority), a single instance of .dhvam in any other situation-the test-cases, however, being far from numerous. But the Hindu grammarians, if they are reported rightly by their European pupils (which in this instance is hard to believe), give rules as to the change of the ending upon this basis only for the s-aorist; for the is-aorist and its optative (the precative), they make the choice between .dhvam and dhvam to depend upon whether the i is or is not " preceded by a semi- vowel or h: " that is, apavis + dhvam gives apavidhvam, but ajanis + dhvam gives ajanidhvam, and so likewise we should have jani.sdhvam. It would be curious to know what ground the grammarians imagined themselves to have for laying down such a rule as this, wherein there is a total absence of discoverable con- nection between cause and effect; and it happens that all the quotable examples-ajanidhvam, artildhvam, aindhidhvam, vepi-

dhvam-are opposed to their rule, but accordant with reason. What is yet worse, however, is that the grammar extends the same conversion of dh to dh, under the same restrictions, to the primary ending dhve of the perfect likewise, with which it has nothing whatever to do-teaching us that, for instance, cakr and tustu + dhve make necessarily cakrdhve and tustudhve, and that dadhr-i + dhve makes either dadhrdhve or dadzhdhve, while tutud-i + dhve makes only tutudidhve ! This appears to me the most striking case of downright unintelligent blundering on the part of the native grammarians that has come to notice; if there is any way of relieving them of the reproach of it, their partisans ought to cast about at once to find it.

A single further matter of prime importance may be here referred to, in illustration of the character of the Hindu grammarians as classifiers and presenters of the facts of their language. By reason of the extreme freedom and wonderful regularity of word-composition in Sanskrit, the grammarians were led to make a classification of compounds in a manner that brought true enlightenment to European scholars; and the classification has been largely adopted as a part of modern philological science, along even with its bizarre terminology. Nothing could be more accurate and happier than the distinction of dependent, descriptive, possessive, and copulative compounds; only their titles--'his man' (fatpura), 'act-sustaining' (? karmadhraya), 'much-rice' (bahuvrihi), and 'couple' (dvandva), respectively--can hardly claim to be worth preserving.

But it is the characteristic of Hindu science generally not to be able to stop when it has done enough; and so the grammarians have given us, on the same plane of division with these four capital classes, two more, which they call dvigz ('two-cow') and avyayvhdva ('indeclinable-becoming'); and these have no *raison d'etre*, but are collections of special cases belonging to some of the other classes, and so heterogeneous that their limits are hardly capable of definition: the dvigu-class are secondary adjective compounds, but sometimes, like other adjectives, used as nouns; and an avyayvhdva is always the adverbially used accusative neuter of an adjective compound. It would be a real service on the part of some scholar, versed in the Hindu science, to draw out a full account of the so-called dvigu-class and its boundaries, and to show if possible how the grammarians were misled into establishing it. But it will probably be long before these two false classes cease to haunt the concluding chapters of Sanskrit grammars, or writers on language to talk of the six kinds of compounds in Sanskrit. Points in abundance, of major or minor consequence, it would be easy to bring up in addition, for criticism or for question.

Thus, to take a trifle or two: according to the general analogies of the language, we ought to speak of the root grh, instead of grah; probably the Hindu science adopts the latter form because of some mechanical advantage on the side of brevity resulting from it, in the rules prescribing forms and derivatives: the instances are not few in which that can be shown to have been the preponderating consideration, leading to the sacrifice of things more important. One may conjecture that similar causes led to the setting up of a root div instead of div, 'play, gamble': that it may have been found easier to prescribe the prolongation of the i than its irregular gunation, in devana etc. This has unfortunately misled the authors of the Petersburg Lexicons into their strange and indefensible identification of the asserted root div 'play' with the so-called root div 'shine': the combination of meanings is forced and unnatural; and then especially the phonetic form of the two roots is absolutely distinct, the one showing only short i and u (as in divam, dyubhis), the other always and only long zand a (as in divyati, -divan, and -dyuz, dyuta); the one root is really diu, and the other dzi (it may be added that the Petersburg Lexicon, on similar evidence, inconsistently but correctly writes the roots szv and srzv, instead of siv and sriv).

It would be easy to continue the work of illustration much further; but this must be enough to show how and how far we have to use and to trust the teachings of the Hindu grammarians. Or, if one prefer to employ the Benfeyan phrase, we see something of what this language is which has a grammar but not an existence, and in what relation it stands to the real Sanskrit language, begun in the Veda, and continued without a break down to our own times, all the rules of the grammar having been able only slightly to stiffen and unnaturalize it. Surely, what we desire to have to do with is the Sanskrit, and not the imaginary dialect that fits the definitions of Panini.

There is no escaping the conclusion that, if we would understand Sanskrit, we may not take the grammarians as authorities, but only as witnesses; not a single rule given or fact stated by them is to be accepted on their word, without being tested by the facts of the language as laid down in the less subjective and more trustworthy record of the literature. Of course, most of what the native grammar teaches is true and right; but, until after critical examination, no one can tell which part. Of course, also, there is more or less of genuine supplementary material in the grammarians' treatises--material especially lexical, but doubtless in some measure also grammatical--which needs to be worked in so as to complete our view of the language; but what this genuine material is, as distinguished from the artificial and false, is only to be determined by a thorough and cautious comparison of the entire system of the grammar with the whole recorded language.

Such a comparison has not yet been made, and is hardly even making: in part, to be sure, because the time for it has been long in coming; but mainly because those who should be making it are busy at something else. The skilled students of the native grammar, as it seems to me, have been looking at their task from the wrong

point of view, and laboring in the wrong direction. They have been trying to put the non-existent grammarians' dialect in the place of the genuine Sanskrit. They have thought it their duty to learn out of Panini and his successors, and to set forth for the benefit of the world, what the Sanskrit really is, instead of studying and setting forth and explaining (and, where necessary, accounting for and excusing) Panini's system itself. They have failed to realize that, instead of a divine revelation, they have in their hands a human work—a very able one, indeed, but also imperfect, like other human works, full of the prescription in place of description that characterizes all Hindu productions, and most perversely constructed; and that in studying it they are only studying a certain branch of Hindu science: one that is, indeed, of the highest interest, and has an important bearing on the history of the language, especially since the dicta of the grammarians have had a marked influence in shaping the latest form of Sanskrit—not always to its advantage.

Hence the insignificant amount of real progress that the study of Hindu grammar has made in the hands of European scholars. Its career was well inaugurated, now nearly forty-five years ago (1839-40), by Bihlting's edition of Panini's text, with extracts from the native commentaries, followed by an extremely stingy commentary by the editor; but it has not been succeeded by anything of importance, until now that a critical edition of the Mahabhasya, by Kielhorn, is passing through the press, and is likely soon to be completed: a highly meritorious work, worthy of European learning, and likely, if followed up in the right spirit, to begin a new era in its special branch of study.

Considering the extreme difficulty of the system, and the amount of labor that is required before the student can win any available mastery of it, it is incumbent upon the representatives of the study to produce an edition of Panini accompanied with a version, a digest of the leading comments on each rule, and an index that shall make it possible to find what the native authorities teach upon each given point: that is to say, to open the grammatical science to knowledge virtually at first hand without the lamentable waste of time thus far unavoidable—a waste, because both needless and not sufficiently rewarded by its results.

A curious kind of superstition appears to prevail among certain Sanskrit scholars: they cannot feel that they have the right to accept a fact of the language unless they find it set down in Panini's rules. It may well be asked, on the contrary, of what consequence it is, except for its bearing on the grammatical science itself, whether a given fact is or is not so set down. A fact in the pre-classical language is confessedly quite independent of Panini; he may take account of it and he may not; and no one knows as yet what the ground is of the selection he makes for inclusion in his system. As for a fact in the classical language, it is altogether likely to fall within the reach of one of the great grammarian's rules—at least, as these have been extended and restricted and amended by his numerous successors: and this is a thing much to the credit of the grammar; but what bearing it has upon the language would be hard to say. If, however, we should seem to meet with a fact ignored by the grammar, or contravening its rules, we should have to look to see whether supporting facts in the language did not show its genuineness in spite of the grammar.

On the other hand, there are facts in the language, especially in its latest records, which have a false show of existence, being the artificial product of the grammar's prescription or permission; and there was nothing but the healthy conservatism of the true tradition of the language to keep them from becoming vastly more numerous. And then, finally, there are the infinite number of facts which, so far as the grammar is concerned, should be or might be in the language, only that they do not happen ever to occur there; for here lies the principal discordance between the grammar and the language. The statement of the grammar that such a thing is so and so is of quite uncertain value, until tested by the facts of the language; and in this testing, it is the grammar that is on trial, that is to be condemned for artificiality or commended for faithfulness; not the language, which is quite beyond our jurisdiction. It cannot be too strongly urged that the Sanskrit, even that of the most modern authors, even that of the pandits of the present day, is the successor, by natural processes of tradition, of the older dialects; and that the grammar is a more or less successful attempt at its description, the measure of the success being left for us to determine, by comparison of the one with the other.

To maintain this is not to disparage the Hindu grammatical science; it is only to put it in its true place. The grammar remains nearly if not altogether the most admirable product of the scientific spirit in India, ranking with the best products of that spirit that the world has seen; we will scant no praise to it, if we only are not called on to bow down to it as authoritative. So we regard the Greek science of astronomy as one of the greatest and most creditable achievements of the human intellect since men first began to observe and deduce; but we do not plant ourselves upon its point of view in setting forth the movements of the heavenly bodies—though the men of the Middle Ages did so, to their advantage, and the system of epicycles maintained itself in existence, by dint of pure conservatism, long after its artificiality had been demonstrated. That the early European Sanskrit grammars assumed the basis and worked in the methods of the Hindu science was natural and praiseworthy. Bopp was the first who had knowledge and independence enough to begin effectively the work of subordinating Hindu to Western science, using the materials and deductions of the former so far as they accorded with the superior methods of the latter, and turning his attention to the records of the language itself, as fast as they became accessible to him. Since his time, there has been in some respects a retrogression rather than an

advance; European scholars have seemed to take satisfaction in submitting themselves slavishly to Hindu teachers, and the grammarians' dialect has again been thrust forward into the place which the Sanskrit language ought to occupy. To refer to but a striking example or two: in Miiller's grammar the native science is made the supreme rule after a fashion that is sometimes amusing in its naivete, and the genuine and the fictitious are mingled inextricably, in his rules; his illustrations, and his paradigms, from one end of the volume to the other. And a scholar of the highest rank, long resident in India but now of Vienna, Professor Biihler, has only last year put forth a useful practical introduction to the language, with abundant exercises for writing and speaking,' in which the same spirit of subservience to Hindu methods is shown in an extreme degree, and both forms and material are not infrequently met with which are not San'skrit, but belong only to the non-existent grammarians' dialect.

Its standpoint is clearly characterized by its very first clause, which teaches that " Sanskrit verbs have ten tenses and modes "- that is to say, because the native grammar failed to make the distinction between tense and mode, or to group these formations together into systems, coming from a common tense-stem, Western pupils are to be taught to do the same. This seems about as much an anachronism as if the author had begun, likewise after Hindu example, with the statement that "Sanskrit parts of speech are four: name, predicate, preposition, and particle." Further on, in the same paragraph, he allows (since the Hindus also do so) that " the first four [tenses and modes] are derived from a special present stem "; but he leaves it to be implied, both here and later, that the remaining six come directly from the root. From this we should have to infer, for example, that daddti comes from a stem, but daddtha from the root; that we are to divide nagya-ti but dd- -syati, a-vi9a-t but a-sic-at, and so on; and (though this is a mere oversight) that ayda contains a stem, but addt a pure root. No real grammarian can talk of present stems without talking of aorist stems also; nor is the variety of the latter so much inferior to that of the former; it is only the vastly greater frequency of occurrence of present forms that makes the differences of their stems the more important ground of classification.

These are but specimens of the method of the book, which, in spite of its merits, is not in its present, form a good one to put in the hands of beginners, because it teaches them so much that they will have to unlearn later, if they are to understand the Sanskrit language. One more point, of minor consequence, may be noted, in which the habit of Western philology shows itself too subservient to the whims of the Sanskrit native grammarians: the order of the varieties of present stems, and the designation of the conjugation classes as founded on it. We accept the Hindu order of the cases in noun-inflection, not seeking to change it, though unfamiliar, because we see that it has a reason, and a good one; but no one has ever been ingenious enough even to conjecture a reason for the Hindu order of the classes. Chance itself, if they had been thrown together into a hat, and set down in their order as drawn out, could not more successfully have sundered what belongs together, and juxtaposed the discordant. That being the case, there is no reason for our paying any heed to the arrangement.

In fact, the heed that we do pay is a perversion; the Hindus do not speak of first class, second class, etc., but call each class by the name of its leading verb, as bhu-verbs, ad-verbs, and so on; and it was a decided merit of Muller, in his grammar, to try to substitute for the mock Hindu method this true one, which does not make such a dead pull upon the mechanical memory of the learner. As a matter of course, the most defensible and acceptable method is that of calling each class by its characteristic feature- as, the reduplicating class, the ya-class, and so on. But one still meets, in treatises and papers on general philology, references to verbs " of the fourth class," " of the seventh class," and so on. So far as this is not mere mechanical habit, it is pedantry-as if one meant to say: " I am so familiar with the Sanskrit language and its native grammar that I can tell the order in which the bodies of similarly-conjugated roots follow one another in the dhdlupat has, though no one knows any reason for it, and the Hindu grammarians themselves lay no stress upon it."

It is much to be hoped that this affectation will die out, and soon. These and such as these are sufficient reasons why an exposition like that here given is timely and pertinent. It needs to be impressed on the minds of scholars that the study of the Sanskrit language is one thing, and the study of the Hindu science of grammar another and a very different thing; that while there has been a time when the latter was the way to the former, that time is now long past, and the relation of the two reversed; that the present task of the students of the grammar is to make their science accessible, account if possible for its anomalies, and determine how much and what can be extracted from it to fill out that knowledge of the language which we derive from the literature; and that the peculiar Hindu ways of grouping and viewing and naming facts familiar to us from the other related languages are an obstacle in the way of a real and fruitful comprehension of those facts as they show themselves in Sanskrit, and should be avoided. An interesting sentimental glamour, doubtless, is thrown over the language and its study by the retention of an odd classification and terminology; but that attraction is dearly purchased at the cost of a tittle of clearness and objective truth.

CHAPTER-VIII

8.0 Karaka Theory of Interpretation

Knowledge representation is one of the crucial tasks in Artificial Intelligence (AI). In this view the studies of knowledge representation using Karaka theory is getting evolved as one of the most useful tools in

association with the semantic nets. A rigorous thought process is given to the fact that being a Natural Language (NL) can Sanskrit be used for the tasks of AI, like Machine Translation (MT) [Briggs, 1985; Kadavy, 2007; Kelly, 2015]. The well known scientist Briggs opines that the early machine translation methods were not successful because they lack in the semantic approach hence the computational models for MT should be constructed by considering the cognition behind the actual thinking process [Briggs, 1985].

In order to achieve the human like cognition, the fluent methods that are capable of extracting the semantics from the syntax should be researched. The classical Paninian Grammar (PG) is one of such tools that facilitate the task of obtaining the semantics through syntactical framework. In case of Text Summarization, the human cognition focuses upon the identification and interpretation of important sentences, which broadly is known as Shabdabodha. The Shabdabodha theory tries to acquire the verbal knowledge through the application of Karaka theory [Tatacharya Ramanuja, 2006]. The subsequent sections elaborate how the Karakas participate in the action of this Shabdabodha.

Sanskrit is one of the oldest and the richest language of India with its origin in the Indo-European languages family through the Indo-Aryan branch. Panini’s Astadhyayi (P), which is a complete description of Sanskrit Grammar, has fixed the form of Sanskrit language decisively. It consists of near about four thousand aphorisms (Sutras) of the greatest compactness i.e. economy of language. Panini’s condensed Sutra style is its characteristic which is not found outside the Paninian grammatical schools [Bhate and Kak, 1993; Shastri, 2008].

In Paninian grammar, an extensive and perfect interpretation of Phonology, Morphology, Syntax and Semantics is available. It ideally explores all the concepts of theories of scientific analysis and description of a language. With these strong basics, the link between the modern Western Schools of Linguistics and the ancient Indian grammarian school is considerably very close [Kiparsky and Staal, 1969; Bhate and Kak, 1993]. Paninian grammar (PG) focuses on information while analyzing the language structures. It observes the language from the speaker and hearer’s or reader’s and writer’s point of view. During communication between them, the information is coded in the language strings. While analyzing these language strings one is expected to decode this information. The computational framework of Panini can be considered as a tool, which concerned about the coding and extraction of these languages constructs [Bharati et. al., 1996]. It works on various levels of language analysis to achieve the meaning of the sentence from hearer’s perspective. To achieve the desired meaning, the grammar analysis may divide itself internally into the various levels as per the need.

From learning cognition view, the hearer or the reader understands the entire sentence first and then they concentrate on the meaning of the individual word. Hence, the analysis works on two stages i.e. syntax and morphology. Paninian grammatical framework considers that the words and sentences are isolated. When they come in a group through a formal process then only they contribute to the overall meaning of the sentences. Thus one can say that, sentence carries the real syntactic meaning and not the individual words used in it. This is the essence, which makes it more meaningful to use Paninian Grammar for Text Summarization [Sarkar, 2003].

Definition of Karaka

Panini without defining the term karaka introduces it in the sutra *karake* (A_. 1.4.23). The reason for not defining the term karaka might have been that it was well known among grammarians.

Etymologically *karaka* is the name given to the relation subsisting between a noun and a verb in a sentence. Panini assigns the name *karaka* to such syntactico semantic relations. The term means any factor which contributes to the accomplishment of any action. Literally *karaka* means ‘that which brings about’ or ‘doer’. Panini introduced the term *karaka* in the *adhikara-sutra*.

Types of Karaka

There are six *karakas* – *karta* (Agent), *karma* (accusative, object), *kara_a* (Instrumental), *sampradana* (dative, Recipient), *apadana* (Ablative) and *adhikara_a* (Locative). The Genitive case is not related to the verb, it is in the sense of ‘of’ or ‘possessed of’ so this is not *karaka*. These names are not just arbitrary labels. These *karakas* have their own individual action. The *kart_ karaka* is linked with the role of independently carrying out an action (A_. 1.4.54). The *karma karaka* is linked with the thing most effected or considered to be the main goal of an action undertaken by the agent (A_. 1.4.49). The *kara_a karaka* is linked with the role ‘as most effective tool or instrument’ used by the agent (A_. 1.4.42). The *sampradana karaka* is linked with the role of receiving through the grammatical object (A_. 1.4.32). The *apadana karaka* is linked with the point from which somebody something departs or moves away (A_. 1.4.24). The *adhikara_a karaka* is linked with the role of location (A_. 1.4.45).

Panini links directly the *karaka* relations to case endings or post nominal suffixes.

According to Panini, case endings recur to express such *karaka* relations as *kart_* etc and they are known as *prathama* (nominative endings) etc. Pa_ini assign six different case endings for expressing the six types of *karaka* relations. Panini assigns one more type of case ending (which is not a *karaka*) as *sambandha* (genitive). It generally expresses the relation of a noun to another. The genitive must not be constructed with a verb. In these seven types of case endings, there are 21 sup *vibhaktis*.

Kart_ karaka

Panini describes *kart_ karaka* in only one *sutra*. Panini mentions it as the last *sutra* of *karaka prakara_a*. A *kakara*183 which is independent is called *kart_ kakara* (A_. 1.4.54).

In this *sutra*, *uddesya* is *svatantra_* and *vidheya* is *karta*. The *kasika* explains *svatanta* as *pradhanabhuta* (principal, who is the chief one). According to *Kasika* the *kakara* whom/which the speakers wishes to present as the independent one that is the one who is not subordinate with regard to the accomplishment of the action receives the designation *kart_* (agent).

Karman Karaka

According to Panini the item most desired to be reached or to be obtained by the *kart_* is called *karman karaka*. The *kasika* explains the rule as “*kartu_ kriyaya yad aptum I atamam tat karakam karmasamj-am bhavati*” it means that *karaka* which is the item most desired to be reached through the action of the *kart_* receives the designation *karman*. The *kasika* maintains a distinction between the conventional (*ru_ha*) and derivational (*prak_tipratyayajanya*) meaning of the word *ipsita*. The word, as *ru_ha* means ‘desired’ although derivationally it means ‘desired to be obtained’. This second meaning directly relates an object of desire to the action to be accomplished (*sadhya*).

Here *ap* has two meanings ‘to reach’ and ‘to obtain’. Accordingly192 *ipsitatama* may be taken to mean ‘what is most desired to be reached by the agent through his action’ and ‘what is most desired to be obtained by the agent’.

Kara_a karaka

Panini says the factor most effective in the accomplishment of the action is termed *kara_a karaka*. The rule uses *sadhakatamam*, a derivate ending in affix *tamap* and denoting *atisayana* (excellence). Panini uses *tamap* to indicate that the participation of *kara_a* is most useful in accomplishing the action. The *kasika* explains the rule as “*kriyasiddhau yatprak__ opakarakam vivak_itam tatsadhakatamam karakam kara_asamj-am bhavati*”. It means that most efficient *karaka* which is desired to be expressed as per-eminently helpful in bringing about an action receives the designation *kara_a*.

Sampradana karaka

Panini gives the definition of *sampradana karaka* as that which the *kart_* (agent) wants to connect with the object of the action of giving is called *sampradana karaka*. The word *sampradana* can be interpreted as denoting its etymological meaning (*anvartha samj-a*) as ‘*samyaka pradiyate asmai*’ (he to whom something is properly given). The *kasika* interprets the rule as ‘*karma_a kara_abhutena karta yamabhipraiti tatkarakam kriyaya_ parini_pattir yadvyaparad anantaram, vivak_yate yada tatra kara_atvam tada sm_tam*. (vakyapadiya, 3.7.90).

Apadana karaka

Panini stated the definition of *apadana karaka* as when ablation or separation is to be effected by a verbal action, the point of separation is called *apadana*. The literal meaning of the word *dhruva* is fixed. The *kasika* interprets this rule as ‘*dhravam yadapayayuktamapaye sadhye yadavadhibhutam tatkarakamapadanasamj-am bhavati*’.

It means that *karaka* which becomes the starting point (of moving away) receives the designation *apadana*. Commentators explain that even mental association and turning away can justify the assignment of the term *apadana*. Commentators also explain that two entities serving at the same time as a reference point in *apaya* can also be termed *apadana*. *Bhart_hari* has classified *apadana* into three types as follows-

1. *nirdi_avi_aya* – where movement away is explicit in the action.
2. *upattavi_aya* – where movement away is explicitly assumed.
3. *apek_itakriya* – where a root signifying *apaya* is not mentioned.

Adhikara_a karaka

The real abode of action is the agent who does it or the object on which it is done. But the agent and the object must exist on something before the action can be done. That something is called *adhikara_a karaka* (abode). It helps in the accomplishment of the action indirectly through the agent or the object. This is because an action is supposed to be located in the agent (*kart_stha kriya*) or object (*karmastha kriya*). According to Panini, the place or thing which is the site or substratum of the action subsisting in the agent or the object and is thereby the immediate site of action is *adhikara_a*. Actually, this rule assigns the term *adhikara_a* to the *adhara* (locus) of an *kriya* (action). The meaning of *adhara* in the grammar as a participant *upakarini* (contributing) towards accomplishing an action. The *kasika* derives the word *adhara* in the sense of *adhriyante'smin kriya_*. It means actions are located therein. The *kasika* explains the rule as ‘*kart_karma_o_ kriyasrayabhutayo_ dhara_akriyam prati ya adhara_ tatkarakamadhikara_asamj-am bhavati*’. It means that *karaka* which with regard to the action of supporting is the location of the *kart_* or the *karman*, which are the substrata of the action, receives the designation *adhikara_a*. *Pata-jali* has not commented on this rule.

Bhart_hari recognized three types of *adhikara_a* based on the relationship between what serves as *adhara* (locus) and what is considered as the thing held (*adheya*) as follows-

1. *aupasle_ika*

2. *vai_ayika*

3. *abhivayapaka*

Optional *karaka*

There are three *kakara* sutras, and later, one *varitika* is added by Katyayana where more than one *kakara* is possible. Panini makes one *sutra* when *kart_ karaka* becomes *karman* or optionally *kara_a karaka* as followsrle # A 1.4.53 rule *h_kroranyatarasyam* con causative forms of the vb *h_* or *k_ dhatu* used res *kart_ _ karman / kara_a fs { karman / kara_a (kart_ [causative h_, k_ vb]) }* pc check causative vb if true then check *kart_ assign karman* or *kara_a role*

Karmapravacaniya

Panini describes *karmapravacaniya samj-a* (It is also an *adhikara*) in the fourth part of the first chapter of A__adhaya (from A__1.4.82 to A__1.4.97). The *karmapravacaniyas* come in the domain of *nipata*²⁰⁸ also. So all *karmapravacaniy as* are *nipata*. There are three vibhaktis (*dvitiya, pa-cami* and *saptami*) used in the context of *karmapravacaniya*.

The word *karmapravacaniya* is derived by introducing affix *aniyar* to denote agent. It is non-*ti_* and comes within the domain of *k_tya_* also. So it will be termed as *k_t* and *k_tya_*.

Vibhakti

Panini describes *vibhakti* in the third *pada* (part) of second chapter. In this *pada*, the *vibhaktis* (case endings) are introduced. The first *sutra* of this *pada* is *anabhihite*. The word *anabhihite* is used here in the sense of *anukta* (not stated) or *anirdi_ a* (not mentioned). According to kasika this is an *adhikara* (governing, section heading) rule. It is noted that an *adhikara* is not necessarily continued in each of the rules belonging to the section concerned. It may be temporarily cancelled. It may also redundantly be continued.

This rule allows the introduction of nominal endings only when their denotatum has not already been expressed by some other means. There are four ways- *ti_* (A__-3.4.78), *k_t* (A__-3.1.93), *taddhita* (A__-4.1.76) and *samasa* (A__-2.1.3) in which the denotatum of a nominal ending can be expressed elsewhere. The *abhihite/ anabhihite* device is not used by Pa__ini in the *taddhita* and *samasa* section. It remains restricted to the *ti_* and *k_t* section only. But grammarians from Katyayana onwards have extended its application to the other two sections also. According to Siddhantakaumudi in rare case as a fifth way *nipata* can be added, for instance - *vi_av_k_o'pi samvardhya svayam chettumasampratam*.

In this example *na--tatpuru_a* compound is used in *asampratam*. The meaning of *sampratam* is same as verbal form *yujyate* and *karman* (*vi_v_k_a*) is expressed by *yujyate*. Therefore *karman* (*vi_v_k_a*) is expressed by *sampratam* also and the first case ending is used in *sampratam*.

Prathama vibhakti

Panini describes *prathama vibhakti* in two *sutras*. There are three suffixes²¹⁴ in *prathama vibhakti* as *su, au* and *jas*. They are used to express²¹⁵ respectively *ekavacana, dvivacana* and *bahuvacana*. The formulation of *prathama vibhakti* related rules are as follows:

A 2.3.46 rule *pratipadikarthali parima avacanamatre prathama con pratipadikartha* (ns meaning), *li_ga* (gender), *parima_a* (measure) or *vacana* (number) is to be expressed.

²¹⁴ *svaujasamau cha_ abhyambhis_ebhyambhyas_asibhyambhyas_asosam_yossup* (A__-4.1.2)

²¹⁵ *bahu_u bahuvacanam* and *dvyekayordvivacanaikavacane* (A__-1.4.21-22)

res *prathama fs { prathama ([pratipadikartha, li_, parima_a, vacana]) }* pc check above con if true then check *sadhakatam assign prathama vibhakti*

A 2.3.47 rule *sambodhane ca con sambodhana* (address) is to be expressed res *sambodhana _ prathama fs { prathama ([sambodhana]) }* pc check *sambodhana assign prathama vibhakti*

Optional *prathama vibhakti*:

Katyayana suggests two changes to *prathama vibhakti* where it is used optionally as follows:

Rle # va of A 1.4.31 rule *tadyktadadhvana_ prathamastamyau con space or distance measured from any point* res *prathama, saptami fs { prathama, saptami (adhvana [tadyktad]) }* pc check above con if true then check *sadhakatam assign prathama vibhakti* rle # va of A 2.3.27 rule *nimittaparyayaprayoge sarvasam prayadarsanam con if synonyms of nimitta such as hetu, kara_a, prayojana etc used res all vibhakti*²¹⁶

216 Note : But words other than the pronoun do not take *prathama* and *dvitiya vibhakti*. fs { *prathama, dvitiya, t_tiya, caturthi, pa-cami, sa_ hi, saptami ([sarvanama + nimittarthaka ns])* } pc check *sarvanama + nimittarthaka ns assign any same vibhakti* in both

Dvitiya vibhakti

Panini describes *dvitiya vibhakti* in three *sutras* and in next three *sutra* it is optional.

There are three suffixes²¹⁷ in *dvitiya vibhakti* - *am, au* and *sas*. They are used to express²¹⁸ respectively *ekavacana, dvivacana* and *bahuvacana*. The formulation of *dvitiya vibhakti* related rules are as followsrle

A 2.3.4 rule *antara 'ntare_a yukte* con when *antara* (between) and *antare_a* (without) are in useres *dvitiya* fs { *dvitiya* (*sambandha* [*antara, antare_a*]) } pc check *antara* and *antare_a* if true then check *sambandha* assign *dvitiya*

rle # A 2.3.5 rule *kaladhvanoratyantasamyoge* con words denoting *kala, marga* with some *kriya, dravya* or *gu_a* and *atyantasamyoga* signified res *dvitiya* fs { *dvitiya* (*kala, marga* ns [*samyoga*]) } pc check *antara* and *antare_a* if true then check *sambandha* assign *dvitiya*

217 *svaujasamau cha_ abhyambhis_ebhyambhyas_asibhyambhyas_asosam_yossup* (A__.-4.1.2)

218 *bahu_u bahuvacanam* and *dvyekayordvivacanaikavacane* (A__.-1.4.21-22) rle # A 2.3.8 rule *karmapravacaniyayukte dvitiya* con word in construction with a *karmapravacaniya* res *karmapravacaniya _ dvitiya* fs { *dvitiya* ([*karmapravacaniya*]) } pc check *karmapravacaniya* assign *dvitiya*.

Katyayana adds two *varatika* related to *dvitiya vibhakti* which are as follows

rle # va of A 1.4.48 rule *ubhasarvataso_karya dhiguparyadi_u tri_u dvitiyamre_itante_u tato'yatrapa d_syate* con words in composition with *ubhayata_, sarvata_, dhik, upariupari, adhyadhi* and *adho'dha_*. res *dvitiya* fs { *dvitiya* (*sambandha* [*ubhayata_, sarvata_, dhik, uparyupari, adhyadhi, adho'dha_*]) } pc check above words if true then check *sambandha* of these words assign *dvitiya*

rle # va of A 1.4.48 rule *abhita_parita_samayanika_a ha pratiyogeÕpi* con words in composition with *abhita_, parita_, samaya, nika_a, ha, prati* res *dvitiya* fs { *dvitiya* (*sambandha* [*abhita_, parita_, samaya, nika_a, ha, prati*]) } pc check above words if true then check *sambandha* of these words assign *dvitiya*.

Optional *dvitiya vibhakti*:

Panini makes provision for *dvitiya* and *_a_ hi vibhakti* optionally in the following *sutrarle*

A 2.3.31 rule *enapa dvitiya* con in conjunction with another stem which ends in affix *enap*219 res *dvitiya/ _a_ hi* fs { *dvitiya, _a_ hi* (*sambandha* [*enap* suffix ending]) } pc check *enap* suffix ending if true then check *sambandha* of this word assign *dvitiya* or *_a_ hi*

Panini makes provision for *dvitiya, t_tiya* and *pa-cami vibhakti* optionally in the following two *sutras*

rle# A 2.3.32 rule *p_thagvinananabhist_tiyantatarasyam* con a ns in conjunction with *p_thak, vina* or *nana* res *dvitiya, t_tiya* and *pa-cami* fs { *dvitiya, t_tiya* and *pa-cami* (*sambandha* [*p_thak, vina, nana*]) } pc check words *p_thak, vina* or *nana* if true then check *sambandha* of these word assign *dvitiya, t_tiya* or *pa-cami*

rle # A 2.3.35 rule *durantikarthebhyo dvitiya ca* con a ns in conjunction with *dura, antika* or their synonyms res *dvitiya, t_tiya* and *pa-cami* fs { *dvitiya, t_tiya, pa-cami* (*sambandha* [*dura, antika* or their synonyms]) } pc check the synonyms of *dura, antika* 219 *enabanyatarasyamadure'pa-camya_* (A__.- 5.3.35). if true then check *sambandha* of these word assign *dvitiya, t_tiya* or *pa-cami*

t_tiya vibhakti :

Panini describes *t_tiya vibhakti* in five *sutras* and in next five *sutras* it becomes optional. There are three suffixes220 in *t_tiya vibhakti* - *a, bhyam* and *bhis*. They are used to express221 respectively *ekavacana, dvivacana* and *bahuvacana*. The formulation of *t_tiya vibhakti* related rules are as follows

rle# A 2.3.6 rule *apavarge t_tiya* con If *atyantasamyoga* and *apavarga* both are signified res words denoting time and path *_ t_tiya* fs { *t_tiya* (*kalavacaka, margavacaka* [*apavarga + atyantasamyoga*]) } pc check the *kalavacaka, margavacaka* words if true then check *apavarga* and *atyantasamyoga* assign *t_tiya* rle # A 2.3.19 rule *sahayukte'pradhane* con if ns denote *apradhana* used in conjunction with *saha* or its synonyms res *apradhana _ t_tiya* fs { *t_tiya* (*apradhana* [*saha* or its synonyms]) } pc check the *saha* or its synonym words if true then check *apradhana* assign *t_tiya*

rle # A 2.3.20 rule *yena_gavikara_ 220 svaujasamau cha_abhyambhis_ebhyambhyas_asibhyambhyas_asosam_yossup* (A__.-4.1.2) 221 *bahu_u bahuvacanam* and *dvyekayordvivacanaikavacane* (A__.-1.4.21-22) con if defective organ indicates defect of the body res *a_ga _ t_tiya* fs { *t_tiya* (*a_ga* [*vikara*]) } pc check the word which are indication *a_ga* if true then check *vikara* assign *t_tiya*

rle # A 2.3.21 rule *itthambhutralak_a_e* con if ns mark or characteristic indicating that a person or a thing is of this sort. res *lak_a_a_ t_tiya* fs { *t_tiya* (*lak_a_a* [*bhedaka*]) } pc check the word which are indication *lak_a_a* if true then check *bhedaka* assign *t_tiya*

rle # A 2.3.23 rule *hetau* con if a ns denoted *hetu* (cause)res *hetu _ t_tiya* fs { *t_tiya* ([*hetu*]) } pc check the word which are indication *hetu* assign *t_tiya*

Katyayana adds one *varatika* related to *t_tiya vibhakti* where it is used as follows

rle# va of A 2.3.18 rule *prak_tyadihya upasamkhyanam* con if ns indicates such as *prak_ti* (nature) res *t_tiya* fs { *t_tiya* ([*prak_ti*]) } pc check the word which are indication *prak_ti* assign *t_tiya*

Optional *t_tiya vibhakti* :

Panini makes provision for *t_tiya vibhakti* optionally with *_a_ hi* and *saptami vibhaktis* in the following four *sutras*

rle# A 2.3.27 rule *sarvanamnast_tiya ca* con if pronominal stem which denotes *hetu* and *hetu* itself used in conjunction res *t_tiya* fs { *t_tiya*, *_a_ hi* (*hetu* + *sarvanama* [*hetvarthaka*]) } pc check the pronominal stem if true then is it *hetvarthaka* assign *t_tiya* or *_a_ hi*

rle # A 2.3.44 rule *prasitotsukabhyam t_tiya ca* con if ns connected with *prasita* or *utsuka* res *t_tiya*, *saptami* fs { *t_tiya*, *saptami* (*prasita*, *utsuka* [*adhikara_a*]) } pc check the *prasita* or *utsuka* if true then connectivity with ns assign *t_tiya* or *saptami*

rle # A 2.3.45 rule *nak_atre ca lupi con* if ns terminates in *lup222* and denoted *nak_atra* (constellation) res *t_tiya*, *saptami* fs { *t_tiya*, *saptami* (*lup* ending *nak_atra* [*adhikara_arthe*]) } pc check the *lup* ending *nak_atra 222 pratyayasya lukslulupa_* (A__.- 1.1.61) and *lubavise_e* (A__.- 4.2.4). if true then connectivity *adhikara_arthe* assign *t_tiya* or *saptami*

rle # A 2.3.72 rule *tulyarthairatulopamabhyam t_tiyanyatarasyam* con if synonym of *tulya* except *tula* and *upama* used and relation with ns to be expressed is that of reminder. res *t_tiya*, *_a_ hi* fs { *t_tiya*, *_a_ hi* (*sambandha* [*tulyartha* (except *tula*, *upama*)]) } pc check *tulyartha* word except *tula*, *upama* if true then relation with ns assign *t_tiya* or *_a_ hi*

Caturthi vibhakti

Panini describes *caturthi vibhakti* in only a single *sutra* when it becomes optionally with *_a_ hi vibhakti*. Katyayana adds four *varatika* related to *caturthi vibhakti* on A__.- 1.4.44.

There are three suffixes in *caturthi vibhakti* - *_e*, *bhyam* and *bhyas*. They are used to express respectively *ekavacana*, *divivacana* and *bahuvacana*. The formulation of *caturthi vibhakti* related rules are as follows

rle# va of A 1.4.44 rule *tadarthyeh caturthi vacya con* if ns used in the sense of *tadarthya* (cause) res *caturthi* fs { *caturthi* ([*prayojana*, *tadarthya*]) } pc check *prayojana*, *tadarthya* if true then assign *caturthi* rle # va of A 1.4.44 rule *kl_pi sampadyamane ca svaujasamau cha_*

abhyambhis_ebhyambhyas_asibhyambhyas_asosam_yossup (A__.-4.1.2) *bahu_u bahuvacanam* and *dvyekayordvivacanaikavacane* (A__.-1.4.21-22) con if vb are having the sense of *kl_pi*. res *sampadyamana_ caturthi* fs { *caturthi* (*sampadyamana* [*kl_pi*, *sampad*, *jan* vb]) } pc check vb if true then check *sampadyamana* assign *caturthi*

rle # va of A 1.4.44 rule *utpatena j-apite cacon* The good or evil portended by heavenly phenomenon res *caturthi* fs { *caturthi* ([*utpata*]) } pc check *utpata* if true then assign *caturthi* rle # va of A 1.4.44 rule *hitayoge ca con* A word in composition with *hita* res *caturthi* fs { *caturthi* (*sambandha* [*hita*]) } pc check ns *hita* if true then check relation assign *caturthi*

Optional caturthi vibhakti:

Panini makes provision for *caturthi vibhakti* optionally with *_a_ hi vibhaktis* as follows

rle# A 2.3.73 rule *caturthi casi_yayu_yamadrabhadrakusalasukharthahitai_ con* when items having the signification of *ayu_ya*, *madra*, *bhadra*, *kusala*, *sukha*, *artha* or *hita* used in conjunction and benediction is expressed as a reminder. res *caturthi/_a_ hi*

fs *caturthi*, *_a_ hi* { *sambandha* (*ayu_ya*, *madra*, *bhadra*, *kusala*, *sukha*, *artha* [*asirvadarthaka*]) } pc check *ayu_ya*, *madra*, *bhadra*, *kusala*, *sukha*, *artha* or *hita* if true then check is it *asirvadarthaka* if true then check *sambandha* assign *caturthi/_a_ hi*

pa-cami vibhakti :

Panini describes *pa-cami vibhakti* in five *sutras* and in other two *sutras* *pa-cami vibhakti* becomes optional. Katyayana adds one *varatika* related to *pa-cami vibhakti*. There are three suffixes²²⁵ in *pa-cami vibhakti* - *_asi*, *bhyam* and *bhyas*. They are used to express²²⁶ respectively *ekavacana*, *divivacana* and *bahuvacana*. The formulation of *pa-camivibhakti* related rules are as follows

rle# A 2.3.42 rule *pa-cami vibhakte con* if ns denotes something from which something different is distinguished. res *pa-cami* fs { *pa-cami* (*nirdhara_asraya* [*vibhaga*]) } pc check *vibhaga* if true then check *nirdhara_asraya* assign *pa-cami*

rle # A 2.3.24 rule *akartary_e pa-cami con* if ns signifies *_a* provided *_a* serves as a *hetu* other then *kart_* res *pa-cami* fs { *pa-cami* (*_abhuta hetuvacaka* [*kart_bhinna*]) } ²²⁵ *svaujasamau cha_*

abhyambhis_ebhyambhyas_asibhyambhyas_asosam_yossup (A__.-4.1.2) ²²⁶ *bahu_u bahuvacanam* and *dvyekayordvivacanaikavacane* (A__.-1.4.21-22) pc check *_abhuta hetuvacaka* if true then check *kart_bhinna* assign *pa-cami*

rle # A 2.3.29 rule *anyaraditarartediksbdacuttarapadajahiyukte con* if ns in construction with *anya*, *arata*, *itara*, *_te*, *diksabda*, *a-cuttarapada*, *ac pratyayanta* or *ahi pratyayanta* res *pa-cami* fs { *pa-cami* (*sambandha* [*anya*, *arata*, *itara*, *_te*, *diksabda*, *a-cuttarapada*, *ac pratyayanta* or *ahi pratyayanta*]) } pc check *anya*, *arata*, *itara*, *_te*, *diksabda*, *a-cuttarapada*, *ac pratyayanta* or *ahi pratyayanta* if true then check *sambandha* assign *pa-cami*

rle # A 2.3.11 rule *pratinidhipratidane ca yasmat con* if ns conjoined with a *karmapravacaniya* (*prati*) and either serves as *pratinidhi* or *pratidana* res *pa-cami* fs *pa-cami* { *sambandha* (*karmapravacaniya* [*pratinidhi*,

pratidana]} pc check *karmapravacaniya prati* if true then check *pratinidhi*, *pratidana* if true then check *sambandha* assign *pa-cami*

rle # va of A 1.4.31 rule *yatascadhvakalanirma_am tatra pa-cami* con A point from which *adhva* or *kala* is measured res *pa-cami* fs { *pa-cami* ([*jaha se margha, kala ka napa ho*]) } pc check *yatascadhvakalanirma_a* assign *pa-cami*

Optional *pa-cami vibhakti* :

Panini makes provision for *pa-cami vibhakti* optionally with *t_tiya* and *_a_ hi vibhaktis* in the following two *sutras*

rle# A 2.3.25 rule *vibha_a gu_e'striyam* Condition if non-feminine stem denotes *hetu* as well as *gu_a* res *pa-cami*, *t_tiya* fs { *pa-cami*, *t_tiya* (*gu_avacaka hetu* [*pumlli_ga, napumsakali_ga*]) } pc check *gu_avacaka hetu* if true then check *pumlli_ga, napumsakali_ga* assign *pa-cami* or *t_tiya*

rle # A 2.3.34 rule *durantikarthai_a_ hanyatarasyam* con if ns in conjunction with *dura* (far), *antika* (near) or their synonyms. res *pa-cami*, *_a_ hi* fs { *pa-cami*, *_a_ hi* (*sambandha* [*durarthaka, antikarthaka*]) } pc check word *durarthaka, antikarthaka* if true then check *sambandha* assign *pa-cami* or *_a_ hi*

a hi vibhakti :

Panini describes *_a_ hi vibhakti* in three *sutras* and in other four *sutras*, *_a_ hi vibhakti* becomes optional. There are three suffixes²²⁷ in *_a_ hi vibhakti* - *_as*, *os* and *am*. They are used to express²²⁸ respectively *ekavacana*, *dvivacana* and *bahuvacana*. The formulation of *_a_ hi vibhakti* related rules are as follows

rle# A 2.3.50 rule *_a_ hi se_e* con when the *se_a* (remainder) is to be expressed by ns res *_a_ hi* fs { *_a_ hi* ([*se_a*]) } pc check *se_a* (remainder) assign *_a_ hi*

rle # A 2.3.26 rule *_a_ hi hetuprayoge* con if ns denotes *hetu* (cause) and *hetu* itself used res *_a_ hi* fs { *_a_ hi* (*hetvarthak sabda + hetu* [*hetvarthak sabda + hetu*]) } pc check *hetu* itself used with *hetvarthak sabda* assign *_a_ hi* in both words

rle # A 2.3.30 rule *_a_ hyatasarthapratyayena* con if ns in conjunction with a ns terminated in an affix which has the sense of *atasuc*²²⁹. res *_a_ hi* fs { *_a_ hi* (*sambandha* [having sense of *atasuc* ending]) } pc check word having sense of *atasuc* ending if true then check *sambandha* ²²⁷ *svaujasamau ch abhyambhis_ebhyambhyas_asibhyambhyas_asosam_yossup* (A__-4.1.2)

²²⁸ *bahu_u bahuvacanam* and *dvyekayordvivacanaikavacane* (A__-1.4.21-22)

²²⁹ *dak_i ottarabhyamatasuc* (A__-5.3.28) assign *_a_ hi*

Optional *_a_ hi vibhakti* :

Panini makes provision for four *sutras* where *_a_ hi vibhakti* is used optionally with *saptami vibhakti* as follows

rle# A 2.3.39 rule *svamisvaradhipatidayadasak_ipratibhuprasutaisca* con if ns connected with *svamin*, *isvar*, *adhipati*, *dayada*, *sak_in*, *pratibhu* or *prasuta* res *_a_ hi*, *saptami* fs { *_a_ hi*, *saptami* (*sambandha* [*svamin, isvar, adhipati, dayada, sak_in, pratibhu* or *prasuta*]) } pc check con words if true then check *sambandha* assign *_a_ hi* or *saptami*

rle # A 2.3.40 rule *ayuktakusalabhyam casevayam* con if ns connected with *ayukta* or *kusala* provided *aseva* is involved res *_a_ hi*, *saptami* fs *_a_ hi*, *saptami* { *sambandha* (*ayukra, ku_ala* [*tatparata*]) } pc check *ayukra, ku_ala* if true then check *ayukra, ku_ala* if true then check *sambandha* assign *_a_ hi* or *saptami*

rle # A 2.3.41 rule *yatasca nirdhara_am* con if ns denotes many from amongst which one is singled out. res *_a_ hi*, *saptami* fs { *_a_ hi*, *saptami* (*jati, gu_a, kriya, samj-a vacaka* [*ek desa p_thakkara_a*]) } pc check *ek desa p_thakkara_a* if true then check *jati, gu_a, kriya, samj-a vacaka* assign *_a_ hi* or *saptami*

rle # A 2.3.38 rule *_a_ hi canadare* con if ns whose implied action characterizes another action provided *anadara* (disrespect) is denoted. res *_a_ hi*, *saptami* fs { *_a_ hi*, *saptami* (*bhavalak_a_a* [*anadaravi_aye*]) } pc check *anadara* if true then check *bhavalak_a_a* assign *_a_ hi* or *saptami*

Saptami vibhakti:

Panini describes *saptami vibhakti* in three *sutras* and in another *sutra* *saptami vibhakti* becomes optional. Katyayana adds five *vartika* related to *saptami vibhakti*. There are three suffixes²³⁰ in *saptami vibhakti* as *_i*, *os* and *sup*. They are used to express²³¹ respectively *ekavacana*, *dvivacana* and *bahuvacana*. The formulation of *saptami vibhakti* related rules are as follows:

rle # A 2.3.9 rule *yasmadadhikam yasya cesvaravacanam tatra saptami* con if ns connected with *karmapravacaniya* (*upa, adhi*) and which refers when a person or thing exceeds something else or to a people whose lordship is being expressed. res *saptami*

²³⁰ *svaujasamau cha_ abhyambhis_ebhyambhyas_asibhyambhyas_asosam_yossup* (A__-4.1.2)

231 *bahu_u bahuvacanam* and *dvyekayordvivacanaikavacane* (A__-1.4.21-22) fs { *saptami* (*jisase adhika, jisaka svamitva* [*karmapravacaniya*]) } pc check *karmapravacaniya* (*upa, adhi*) if true then check *jisase adhika* or *jisaka svamitva* assign *saptami*

rle # A 2.3.37 rule *yasya ca bhavena bhavalak_a am* con if ns, whose implied action characterizes another action res *saptami* fs { *saptami* (*kriyavana* [*kriyantara lak_ita*]) } pc check *kriyantara lak_ita* if true then check *kriyavana* assign *saptami*

rle # A 2.3.43 + va of A 2.3.43 rule *sadhunipu_abhyamarcayam saptamyaprate_* (A 2.3.43) *apratyadibhiriti vaktavyam* (va of A 2.3.43) con if ns connected with *sadhu* or *nipu_a* provided *prati, pari* or *anu* is not in use and *arca* (respect) is conveyed res *saptami* fs *saptami* { *sambandha* [*arcathaka sadhu, nipu_a* [except *prati, pari, anu*]) } pc check *arcathaka sadhu, nipu_a* if true then check except *prati, pari, anu* if true then check *sambandha* assign *saptami*.

Katyayana adds four more *vartika* related to *saptami vibhakti*. The formulation of these *sutras* are as follows

Rle # va of A__- 2.3.36 rule *sadhvasadhuprayoge ca* con if ns used alongwith the words *sadhu* (good) or *asadhu* res *saptami* fs { *saptami* (*jisake prati* [*sadhu, asadhu*]) } pc check words *sadhu, asadhu* assign *saptami*

rle # va of A 1.4.31 rule *kalat saptami ca vaktavya* con if ns used in sense of time. res *saptami* fs { *saptami* ([*kala vacaka sabda*]) } pc check words *kala vacaka* assign *saptami*

rle # va of A 2.3.37 rule *arha_am kart_tve 'narha_amakart_tve tadvaiparitye ca* con if worthy are the agents or unworthy are not the agents or worthy are not the agents or unworthy are the agents res *saptami* fs { *saptami* (*yogyā, ayogyā vacaka sabda* [*yogyā karaka ka kart_tva, ayogyā karaka ka akart_tva, yogyā karaka ka akrt_tva, ayogyā karaka ka kart_tva*]) } pc check words *yogyā, ayogyā vacaka sabda* assign *saptami*

rle # va of A 2.3.36 rule *nimitatkarmayoge* con if *nimitta* (cause) associated with the *karman* (object). res *saptami* fs { *saptami* (*nimitta vacaka sabda* [*nimitta kriya ka karman ho*]) } pc check words *nimitta vacaka sabda* if true then check *nimitta* associated with *karman* of *kriya* assign *saptami*

Optional *saptami vibhakti*:

Panini makes provision in one *sutra* where *saptami vibhakti* is used optionally with *pa-camivibhakti* as follows

rle# A 2.3.7 rule *saptamipa-camyau karakamadhye* con if ns denoting time and place in between the two powers of *karaka* res *saptami, pa-cami* fs { *saptami, pa-cami* (*kala, marga vacaka sabda* [*saktidvayamadhye*]) } pc check *kala, marga vacaka sabda* if true then check *saktidvaya* assign *saptami* or *pa-cami*

Karaka - vibhakti mapping

Panini discusses the entire gamut of *karaka-vibhakti* relations in three sections of A__adhyayi as followsi).

karaka sutra (A__-1.4.23 to A__-1.4.55)

ii). *vibhakti sutra* (A__-2.3.1 to A__-2.3.73)

iii). *karma-pravacaniya* (A__-1.4.82 to A__-1.4.97)

Panini discusses *karaka* in 33 *karaka-sutras* in the following sequence- *apadana, sapradana, kara_a, adhikara_a, karman* and *kart_*. *Karaka* only express by the *vibhaktis* but this is not necessary that every *vibhakti* express to *karaka*. *Pa_ini* uses *vibhakti* in two manners as followsi).

assign *karaka samj-a* then mark it by any *vibhakti*.

ii). directly use the *vibhakti* in any condition.

Under the *karakas* Panini has discussed only those *sutras* which are marking the *karaka samj-a*. And in *vibhakti* section, *Pa_ini* has discussed two types of *sutra* as followsi). Which are marking *vibhaktis* to any *samj-a* like different *karaka, karmapravacaniya* etc.

ii). which are assigning directly *vibhaktis* in any specific syntactic or semantic condition.

In the *karma-pravacaniya* part, Panini has defined those *sutras* which are making the *karma-pravacaniya samj-a* of *nipata*. In the above three sections those *sutras* which are making *karaka, vibhakti* and *karma-pravacaniya samj-a* are discussed. But in this section only those *sutras* are discussed which are marking any *vibhakti* to any *karaka*.

Kart_ karaka and vibhakti

Normally *prathama vibhakti* is used in *kart_ karaka* but Panini did not make directly any rule for this. Panini says only *prathama* and *t_tiya vibhaktis* are used in *kart_* and *kara_a karaka*. These rules are coming in the domain of the *anabhihite* (un-expressed). If they are expressed by some other means then *prathama vibhakti* is used in every *karaka*.

The *prathama vibhakti* is employed after a noun expressive of the *kart_*, when the *kart_* is in agreement with the verb. According to Charu Deva Shastri “what is conceived as independent in the accomplishment of the

action is also the agent and not only what is actually so, it follows that when the action of the agent is not intended to be conveyed and instead *kara_a* and others are represented as the agent, the so-called agent, if in agreement with the verb, would take the *prathama vibhakti*”. Pa_ini assigns *t_tiya* and *_a_thi vibhakti* in *kart_karaka*.

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Grammar is the important tool to analyze any language. The Dependency Grammar, studied in the earlier chapter, is able to give the relation among the words of the sentence in terms of the dependency label, which is mostly syntactic in nature. In case of Text Summarization, syntax of a language is important alongside the semantics are also important role to decide the saliency of a certain topic in the text. In the earlier chapters, we have discussed the statistical features of Purva and Uttar Mimansa along with the syntactic features like Vakya for selection of important sentences. This sentence selection strategy if further gets combined with the Syntacto-semantic frame work; it may enrich the task of Text Summarization. In this chapter, a detailed discussion on the Syntactosemantic framework of Sanskrit popularly known as Karakas is presented which will be used later as sentence selection strategy for Text Summarization.

CHAPTER-IX

9.0 Linguistic Analysis in Paninian Grammar

As Panini has accepted the existence of words only within the sentences, it is clear that the Paninian grammar is sentence based and not merely word based. Hence, it automatically proves the importance of the sentences.

During the sentence analysis, the Paninian grammar theory does not propose any separate syntactic level. Instead, it assumes various levels of sentence analysis for the actual written/spoken sentence for its meaning interpretation. Each level in this analysis is more refined than the previous one. Broadly, two levels of analysis can be considered, as surface level and the semantic level [Bharati et. al., 1996]. The first one is the actual string or the sentence and second one represents the speaker’s actual intention i.e. his real thought for the sentence. The early level known as Vyakaran levels makes minimal use of world knowledge and more use of morphological knowledge. The later levels make greater use of world knowledge or semantics.

Moreover the Paninian framework also considers two more crucial levels known as Karaka and Vibhakti level in between the surface level and the semantic level [Bharati et. al., 1996] etc. Never the less, it is notable that even the surface level also considers the notion of Vivaksha i.e. speaker’s view point to a certain extent, which has a relation to pragmatics. As shown in the surface level captures the written or the spoken sentences as it is. In between this surface level and the upper level, i.e. the Karaka level there exist the Vibhakti level, which is purely syntactic. At this level, the case endings are used to form the local groups of the words.

9.1 Paninian Levels of Language Processing [Bharati et. al., 1996]

At Vibhakti level, a noun group is formed containing a noun, which contains the instances of noun or pronoun etc. These instances are included with their respective Vibhakti. According to Sanskrit grammar, Vibhakti is the word suffix, which helps to find out the participants, gender as well as the form of the word. Vibhakti for verbs includes the verb form and the auxiliary verbs. Vibhakti gives Tense Aspect modality details of the word which is popularly known as TAM. These labels are syntactic in nature and are determined from the verbs or the auxiliary verbs. Hence, the Vibhakti plays an important role in Sanskrit. We intend to use this grammatical framework for English but English is not inflectionally rich language; therefore, Vibhakti has a very little role in English.

After Vibhakti, at the next Karaka level, the relation of the participant noun, in the action, to the verb is determined. On contrary to Vibhakti, the Karaka relations are Syntacto-semantic [Cardona, 1976; Bharati et. al., 1996]. These relations are established in between the verb and other constituent nouns that are present in the sentences. Through these relations, the Karakas try to capture the information from the semantics of the texts. Thus, Karaka level processes the semantics of the language but represents it at the syntactic level. Hence, it acts as a bridge between semantic and syntactic analysis of a language. The next section elaborates the concept of Karaka in terms of its roles in achieving the action described by the verbs.

The Concept of ‘Kriya’ and ‘Karaka’

In Paninian Grammar, the sentence analysis is carried out by considering centrality of the verb. Here the verb is considered as the binding element of the sentences. In Karaka theory a sentence is defined with reference to Kriya i.e. action and Karaka i.e. participatory factor) and Anvaya i.e. their relations [Bhatta, VSLM 1963].

Briggs view about the Karaka was not complete, in his presentation it was elaborated that in a sentence, semantic nodes are directly connected among themselves with the connectors (i.e. especially by using the Karakas) [Briggs, 1985]. This creates an impression that Karakas are directly involved in the main action. On the contrary, Vacaspati Mishra (C. 9th A. D.) in his Nyayavartika-Tatparya-Tika comments that [Dash, 1992]:

□□□B+□□ □□□□ □□□□ □□□□□□B+□□ □□□□□□ □□ □□□□□Eः : □□□□□

This means that, to achieve the primary action indicated by the verb the Karakas mostly participate through their auxiliary actions with certain causal factors [Dash, 1992]. Consider the following sentence:

‘Shambhavi Lekhanya patram likhati’

Shambhavi writes the letter with Pen.

Shambhavi (Nom) lekhanya (pen) (Inst) patram (letter) (Acc) likhati (writes) (verb.)

The Vakyarthabodha i.e. meaning of a sentence can be obtained by analyzing the exact wordily situations in a sentence. In the above sentence, the pen becomes the effective instrument in carrying out the task of writing. A general observation shows that while performing the action with an instrument, the subject i.e. Shambhavi is completing the task of writing. Thus, the main activity of writing is carried out by the auxiliary actions like movement of a pen. In this sentence, the Karta Karaka i.e. Shambhavi is directly involved in the task through the auxiliary actions given by the Karana Karaka i.e. Pen. Paninian Grammar has used this idea to obtain the Syntacto-semantic information of the sentences.

In the scheme of Karaka, the analysis considers the verb as the central element and its requirements for the argument are analyzed. Both, arguments i.e. verb and adjuncts i.e. the participants are annotated and analyzed considering the verb meaning. These relationships are termed as Karaka. The Karakas describe how the adjuncts i.e. the constituents participate in the central action described by verbal. Panini has prescribed various Karakas in various meanings which cannot be conveyed without using a sentence. This shows that Karaka is a syntactic and semantic category as well.

Therefore, [Bharati et. al., 1996] claims that the notion of Karakas is the bridging gaps between the surface and semantic level. They take the help of surface level syntactic as well as morphological information and include the local semantic information of the verb in the sentence. Thus, they are able to capture a specific level of semantics. In Ashtadhyayi, Panini has mentioned Karaka in the sutra P.1.4.23 [Shastri, 2008]. These Karakas are applied to thirty-two sutras (aphorisms) as ‘Adhikara’ (Authority) [P.1.4.24-55, Shastri, 2008]. One of the eminent grammarians who have a commentary on ‘Paninian Ashtadhyayi’ is Patanjali. He also agrees with the concept of Karaka put forth by Panini. Patanjali presented his view on Vakya (i.e. a sentence) while explaining the view of Paninian concepts. He opines that Kriya i.e. action is the most important in Vakya (i.e. in a complete sentence). Patanjali’s view about Kriya and Karaka is explained in the subsequent section [Joshi, 1968].

Kriya

According to Patanjali, without Kriya, there cannot be Karaka. Patanjali comments that Kriya is a matter of notion. In a sentence, an object is clear-cut visible candidate but like object, the Kriya cannot be made visible. According to Patanjali’s logic Karakas are many not one. Therefore, if Panini has to indicate many Karakas here by using the term Karaka, he would have used plural number but he used singular number. In a Vakya, the Karakas are many but Kriya is one. This shows that Panini wants to point out Kriya by the term Karaka because in Vakya, Karakas are many but Kriya is one. So, the use of singular number (Karaka) by Panini can be proved only if Kriya has to be conveyed by the use of the term Karaka. Panini says Karma is the most desired to be achieved from the agent’s point therefore Patanjali suggests to remove the superlatives degree and wants Karma to be defined as ‘desired to be achieved by an agent’ [Joshi, 1968].

Definition of Karaka

The above concept of Karaka can be elaborated in detail. As discussed earlier while dealing with the syntax and semantics of the language, the Sanskrit grammarians have given much importance to Karaka. It is clear by the use of the terms like:

B+□□

The etymological meaning of the word Karaka is ‘one who does something’, i.e. one who performs an action. The Karaka and the Kriya, i.e. the cases and verb are bounded with the sense of mutual requirement i.e. Aakanksha [Jha, 1969]. The one who performs an action, accepts an action, or otherwise helps to perform an action is known as a Karaka. There is a mutual expectancy in between the action i.e. Kriya and the adjuncts i.e. Karaka. The presence of one calls for the existence of the other. In other words Kriya and Karaka are mutually exclusive (Poorak) [Jha, 1969].

In Sanskrit, there are around six types of Karaka relations. With these six types of Karakas it tries to capture the numerous semantic relations and the participants. However, these six relations are sufficient to broadly classify such type of semantic relations. The six Karakas accepted by the Sanskrit Grammarians are such as: Karta or Karttr, Karmma or Karma, Karana, Sampradana, Apadana and Adhara or Adhikarana [Bhatt, 1963]. These Karakas are derived by analyzing the direct and continuous or mutual relation between the verb and the nominal. Panini enlists all these Karakas in the following sutras: □□□ कम च करणम् □□□□□□ □□□□□□ | □ □□□□□□□?धकरण □□□□□□: □□□□□□Aण ष H || [Bhatta, 1963] Some of the grammarians other than Panini consider the Sambandha, i.e. Possessive or Genitive and Sambodhana, i.e. Vocative as the Karakas. However, Paninian theory does not consider it as a valid Karaka because they do not have direct and continuous relation with the verb. While naming the Karakas we have followed the naming scheme proposed by Akshar Bharati [Bharati et. al., 1996]. During English translation of the Sanskrit or Hindi, the words are spelled

involve certain semantically relevant information in between various nouns and the different structure that contain them’. Most of the European languages use the terminology of case to show certain in-flexional category and also to show the set of semantic separation carried out by the forms of such categories. Therefore, there is a systematic ambiguity while using the term Case.

However, one can differentiate them respectively as case-relations or case-functions [Fillmore, 1968]. Similarly, [Quirk et. al., 1972] states that, ‘case is a grammatical category that can express a number of different relationships between nominal elements’. [Hockett, 1972] comments that, cases are inflected forms for nouns which fit them for participation in key constructions relative to verbs. From these theories, actually it is tough to propose a well-balanced as well as exact model of Karaka in terms of case by keeping in view its function, meaning, usage, and other relevant aspects in relevance to Sanskrit. Nevertheless, broadly it can be called as, ‘A Case is form of a nominative which indicates its either direct or indirect relationship with the verb while carrying out the action suggested by the verb and hence can be named as a Karaka.’

As discussed in the earlier sections, every sentence has Kriya i.e. an action and that Kriya is shown by the verb. Thus, every verbal root denotes an action to be performed and the result of that action, as shown in the figure (6.3). An activity (i.e. a Vyaapaara), is carried out by the Karta and the result obtained through this activity is located in Karma.

The result is achieved when the action is complete. This complete result is obtained by dividing the main action into several smaller sub actions. These sub actions when work together with the help of Karaka, give the final complete result. For example, let us revisit the example of wood cutting. In this activity, a person who wants to cut the wood lifts the axe rings it down with certain pressure and then hits the wood with it. This action of cutting the wood may get over with a single struck or the struck may have to be repeated. The main action of cutting the wood is a bundle of various sub actions.

Let us try to study the discovery procedure of Karta that it an argument central to the action indicated by the verb. The identification of Karaka Karaka role tries to use a semantic definition along with certain morpho-syntactic information. Consider the sentence, ‘The man cut the wood with an axe’. The above sentence can be uttered, written or interpreted as, I. The man cut the wood. II. The axe cut the wood. In above two sentences the action is of wood cutting but in the first sentence the Karta of this action is ‘man’ while in the other case the Karta is ‘axe’. In the first sentence, the speaker wants to emphasize the role of axe. Both the things are related to the speaker’s Aakanksha, depending on the Aakanksha, the Karta is changed. Therefore, Karta is not always assigned to and known as subject but it is known with the nomenclature of agent. As the above example suggests, this is not mere a change in nomenclature, but instead in general also the Karta and agent are different. However, the same verb can be used to refer the main activity as well as the sub-parts of the complex.

Karta-Karaka Identification

Consider the example shown in the action of cutting requires an agentive participant to perform the action. Without the agent, the action of cutting is not possible. Therefore, the sentence like the man cut the wood with the axe is correct. However, many times the speaker or the writer does not want to express the role of the agent, in this case the Karana i.e. instrument is used as an agent who is performing an action. Hence, the sentence like ‘Axe cut the wood’ is also right. From Sanskrit grammar point of view, this is referred as Vivaksha. The concept of Vivaksha emphasizes that a sentence is not only a statement about activity but it also has certain information about the speaker’s viewpoint [Sharma, 2004]. Karakas play an important role while exploring this viewpoint. e.g.: ‘Yesterday Shambhavi beat the dog with the stick in front of the shop.’

The Karaka annotation of the above sentence can be given as: Beat : verb (root) Yesterday : Kala-Adhikarana (time) Shambhavi : Agent i.e. Karta Dog : Karma Stick : Karana House : Desh-Adhikarana (location i.e. Place) These Karaka labels can also be reflected on the graph considering the central element as verb. Let us take another example: ‘The child eats the fruits with the hands’. The above type of annotation can be shown in the following form. The constraint graph for the above sentence is shown in figure (6.5).

By considering the Karaka relations, such sentence graphs can be formed for any sentence by obeying verb centrality. When the graphs as shown are created then it is emphasized that for every source there is only one inward arc. In case there are many inward arcs for a source then it indicates that there exist more than one parse for the sentence. In such cases the sentence can be ambiguous. In addition, when a source has no inward arc then it is the indication of bad parse of the sentence and it can be considered as an ‘ill formed’ sentence. This kind of graphical representation is closer to the dependency representation as discussed in the fifth chapter.

One more important characteristic this representation shares with the dependency structure is that, both of them are verb centric. This motivates us further to use this Karaka labeling for English and make the sentence analysis semantically richer.

9.3 Role of Karaka for English

The cognitive scientists have elaborated the clear parallelism between the semantic networks and classical Indian Grammarians frameworks, to carry out the task of Natural Language processing (NLP). Because of its cognitively rich framework, researchers are getting attracted towards using Sanskrit as a language for

unambiguous knowledge representation for Artificial Intelligence [Briggs, 1985; Jha, 2010; Nair and Sulochana Devi, 2011].

As the Paninian grammatical framework is inspired by the inflectionally rich, free order Sanskrit language; it is considered as well suited for the free order Indian languages which follow the Sanskrit grammatical framework [Bharati and Sangal, 1993]. However, [Bharati et. al., 1996] proved it very well that this grammatical framework is more general than considered so far. It was discussed thoroughly that along with the free order languages the Paninian Grammar can also be applied for the fixed order languages like English. The Paninian grammar’s dependency framework tries to find out the relation between the arguments and adjuncts in terms of the Karaka relations. On the same line, [Begum et. al., 2008] discussed that from the semantics point of view the Dependency Grammars are more useful than the regular syntax centered Phrase Structures Grammars, provided that the dependencies are selected rationally. [Begum et. al., 2008] tried to map the post position markers and the Karaka relations and thereby tried to develop the dependency annotation strategy for the Paninian Grammar based languages in India. [Bharati et. al., 1996], states that PG can be applied to English.

Further, the Karaka based annotation strategy for English is given by [Vaidya et. al., 2009]. In the preliminary work, [Vaidya et. al., 2009] proposed a Karaka based (CPG based) annotation inspired from the Paninian framework for English by [Bharati et. al., 1996]. They claimed that, the Karaka concept would include the elements of local verb semantics by taking cue information from surface level morphological and syntactic information. This annotation framework adopted the computational Paninian grammar framework (CPG) proposed by [Bharati et. al., 1996]. After that [Vaidya et. al., 2009] applied this scheme, which was earlier developed for Hindi along with the other Indian languages, to English Grammar. This work was further addressed by Chaudhary H. in [Chaudhary et. al., 2011]. These approaches proved that mapping between the grammatical information processing schemes of English and Sanskrit might help in the enrichment of the ‘Syntacto-semantic’ contents of the NLP processing applications. In view of this, we intend to make use of Sanskrit Karakas, which are rich in ‘Syntacto-semantic’ information, for the task of Text Summarization. The Karaka theory concentrates upon the connections or dependencies between the words. From Karaka point of view the foremost important element of a sentence is verb (closer to the view of Khandapaksha [Joshi, 1968; Arjunwadkar, 2008]). With the verb centric view, this framework tries to find out the relation between the verb and the other words in a sentence in terms of Karaka.

As discussed earlier in the 6th chapter, there are six different Karakas such as ‘Karta, Karma, Karana, Apadana, Sampradana, Adhikarana’. Akshar Bharati in [Bharati and Sangal, 1993; Bharati et. al., 1996] shows that Karaka relations capture some level of local semantics. While Rambow [Rambow et. al., 2002] in his work states that, local semantics are closer to the verb semantics. From Text Summarization point of view local semantics are more important.

Hence, to capture the semantically rich sentences we intended to use the Karaka relations for English text. With Purva and Uttar Mimamsa text processing principles and Karaka theory of classical Sanskrit grammar it became quite evident that Sanskrit has well formed grammatical and syntactical framework for the text to be processed. As discussed in the 5th chapter, the Stanford Dependency Grammar also concentrates upon the word connectedness. Even though the Stanford parse considers the word connectedness it gives less importance to the meaning i.e. semantics. One of the beneficial characteristic of Stanford dependency framework is that, it tries to identify the dependency relation among the words in the syntactic manner, by considering the ‘verb as the root element. While as discussed in the sixth chapter, Karaka relations are ‘Syntacto-semantic’ in nature. They try to find out the role of a particular term (i.e. a word) with respect to the verbal action. Thus, these are ‘Syntacto Semantic’ in nature.

Thus, the Karaka frameworks as well as the Stanford dependency framework both are verb centric; if these two frameworks are mapped with each other properly then the semantically rich characteristics of Karaka theory can be used for the syntactical analysis of English sentences. Therefore, one can say that Karaka relations are semantically more salient than Stanford dependencies. In this way, if we try to incorporate the ‘Syntacto-semantic’ nature of Karaka theory in the dependency annotation scheme of the English text i.e. with Stanford parsing then it may help us to select the semantically rich sentences for the task of Text Summarization. When the Karakas are mapped to English dependency structures, then sometimes these can be directly mapped to the thematic roles of English. However, the task is not straightforward. Many times during this mapping, various dependencies get mapped to same Karaka or various Karakas get mapped to the same dependency label. Such ‘Karaka – Dependency’ mapping is discussed in the following section.

Mapping Issues of Stanford Dependencies and Karakas English and Sanskrit are significantly divergent e.g. let us take an example of motion verbs in English and Sanskrit. In English, the motion verbs are most often accompanied with the preposition ‘into’. For instance, ‘He broke into the houses’. Whereas, the above sentence in Sanskrit is written as ‘Saha balameva gruhe apravishyat’. Here we can observe that there is no need of any preposition for the ‘Verb’ (Apravishyat). One of the various divergences Paninian grammar based languages and English Grammar is the use of expletive subjects.

In English, the expletive subjects are used in the absence of a logical subject to fill up the position of the subject. However, the Hindi / Sanskrit / Marathi languages which in deed follow the Paninian grammar (PG) can drop the expletive subject e.g. ‘raining outside’ may not be complete sentence in English unless it is ‘it is raining outside’, if the expletive subject it is added. The other point of divergence is copula verbs.

The verbs like ‘is, am, are, was, are and were’ are present in English. These are known as copula verbs. These copula verbs are not the actual verbs instead these are used to link the subject with the predicate. However, in the PG framework central binding element is always the verb [Vaidya et.al, 2009]. Therefore while handling these cases the root is replaced by copula verb e.g. in sentence (1), it can be easily observed from its Stanford parse [Marneffe and Manning, 2008], that the verb (i.e. root) will be ‘is’ instead of ‘what’ as shown in sentence (1). 1. ‘What is a computer?’ root (ROOT-0, What-1) cop (What-1, is-2) det (computer-4, a-3) nsubj (What-1, computer-4) From these divergences, one can comment that the two sentence schemes diverge syntactically.

Hence, the Paninian Grammar cannot be applied to English language constructs until a proper logical mapping is thought of in between the two grammatical structures. During this mapping procedure, a number of problems may arise due to the divergence between their language structures. Here our aim is not to build the annotation corpora based on Karaka relations for English instead, we only intend to use it at the surface level. Thereby we try to map the English dependency relations to Paninian Karaka relations.

To identify the Karaka relations, the annotation guidelines given by [Bharati et. al., 2009] are used. While associating the dependency labels to the Karakas the direct association became quite difficult. To carry out this task, initially one should obtain the connection i.e. dependency between the words then a thought should be given on how to map these dependencies to the Karaka. Figure (5.6) describes this process of associating the Karakas with the dependency labels. For the given text in English, the Stanford parser gives the dependency parse in terms of typed dependencies. The annotation corpora guidelines and Stanford typed dependency manuals are then referred to map these dependencies to the corresponding Karaka relations. A Karaka mapping table is then prepared from these comparisons.

In short, the following strategic approach is used to perform the Karaka mapping for identifying Karaka relations in English: Here a rule based approach is adopted to associate the Stanford dependencies to the Karaka. In this case, the output of the Stanford parser is studied manually and rules are created to map these dependencies under appropriate Karaka. The approach is devised with following steps:

In the first step the sentences are given to Stanford parser. 2. The generated Stanford parses for each sentence are mapped to a Karaka relation for each dependency relation manually. 3. A rule set is then developed to facilitate the mapping from Stanford dependencies to Karaka relations. 4. When the parse of a sentence is available all the dependencies are checked from the rules table for the corresponding Karaka. If the corresponding relation is present then it is mapped to its corresponding Karaka label. The process is continued for all the dependencies in the given sentences.

The subject - object - verb relationships cannot be directly mapped to Karaka. In some cases this direct mapping strategy works but in some cases it may not work. From the DUC dataset almost 500 sentences are used for deciding the rules of mapping by the 5 human annotators who are postgraduate in English, so that a general rule set can be developed. The human annotators were asked to map the English sentences to the Karaka labels as per the guidelines given by Annocorra IIT Hyderabad [Bharati, et. al., 2009]. The Stanford parser gives the direct relation between the words in sentences. While the Karakas give the relation between the noun and the verbs. The rule set is formed from the observation as the human experts map the karaka to English dependencies. From the rule set the respective Karakas are mapped to the corresponding dependencies. While explaining this association the notations used for the Karakas are as follows:

The six Karakas as declared earlier are denoted as:

1. Karta (nominative) (k1)
2. Karma (accusative) (k2)
3. Karana (instrumental) (k3)
4. Sampradana (dative) (k4)
5. Apadana (ablative) (k5)
6. Adhikarana (location) (k7)

As the Annocorra [Bharati et. al., 2009] guidelines have used the terms k1, k2, k3, k4, k5 and k7 to represent the Karaka variables. The proposed model is also developed by using these notions. Here, k6 notation is not present because in Annocorra [Bharati et. al., 2009] k6 is not used to show any Karaka. Some of the examples handled by the human experts to define the Karaka dependency mapping are discussed in the following subsections. The Stanford dependency graphs shown in the following section are drawn using the coreNLP linguistic analysis tool available at <http://nlp.stanford.edu:8080/corenlp/process>. With the integrated setup of the Stanford CoreNLP, it becomes quite easy to linguistically analyze the text.

The framework consists of the POS tagger, the dependency Parser along with the typed basic and universal dependencies. Many more other tasks such as Named entity recognizer are also available in the framework. The framework provides foundation for higher level as well as domain-specific text understanding applications. We have used here the dependency parser to elaborate the dependencies within the sentences 5.8.1 Karta Karaka (k1) The Karta Karaka indicates the agent who is actually performing the action. When we go through the Stanford typed dependency manual various dependencies can be mapped to Karta. The instances those are mapped to Karta are explained here with an example for each. (a) ‘nsubj’ dependency 2. Tiger killed the goat in forest. The Stanford typed dependencies of this sentence shown below are indicating that for the root word i.e. verb; the nominal subject is ‘tiger’. nsubj(Killed-2, Tiger-1) root (ROOT-0, Killed-2) det(goat-4, the-3) dobj(Killed-2, goat-4) case (forest-6, in-5) nmod:in(Killed-2, forest-6) Figure 5.7 nsubj dependency Similarly, graphical dependency representation of the above sentence, nsubj (killed-2, Tiger-1) is showing that Tiger is ‘Karta’ i.e. performing the action and hence it can be mapped to subject. (b) ‘preposition by’ and agent Consider the following sentence (3), 3. Chocolates were finished by Shambhavi. Figure 5.8 agent dependency Here the case with ‘preposition by’ is showing that its noun modifier is the agent i.e. performing the action. Hence it is mapped to (k1) Karaka i.e. Karta. (c) csubj (clausal subject) When the subject of clause itself is the clause then it is known as ‘csubj’. Consider sentence (4), 4. What she did has no ground.

9.4 Verbal Adjectives and Nouns: Participles, Infinitives, Gerunds.

- THOSE verbal adjectives, or participles, which are made from tense-stems, and so constitute a part of the various tense-systems, have been already treated. It remains to describe certain others, which, being made directly from the root itself, belong to the verbal system as a whole, and not to any particular part of it.
- The infinitive (with a few sporadic exceptions in the older language) also comes in all cases from the root directly, and not from any of the derived tense-stems.
- The same is true of the so-called gerunds, or indeclinable participles.

Passive Participle in tá or ná.

By accented suffix ळ tá — or, in a comparatively small number of verbs, ळ ná — is formed a verbal adjective which, when coming from transitive verbs, qualifies anything as having endured the action expressed by the verb: thus, ळ ळ ळ ळ dattá *given*; ळ ळ ळ ळ uktá *spoken*. Hence it is usually called the passive participle; or, to distinguish it from the participle belonging to the passive present-system, the past passive participle.

When made from an intransitive or neuter verb, the same participle, as in other languages, has no passive but only an indefinite past sense: thus, ळ ळ gatá *gone*; ळ ळ bhūtá *been*; ळ ळ patitá *fallen*.

In general, this participle is made by adding ळ tá to the bare verbal root, with observation of the ordinary rules of euphonic combination.

- Some roots, however, require the prefixion of the auxiliary vowel i to the suffix. For these, and for the verbs that add ná instead of tá, see below, 956, 957.
- As to the accent when the root is preceded by a preposition, see 1085 a.

The root before ळ tá has usually its weakest form, if there is anywhere in the verbal system a distinction of weak and strong forms. Thus:

- A penultimate nasal is not seldom dropped: examples are aktá (√añj), baddhá (√bandh), çrabdhá (√çrambh), daštá (√dañç), srasta (√srañs), bāḍha (√bañh).
- Roots which are abbreviated in the weak forms of the perfect (794) suffer the same abbreviation here: examples are uktá (√vac), uštá (√vas *shine*), uptá (√vap: also vapta), ūdhá (√vah), suptá (√svap), ištá (√yaj), viddhá (√vyadh); — and, by a similar procedure, √prach (or praç) makes prštá, √bhrañç makes bhṛštá (beside the regular bhraštá), and √çra *boil* makes çṛtá (beside çṛtá).
- Final ā is weakened to ī in gītá (√gā *sing*), dhītá (√dhā *suck*), pītá (√pā *drink*), sphītá; and jītá, vītá, çītá are made from the roots jyā, vyā, çyā, (or jīetc.); — and further to i in chitá (beside chātá), dita (√dā *divide* and dā *bind*), drita (? √drā *sleep*), hitá (√dhā *put*: with h for dh; but dhita also occurs in V.), mitá (√mā *measure*), çitá (also çāta), sitá, sthitá.
- A final m is lost after a in gatá, natá, yatá, ratá (from √gam etc.); and a final n in kṣata, tatá, matá, hatá. As to the other roots in am and an taking ta, see 955 a, b.
- More isolated cases are -ūta (RV.: √av), utá or ūta (√vā *weave*), çīštá (also çāsta: √çās), mūrtá (referred to √murch). As to -gdha and jagdhá, see 233 f.
- On the other hand, √svad makes svāttá.

Of more irregular characters are the following:

- A number of roots ending in am retain the nasal, and lengthen the radical vowel (as also in some others of their verbal forms): thus, kām̐tá, krām̐tá, klām̐tá, kṣām̐tá, cām̐tá, tām̐tá, dām̐tá, bhrām̐tá, vām̐tá, çām̐tá (√çam *be quiet*), çrām̐tá (from √kam etc.); and one in an, dhvan *sound*, makes dhvāntá.
- A few roots in an make their participle from another root-form in ā: thus, khātá, jātá, -vāta, sātá; dham has both dhamitá and dhmātá.

- c. Certain roots in *iv* take their *yū*-form (765 a): thus, *dyūtá* ($\sqrt{dīv}$ *play*), *ṣṭhyūta*, *syūtá*; but $\sqrt{mīv}$ makes *-mūta*.
- d. From roots in changeable *ṛ* (generally taking *na*: 957 b) are made also *pūrtá* ($\sqrt{pṛ}$ *fill*: beside *pṛta*), *ṅṛta* and *ṅṛtá* ($\sqrt{ṅṛ}$ *crush*); and *ṅṛta* is further made from $\sqrt{ṅṛ}$ *mix*.
- e. Double forms are *mugdhá* and *mūḍha*, *sādhá* and *soḍha*, *dhūrta* and *dhruta*, *hvṛta* and *hrutá*.
- f. The root *dā* *give* makes *dattá* (from the secondary root-form *dad*; but *dāta* also in V.). But the anomalously contracted form *-tta* (as if for *dāta*, with the radical vowel lost) is also frequent in composition, especially with prepositions: thus, *ātta*, *ánutta*, *pārītta*, *prātta*, *prātītta*; rarely with other elements, as *devātta*, *punartta*, *marūtta* (?). And the same abbreviated form comes from $\sqrt{dā}$ *divide* in *ávatta*.
- g. The roots making participles in both *ta* and *ita*, or *ta* and *na*, or in all three, will be noted in the next two paragraphs.

The suffix with इ *i*, or in the form इत् *itá*, used especially with roots having finals that are only with difficulty, if at all, combinable with □□ *t* according to the usual analogies of the language, and often with roots of a secondary, derivative, or late character; but also not seldom with original roots.

- a. Thus, of roots presenting difficulties of combination: — 1. all that end in two consonants (save those of which one consonant is lost by a weakening process: 964 a, b): e. g. *cañk*, *valg*, *vāñch*, *lajj*, *ubj*, *ceṣṭ*, *ghūrn*, *katth*, *nind*, *jalp*, *cumb*, *umbh*, *khall*, *pinv*, *çañs* (also *çastá*), *rakṣ*, *hiñs*, *garh* (in all, over fifty); but *takṣ* makes *taṣṭá*; — 2. all that end in linguals (including *ṣ* after *a* or *ā*): e. g. *aṭ*, *truṭ*, *paṭh*, *luṭh*, *ṭḍ*, *vruḍ*, *bhañ*, *kaṣ*, *bhās*; — 3. all that end in surd spirants: e. g. *likh*, *grath*, *nāth*, *kuth*, *riph*, *guph*; — 4. all that end in *l*: e. g. *cal*, *gil*, *mīl*, *lul*, *khel*: — 6. all that end in other persistent semivowels: namely, *carv* (also *cūrṇa*), *jīv* (for the other roots in *iv*, see 955 c), *dhāv* *run*, *sev*, *day*, *vyay*, *pūy*; — 6. *ujh*. — This class includes more than half of the whole number that take only *ita*.

- b. Of other roots ending in consonants: — 1. in gutturals, *cak*, *ḍhāuk* (*çak* has both *ta* and *ita*); *çlāgh*; — 2. in palatals, *ac* (also *akná*), *uc*, *kuc*, *khac*, *yāc*, *ruc*; *aj?*, *kūj*, *vraj*, also *tyaj* and *mṛj* in late texts (usually *tyaktá* and *mṛṣṭá*); — 3. in dentals, *at*, *pat*, *çcut*, also *yat* in epos (elsewhere only *yattá*); *krad*, *khād*, *gad*, *cud*, *nad*, *mud*, *mṛd*, *rad*, *rud*, *vad*, *vid* *know*, *hrād*; also *nud* in epos (elsewhere *nuttá* and *nunna*); *mad* has both *mattá* and *maditá* (the majority of roots in *d* take *na*: 957 d); *edh*, *kṣudh*, *gadh*, *dudh*, *nādh*, *bādh*, *spardh*; *an*, *in*, *kvan*, *dhvan*, *pan*, *ran* *ring*, *van*, *stan*, *svan*, and *dhvan* (also *dhvāntá*); — 4. in labials, *cup*, *yup*, *rup*, and usually *kup* (*kupta* late) and *lap* (*lapta* epic), occasionally *kṣip*, *gup*, *tap*, *drp*, *vap*, *çap*, while *jap* has both *ta* and *ita*; *grabh* (*grbhītá*), *çubh*, *skabh*, and occasionally *lubh*, while *kṣubh* and *stabh* have both forms; *tim*, *dham*, *çam* *labor*, *stim*, and *kṣam* in epos (also *kṣāmita*); — 5. in spirants, *aç* *eat*, *iç*, *kāç*, *kṛç*, *vāç*, *çac*, while *piç* has both forms, and *mṛç* takes *ita* only late; *iṣ* *send*, *iṣ*, *kuṣ*, *ṭṛṣ*, *tviṣ*, *pruṣ*, *miṣ*, *rūṣ*, *heṣ*, *hreṣ*, also *muṣ* except late, while *dhṛṣ*, *ruṣ*, and *hṛṣ* show both forms; *ās*, *bhas*, *bhās*, *ras*, *las*, *vas* *clothe*, *has*, also as *throw* occasionally, while *kas*, *gras*, *yas*, *vas* *shine*, *vas* *dwell*, *çās* (with *çīṣṭá* and *çāsta*), *çvas*, and *hras* make both forms; *ih*, *grah* (*grhītá*), *jah* (secondary form of *hā*), *mah*, *rah*, and occasionally *ūh* *remove*, while *gāh* has both forms.

- c. Of roots ending in vowels, only *çī* *lie*, which makes *çayita* (with *guṇa* of root, as elsewhere: 629).

- d. In general, a root maintains its full form before *ita*; but there are a few exceptions: thus, *grbhītá* and *grhītá*, *uditá* (also *vadita* in the later language), *uṣita* (\sqrt{vas} *shine*; beside *uṣṭá*), *uṣita* (\sqrt{vas} *dwell*: also sporadically *vasita* and *uṣṭa*), *ukṣitá* ($\sqrt{vaká}$ *increase*), *çṛthitá* ($\sqrt{çrath}$). From $\sqrt{mṛj}$ are made both *mṛjita* and *mārjita* (with strengthening as in present and elsewhere: 627), beside *mṛṣṭá*.

- e. Instead of *i*, long *ī* is taken in *grbhītá* and *grhītá*.

The suffix न *ná* (always without auxiliary इ *i*) is taken instead of त *tá* by a number of roots (about seventy). Thus:

- a. Certain roots in *ā*: thus, *kṣā*, *glā*, *drā* *run*, *drā* *sleep*, (also *drita?*), *mlā* (also *mlātá*), *vā* *blow* (also *vāta*), *çyā* (also *çīná*), *styā*, *hā* *leave* (also *hīná* and *hāta*), *hā* *go forth*; and *dā* *divide* makes *dīná* (also *dīta* and *-tta*). Further, certain roots in *i*- and *u*-vowels: thus, *kṣi* *destroy* (*kṣīna*; also *kṣitá*), *ḍī*, *pī*, *lī* *cling*, *vī*, *çī* or *çyā* *coagulate* (beside *çyāna* and *çīta*), *hrī* (beside *hrīta*); *dū* *burn* (also *duta*), *lū*, *çū*; and *dīv* *lament* makes *dyūna* (compare 765).

- b. Roots in *ṛ*, which before the suffix becomes *īr* or *ūr*: the forms are, *aṛṇa* (late; beside *ṛtá*), *kīrṇa* ($\sqrt{kṛ}$ *scatter*), *gīrṇa* ($\sqrt{gṛ}$ *swallow*), *jīrṇa* and *jūrṇa* ($\sqrt{jṛ}$ *waste away*), *tīrṇa* and *tūrṇa* (also *tūrtá*), *ḍīrṇa* ($\sqrt{ḍṛ}$ *pierce*: also *ḍṛta*), *pūrṇa* ($\sqrt{pṛ}$ *fill*: also *pūrtá* and *pṛta*), *mūrṇa* ($\sqrt{mṛ}$ *crush*), *çīrṇa* ($\sqrt{çṛ}$ *crush*: also *çīrta* and *çūrtá?*), *stīrṇa* (also *stṛta*). Of like character with these are *īrṇa* from $\sqrt{īr}$, *cīrṇa* (beside *carita*) from \sqrt{car} , *gūrṇa* (beside *gūrtá*) from \sqrt{gur} , a secondary form of *gr*, and *cūrṇa* (beside *carvita*) from \sqrt{carv} , which is also plainly a secondary root.

- c. A few roots ending in *j* (which becomes *g* before the suffix, against the usual rule of internal combination: 216 f): thus, *bhagna* ($\sqrt{bhañj}$), *bhugna* (\sqrt{bhuj} *bend*), *magná* (\sqrt{majj}), *rugná*, *vigna* (beside *vikta*). Further, two or three ending in *c* (similarly treated): thus, *akná* (\sqrt{ac} or *añc*: also *acita* and *añcita*), *vṛkná* ($\sqrt{vṛacc}$), and apparently *-pṛṅna* (RV., once: with doubly irregular change of root-final, from $\sqrt{pṛc}$). And one root in *g*, *lagna*.

d. A considerable number, some of them very common ones, of roots in d (which, against ordinary rule, becomes n before the suffix: 157 b). The forms are: unna (also utta), arṇṇa?, klinna, kṣuṇṇa, kṣviṇṇa, khinna, channa, chinná, chrṇṇá, tunná, tṛṇṇá, nunna (also nuttá and nudita), panná, bhinná, vinna(√vid *find*: also vittá), çanna (√çad *fall*), sanná (also sattá), skanná (√skand), syanná (√syand), svinná, hanna. And ánna *food*, in spite of its different accent, appears to be a like formation from √ad *eat*.

The native grammarians reckon as participles of this formation a few miscellaneous derivative adjectives, coming from roots which do not make a regular participle: such are kṣāma *burnt*, kṛçá *emaciated*, pakvá *ripe*, phullá *expanded*, çúška *dry*.

Past Active Participle in tavant (or navant).

From the past passive participle, of whatever formation, is made, by adding the possessive suffix □□□□ vant, a secondary derivative having the meaning and construction of a perfect active participle: for example, □□□ □□□□□□□□ tát kṛtāvān *having done that*; tam nigīṛnavān *having swallowed him down*. Its inflection is like that of other derivatives made with this suffix (452 ff.); its feminine ends in □□□ vatī; its accent remains on the participle.

Derivative words of this formation are found in RV., but without anything like a participial value. The AV. has a single example, with participial meaning: aṇitāvaty átithāu *one's guest having eaten* (loc. abs.). In the Brāhmaṇas also it is hardly met with. In the later language, however, it comes to be quite common. And there it is chiefly used predicatively, and oftenest without copula expressed, or with the value of a personal verb-form in a past tense: primarily, and not seldom, signifying immediate past, or having a true "perfect" value; but also (like the old perfect and the old aorist in later use) coming to be freely used for indefinite time, or with the value of the imperfect (779). For example: mām na kaçcid drṣṭavān *no one has seen (or saw) me*; sa nakulaṁ vyāpāditavān *he destroyed the ichneumon*; or, with copula, mahat kṛcchram prāptavaty asi *thou hast fallen upon great misery*. Although originally and properly made only from transitive verbs (with an object, to which the participle in ta stands in the relation of an objective predicate), it is finally found also from intransitives: thus, cūtena saṁçritavatī (Ç.) *has become united with the mango-tree*; gatavatī (ib.) *she has gone*.

a. The same participle is also made in the secondary conjugations: e. g. darçitavān *having shown*, prabodhitavān *having awakened*.

b. Possessives also in in made from passive participles are sometimes found used in an analogous manner, nearly as perfect active participles: e. g. iṣṭin *having sacrificed*, vijitino manyamānāḥ (AB.) *thinking themselves to have conquered*.

Future Passive Participles: Gerundives.

Certain derivative adjectives (for the most part more or less clearly secondary derivatives) have acquired in the language a value as qualifying something which is to, or which ought to, suffer the action expressed by the root from which they come; and they are allowed to be made from every verb. Hence they are, like more proper participles, sometimes treated as a part of the general verbal system, and called future passive participles, or gerundives (like the Latin forms in *ndus*, to which they correspond in meaning).

The suffixes by which such gerundives are regularly and ordinarily made are three: namely य ya, □□□□ tavya, and □□□□ anīya.

a. Derivatives in ya having this value are made in all periods of the language, from the earliest down; the other two are of more modern origin, being entirely wanting in the oldest Veda (RV.), and hardly known in the later. Other derivatives of a similar character, which afterward disappear from use, are found in the Veda (966).

The suffix ya in its gerundive use has nothing to distinguish it from the same suffix as employed to make adjectives and nouns of other character (see below, 1213). And it exhibits also the same variety in the treatment of the root.

a. The original value of the suffix is ia, and as such it has to be read in the very great majority of its Vedic occurrences. Hence the conversion of e and o to ay and av before it (see below).

b. Thus: 1. Final ā becomes e before the suffix: déya, dhyeya, khyéya, méya (perhaps dā-ia etc., with euphonic y interposed); but RV. has once -jñāya. — 2. The other vowels either remain unchanged, or have the guṇa or the vṛddhi strengthening; and e usually and o always are treated before the ya as they would be before a vowel: thus, -kṣayya, jāyya, bhāyya, lāyya; návya, bhāvya, hávya, bhāvya; vāyya; and, in the later language, nīya, jeya, dhūya (such cases are wanting earlier). In a few instances, a short vowel adds t before the suffix: thus, itya, mitya, çrútya, stútya, kṛtya (the only Vedic examples). — 3. Medial a remains unchanged or is lengthened: thus, dābhya, vāndya, sādya; mādya, vācyā. — 4. Medial i-, u-, and r-vowels are unchanged or have the guṇa-strengthening: thus, ídya, gúhya, dhṛṣya; dvéśya, yódhya, márjya.

c. The RV. has about forty examples of this gerundive, and the AV. adds half as many more. Except in bhāviá (once), the accent in RV. is always on the root; AV. has several cases of accent on the i of the suffix (hence written ádyā, áçyā, -vyādhyā, -dharsyā). According to the grammarians, the accent is on the root or else the ending is circumflexed: always the former, if the ya follow a vowel.

a. The suffix *tavya* is a secondary adjective derivative from the infinitival noun in *tu* (below, 968), made by adding the suffix *ya* (properly *ía*, whence the accent *yà*), before which the final *u*, as usual (1203 a), has *guṇa*-strengthening, and is resolved into *av*.

b. Hence, as regards both the form taken by the root and the use or omission of an auxiliary vowel *i* before the *tavya*, the rules are the same as for the formation of the infinitive (below, 968).

c. No example of this formation is found in RV., and in AV. occur only two, *janitavyà* and *hiṅsitavyà*. In the Brāhmaṇa language it begins to be not rare, and is made both from the simple root and from the derived conjugational stems (next chapter); in the classical language it is still more frequent. According to the grammarians, the accent of the word is either circumflex on the final or acute on the penult: thus, *kartavyà* or *kartāvya*; in the accentuated texts, it is always the former (the accent *tāvya* given to certain gerundives in the Petersburg lexicons is an error, growing out of the ambiguous accentuation of ÇB.: 88 c).

a. The suffix *anīya* is in like manner the product of secondary derivation, made by adding the adjective suffix *īya* (1215) to a *nomen actionis* formed by the common suffix *ana*.

b. It follows, then, as regards its mode of formation, the rules for the suffix *ana* (below, 1150).

c. This derivative also is unknown in RV., and in AV. is found only in *upajīvanīya* and *āmantranīya* (in both of which, moreover, its distinct gerundive value admits of question). In the Brāhmaṇas (where less than a dozen examples of it have been noted), and in the later language, it is less common than the gerundive in *tavya*. Its accent, as in all the derivatives with the suffix *īya*, is on the penult: thus, *karaṇīya*.

Other formations of kindred value are found in the Veda as follows:

a. Gerundives in *tua* or *tva*, apparently made from the infinitival noun in *tu* with the added suffix *a* (1209). They are *kártua* (in two occurrences *kártva*), *-gaṃtva*, *jántua*, *jétua*, *námtua*, *váktua*, *sótua*, *snátua*, *hántua*, *hétua*, *hótua*; and, with auxiliary *i* (or *ī*), *jánitva*, *sánitva*, *bhāvītva*.

b. Gerundives in *enia* or *enya* (compare 1217): they are *īkṣēnia*, *īḍēnia*, *carēnia*, *dr̥cēnia*, *-dviṣēnia*, *bhūṣēnia*, *yudhēnia*, *vāreṇia* (and *bhajenya*BhP.); with one example from an apparent aorist-stem, *yamsēnia*, and three or four from secondary verb-stems (see below, 1019, 1038, 1068 a).

c. Gerundives in *āyia* (once *āyya*: compare 1218): they are *dakṣāyia*, *pañāyia*, *vidāyia*, *çravāyia*, *hnāvāyia*; with a few from secondary conjugation-stems (below, 1019, 1038, 1051, 1068a); and *stuṣēyia* is of close kindred with them.

d. A few adjectives in *elima*, as *pacelima*, *bhidelima* (only these quotable), are reckoned as gerundives by the grammarians.

The division-line between participial and ordinary adjectives is less strictly drawn in Sanskrit than in the other Indo-European languages. Thus, adjectives in *u*, as will be seen later (1178), from secondary conjugational stems, have participial value; and in the Brāhmaṇas (with an example or two in AV.) is found widely and commonly used a participial adjective formed with the suffix *uka* (1180).

CHAPTER-X

10.0 Infinitives

The later language has only a single infinitive, which is the accusative case of a verbal noun formed by the suffix $\square\square$ *tu*, added to the root usually directly, but often also with aid of the preceding auxiliary vowel ξ *i*. The form of the infinitive ending, therefore, is $\square\square\square\square$ *tum* or $\square\square\square\square$ *itum*. The root has the *guṇa*-strengthening, and is accented. Thus, for example, $\square\square\square\square$ *étum* from $\sqrt{\xi}$ *i*; $\square\square\square\square\square\square$ *kártum* from $\sqrt{\square\square}$ *kr*; $\square\square\square\square\square\square$ *cáritum* from $\sqrt{\square\square}$ *car*; $\square\square\square\square\square\square$ *bhávítum* from $\sqrt{\square\square}$ *bhū*.

a. As regards the use or omission of *i*, the infinitive (as also the gerund in *tvā*: 991) follows in general the analogy of the passive participle (956). Examples are (with the gerund added) as follows: *dagdhá*, *dágdhum*, *dagdhvā* from \sqrt{dah} ; *bhinná*, *bhéttum*, *bhittvā* from \sqrt{bhid} ; *matá*, *mántum*, *matvā* from \sqrt{man} ; *ūḍhá*, *vóḍhum*, *ūḍhvā* from \sqrt{vah} ; *patitá*, *pátitum*, *patitvā* from \sqrt{pat} ; *yācitá*, *yācitum*, *yācitvā* from $\sqrt{yāc}$; *çayitá*, *çáyitum*, *çayitvā* from $\sqrt{çī}$. But certain exceptions and special cases require notice. Thus:

b. Of roots having no quotable participle, infinitive stems in *tu* are made from *ad*, *sagh*; in *itu* from *uñch*, *ūh* *consider*, *kṣap*, *luñth*, *lok*, *svar*; and in both from *yabh*.

c. Of roots making participles of both forms, an infinitive stem in *tu* only is quotable for *kṣip*, *kṣubh*, *tap*, *tyaj*, *mṛç*, *lubh*, *vas* *shine*, *çak*, *stabh*; only in *itufor* *gāh*, *carv*, *jap*, *mad*, *yat*, *van*, *çans*, *çvas*; in both for as *throw*, *ūh* *remove*, *gup*, *car*, *mṛj* (*mārṣtu*, *mārjitu*), *lap*, *vas* *dwell*, *çap*, *çās*.

d. Also in a number of other cases (besides those already noticed) an infinitive stem is made both with and without *i*. Thus, in addition to the more regular form, a stem in *itu* is occasionally met with from roots *aç* *attain*, *iṣ* *seek*, *bandh*, *bhaj*, *yaj* (*ījitum*), *rudh* *obstruct*, *ruh*, *vṛṣ*, *sad* (*sīditum*), *sah*, *han*, *hṛ*; and one in *tufrom* roots *ās*, *bhās*, *vid* *know*. Both forms occur also from certain *am*-roots, namely *nam*, *yam*, *ram*, and, with *ā* before *tu* as in the *pple*, *kram* and *bhram* (*kṣam* has only *kṣarītu*, against the analogy of *kṣārīta*); further, from certain roots in variable *ṛ*, namely *tṛ* (*tartu*, *tarītu*), *vṛ* *cover* (*vártu*, *varītu*), and *stṛ* (*stártu*, *starītu*, *stārītu*) (but from *çṛ* *crush* occur only *çārītu*, *çarītu*, and from *vṛ* *choose* only *varītu*; while *gṛ* *swallow* and *pṛ* *fill* make

their infinitive from other root-forms, namely *giritum*, *pūritum*); further, from a few vowel-roots, namely *nī*, *cyu*, *sū* (*sūtu*); and finally from *kṛṣ*, *nṛt*, *çuc*.

e. Against the analogy of the participle, infinitive-stems in *itu* after a final consonant are made from the roots *av*, *kṣan*, *khan* and *jan* (the pples coming from *khāand jā*), *guh*, *jabh*, *tam*, *dīv play* and *dīv lament* (both *devitu*), *majj*, *vṛt*, *vṛdh*, *ṣṛp*; and after a final vowel, from roots in *ū*, namely *pū*, *bhū*, *sū* (also *sūtu*), and from *çri* and *çvi*; as to roots in variable *ṛ*, see just above, d.

f. As the infinitive is made from the (accented and) strengthened root, so it naturally has, as a rule, the stronger or fuller root-form where a weaker or contracted form is taken by the participle (and gerund in *tvā*): e. g. *vāktu* against *uktā* (and *uktvā*), *yāṣtu* against *iṣṭā* (and *iṣṭvā*), *banddhum* against *baddhā* (and *baddhvā*), and so on. Deserving special notice are *gātu* ($\sqrt{gā}$ *sing*) against *gītā*, and *dhātu* ($\sqrt{dhā}$ *suck*) against *dhītā*; and so from *dā give* and *hā leave* are made only *dātu* and *hātu*; but *dhā put*, *mā measure*, and *sthā* add to the regular *dhātu*, *mātu*, *sthātu* the late forms *-dhitu*, *-mitu*, *-sthitu*; and *sā* or *si* has *sātu*, *sētu*, and *-situ*; *vāweave* (ppl *utā*) has both *vātu* and *ótu*; *hū* or *hvā* has *havītu*, *hváyitu*, and *hvātu*. The root *vyadh* makes its only quotable infinitive, *veddhum*, from its *vidh*-form; from *sañj* or *saj* occur both *sañktu* and *saktu*. The anomalous epic forms *ījitum* (\sqrt{yaj}) and *sīditum* (\sqrt{sad}), were mentioned above. The root *grab* makes *grāhītum*.

g. In the later language, the infinitive-stem forms possessive compounds with *kāma* and *manas* (especially the former): e. g. *svaptukāma having the wish to sleep*, *yaṣtukāma desirous of sacrificing*, *vaktumanas minded to speak*.

h. In very rare instances, dative infinitives in *tave* or *tavāi* are made from the infinitive stem in the later language (as abundantly in the earlier: 970 b): thus, *pratihartave* (BhP.). And *jīvase* (973 a) is once found in MBh. (i. 3. 67 = 732), in a quasi-Vedic hymn to the Aṣvins.

In the Veda and Brāhmaṇa, however, a number of verbal nouns, *nomina actionis*, in various of their cases, are used in constructions which assimilate them to the infinitive of other languages — although, were it not for these other later and more developed and pronounced infinitives, the constructions in question might pass as ordinary case-constructions of a somewhat peculiar kind.

The nouns thus used infinitively are the following:

a. The root-noun, without derivative suffix, is so used in its accusative in *am*, its dative in *e* or (from *ā*-roots) *āi*, its genitive and ablative in *as*, and its locative in *i*.

b. The verbal noun in *tu* is so used in its accusative in *tum*, its dative in *tave* or *tavāi*, and its ablative and genitive in *tos*.

Of other nouns only single cases, generally datives, are reckoned as used with infinitive value; thus:

c. From the verbal noun in *as*, the dative in *ase*; and also, in an extremely small number of instances, a dative in *se* (or *še*), from a noun formed with *s* simply.

d. From nouns in *man* and *van*, datives in *mane* and *vane*.

e. From nouns in *ti*, datives in *taye*, or (from one or two verbs) in *tyāi*.

f. From nouns in *i*, datives in *āye*.

g. From nouns in *dhi* and *ṣi*, datives in *dhyāi* and *ṣyāi*.

h. A few infinitives in *ṣaṇi* are perhaps locatives from nouns in *an* added to a root increased by *s*.

i. From a single root, *dhṛ*, are made infinitively used forms in *tāri*, of which the grammatical character is questionable.

j. Among all these, the forms which have best right to special treatment as infinitives, on account of being of peculiar formation, or from suffixes not found in other uses, or for both reasons, are those in *še*, *ṣaṇi*, *tāri*, *dhyāi*, and *tavāi*.

k. Except the various cases of the derivative in *tu*, and of the root-noun, these infinitives are almost wholly unknown outside the Rig-Veda.

l. Other suffixes and forms than those noticed above might be added; for it is impossible to draw any fixed line between the uses classed as infinitive and the ordinary case-uses: thus, *prajāpatim praçṇām āitām* (TS.) *they went to ask Prajāpati*; *viçvam jīvām prasuvāntī carāyāi* (RV.) *quicken every living being to motion*; *apāḥ sármāya codāyan* (RV.) *impelling the waters to flow*; *çaknuyād grāhaṇāya* (instead of the usual *grāhītum*: ÇB.) *may be able to apprehend*; *ā tamanāt* (instead of the usual *tamitoḥ*: S.) *until exhaustion*. And the so-called infinitives are found coördinated in the same sentence with common nouns, and even with compound nouns: e. g. *çāritave... ābhogāya iṣṭāye rāyē* (RV.) *to go abroad, to enjoy, to seek wealth*; *ārtatrāṇāya na prahartum anāgasi* (Ç.) *for the rescue of the distressed, not for hurling at the innocent*.

More special rules as to the various formations are as follows:

The root-noun used as infinitive has the same form (except that it does not take an added *t*: 383 f), and the same accent, both when simple and when combined with prepositions, as in its other uses. In the very great majority of instances, it is made from roots ending in a consonant; but also from a few in *ā* (*khyā*, *dā*, *dhā*, *pā?*, *mā*, *yā*), from two or three in *i*- and *u*-vowels (*hi*, *mī*, *bhū*), and from one or two in changeable *ṛ*, which takes the *ir*-form (*tir*, *stir*).

a. The roots in ā form the accus. in ām, the dat. in āi, the abl. in ās (understanding avasā before ā as for avasās and not avasāi in RV. iii. 53. 20), and the locative in e (only two examples, of which one is perhaps better understood as dative).

The infinitive noun in tu is made freely from roots of every form. The root takes the guṇa-strengthening, if capable of it, and often adds the auxiliary vowel i before the suffix (according to the rules already stated, 968). The root is accented, unless the noun be combined with a preposition, in which case the latter has the accent instead: thus, kártum, étave, hántos; but níkartum, níretave, nírhantos.

a. The dative in tavāi is in two respects anomalous: in having the heavy feminine ending āi along with a strengthened u; and in taking a double accent, one on the root or on the prefixed preposition, and the other on the ending āi: thus, étavāi, hántavāi, átyetavāi, ápabhartavāi.

a. The infinitive in ase is made in RV. from about twenty-five roots; in AV. and later there have been noted no other examples of it. In near three quarters of the cases, the accent is on the suffix: e. g. řñjāse, jīvāse, bhijāse, tujāse; the exceptions are cákṣāse; dhāyāse (with y inserted before the suffix: 258); and áyāse, bhārase, spārase, hārase (with guṇa-strengthening of the root). Strengthening of the root is also shown by javāse, dohāse, bhojāse, çobhāse. In puşyāse is seen, apparently, the present-stem instead of the root.

b. The ending se is extremely rare, being found only in jişé and perhaps stuşé, and one or two still more doubtful cases.

Infinitives in mane are made from only five roots: thus, trámaṇe, dámaṇe, dáрмаṇe, bhármaṇe, and (with different accent) vidmāne. From √dā comes dāvāne; turvāne may come directly from √ṭṛ, or through the secondary root turv; dhūrvāne is rather from √dhūrv than from √dhvṛ.

a. The infinitives in taye are iştāye (√iṣ), pītāye (√pā *drink*), vītāye, sātāye, and perhaps ūtāye (ūtāye nṛn to *help his men*: (RV.). In tyāi, the only examples noted are ityāi (RV.) and sādhyāi (MS. AB.).

b. With aye are formed işāye, tujāye, drçāye, mahāye, yudhāye, sanāye; and citāye (VS.), grhāye (K.).

The ending dhyāi is, more than any other, irregular and various in its treatment. It has always an a before it; and in the majority of cases it is accented upon this a, and added to a weak form of root: thus, çucādhyāi, pṛñādhyāi, dhivyādhyāi, huvādhyāi. But the form of root is the strong one in a few cases: namely, çayādhyāi, stavādhyāi, tarādhyāi, jarādhyāi, mandādhyāi, vandādhyāi. In half-a-dozen forms, again, the root has the accent: namely, kşarādhyāi, gāmadhyāi, yājadyāi (but once or twice also yajādhyāi), vāhadhyāi, sāhadhyāi, bhāradhyāi. In a single instance, píbadhyāi, the suffix is added distinctly to a present-stem; and in one, vāvṛdhādhyāi, to a perfect stem. Finally, in a number of instances (ten), this infinitive is made from a causative stem in ay: thus, mādayādhyāi, rişayādhyāi, etc.

a. This infinitive is by no means rare in RV., being made in thirty-five different forms (with seventy-two occurrences). But it is hardly known outside of the RV.; the AV. has it but once (in a passage found also in RV.); and elsewhere half-a-dozen examples have been noticed, in mantra-passages (one of them TS. falsely reads gāmadhye); in the Brāhmaṇa language proper it appears to be entirely wanting.

An example or two are met with of an infinitive in şyāi: thus, rōhişyāi (TS.), avyathişyāi (K. Kap.; MS. avyāthişe; VS. vyathişat), and perhaps -dhāsyāi (PGS.).

The infinitives in şāni are: işāni (?) from √iṣ *send*, -bhūşāni from √bhū; çūşāni from √çū or çvā; neşāni from √nī; sakşāni from √sah; parşāni from √pṛ; tarīşāni from √ṭṛ; and grñīşāni and -stṛñīşāni from √gr and stṛ — the last containing evident present tense-signs (compare the 1st sing. grñīşe, 894 d).

The only infinitive in tari is dhartāri (with its compound vidhartāri), from √dhṛ.

10.1 Uses of the Infinitives and Gerunds

The uses of the so-called infinitives are for the most part closely accordant with those of the corresponding cases from other abstract nouns. Thus:

The accusative, which is made only from the root-noun and the noun in tu, is used as object of a verb.

a. Especially, of forms from the root çak *be able*, and arh *be worthy, have the right or the power*. Thus, çakéma tvā samídham (RV.) *may we accomplish thy kindling*; mã çakan pratidhām işum (AV.) *may they not be able to fit the arrow to the string*; máno vā imām sadyāḥ páryāptum arhati mánaḥ páribhavitum (TS.) *the mind, forsooth, can at once attain and surpass her*; kó hy ètásyā ’rhati gūhyam náma grāhītum (ÇB.) *for who is worthy to take his secret name?* In the Veda, the construction with these verbs is only one among others; in the Brāhmaṇa, it becomes the greatly prevalent one (three quarters or more of all the cases).

b. Further, of verbs of motion (next most frequent case): thus, dākşīnāni hótum eti (TS.) *he goes to sacrifice things pertaining to sacrificial gifts*; indram pratiram emy áyuḥ (RV.) *I go to Indra for (i. e. beseech of him) the lengthening out of life*; — of √dhṛ *persist in, undertake*: as, sá idám jātāḥ sárvam evá dāgdhum dadhre (ÇB.) *he, as soon as born, began to burn this universe*; — of verbs meaning *desire, hope, notice, know*, and the like: as, páçān vicřtam vettha sárvān (AV.) *thou knowest how to loosen all bonds*; tásmād agnīm ná ”driyeta párihantum (ÇB.) *therefore one should not be careful to smother the fire*; — and of others.

Of the infinitive datives, the fundamental and usual sense is that expressed by *for, in order to, for the purpose of*.

Examples are: *vīçam̐ jīvam̐ carāse bodhāyantī* (RV.) *awakening every living creature to motion*; *tān ūpa yāta pībadhyāi* (RV.) *come to drink them*; *nāi ’tām te devā adadur āttave* (AV.) *the gods did not give her to thee for eating*; *prāi ’d yudhāye dāsyum indrah* (RV.) *Indra went forward to fight the demon*; *cākṣur no dhehi vikhyāi* (RV.) *give us sight for looking abroad*.

Some peculiar constructions, however, grow out of this use of the infinitive dative. Thus:

a. The noun which is logically the subject or the object of the action expressed by the infinitive is frequently put beside it in the dative (by a construction which is in part a perfectly simple one, but which is stretched beyond its natural boundaries by a kind of attraction): thus, *cakāra sūryāya pānthām ānvetavā u* (RV.) *he made a track for the sun to follow (made for the sun a track for his following)*; *çiçite çrñge rākṣobhyo vinikṣe* (RV.) *he whets his horns to pierce the demons*; *rudrāya dhānur a tanomi brahmadviṣe çarave hāntavā u* (RV.) *I stretch the bow for Rudra, that with his arrow he may slay the brahma-hater*; *asmābhyaṃ dṛçāye sūryāya pūnar dātām āsum* (RV.) *may they grant life again, that we may see the sun*.

b. An infinitive with *√kṛ* *make* is used nearly in the sense of a causative verb: thus, *prā ’ndhām çronām cākṣasa étave krthaḥ* (RV.) *ye make the blind and lame to see and go*; *agnīm samīdhe cakārtha* (RV.) *thou hast made the fire to be kindled*. Of similar character is an occasional construction with another verb: *as, yād īm uçmāsi kártave kárat tát* (RV.) *what we wish to be done, may he do that*; *kavīnr icchāmi samdṛçe* (RV.) *I desire to see the sages*.

c. A dative infinitive is not seldom used as a predicate, sometimes with, but more usually without, a copula expressed: thus, *agnīr iva ná pratidhīṣe bhavati* (TS.) *like fire, he is not to be resisted*; *mahimā te anyéna ná samnáçe* (VS.) *thy greatness is not to be attained by another*; *nākim indro níkartave ná çakráḥ páriçaktave* (RV.) *Indra is not to be put down, the mighty one is not to be overpowered*.

d. Sometimes an infinitive so used without a copula has quite nearly the value of an imperative: thus, *tyā me yaçāsā... āuçijó huvādhyāi [asti]* (RV.) *these glorious ones shall the son of Uçij invoke for me*; *sūktébhir vah... indrā nv àgnī ávase huvādhyāi [staḥ]* (RV.) *with your hymns shall ye call now on Indra and Agni for aid*; *vandādhyā agnīm námobhiḥ [asmi]* (RV.) *let me greet Agni with homage*; *asmākāsaç ca sūrayo víçvā āçās tarīṣāni* (RV.) *and let our sacrifices cross all regions*; *tān nāi ’vām kártavāi* (MS.) *that must not be done so*; *brahmadviṣaḥ çarave hāntavā u* (RV.) *let the arrow slay the brahma-haters*. The infinitives in *dhyāi* and *ṣaṇi* (which latter is in all its uses accordant with datives) are those in which the imperative value is most distinctly to be recognized.

e. In the Brāhmaṇas and Sūtras (especially in ÇB.) the dative in *tavāi* is not seldom used with a verb signifying *speak* (*brū*, *vac*, *ah*), to express the ordering of anything to be done: thus, *tāsmād oṣadhīnām evā mūlāny ūcchettavāi brūyāt* (ÇB.) *therefore let him direct the roots of the plants to be cut up (speak in order to their cutting up: cf. yé vaçāyā ádanāya vādanti who dissuade from giving the cow: AV.)*.

The ablative infinitive — which, like the accusative, is made only from the root-noun and that in *tu* — is found especially with the prepositions *ā* *until* and *purā* *before*.

a. Thus, *ā tāmītoḥ* (TS. etc.) *until exhaustion*; *purā vācāḥ právaditoḥ* (TS.) *before utterance of the voice*. In the Brāhmaṇa language, this is the well-nigh exclusive construction of the ablative (it occurs also with *prāk*, *arvāk*, etc.); in the Veda, the latter is used also after *ṛté* *without*, and after several verbs, as *trā* and *pā* *protect*, *yu* *separate*, *bhī*, etc.

b. In a few instances, by an attraction similar to that illustrated above for the dative (982 a), a noun dependent on this infinitive is put in the ablative beside it: thus, *purā vāgbhyaḥ sampravaditoḥ* (PB.) *before the utterance together of the voices*; *trādhvam̐ kartād avapádaḥ* (RV.) *save us from falling down into the pit*; *purā dakṣiṇābhyo netoḥ* (Āpast.) *before the gifts are taken away*.

The genitive infinitive (having the same form as the ablative) is in common use in the Brāhmaṇa language as dependent on *īçvarā* *lord, master*, employed adjectively in the sense of *capable* or *likely* or *exposed to*.

a. Examples are: *tā [devātāḥ] īçvarā enam pradāhaḥ* (TS.) *they are likely to burn him up*; *átha ha vā īçvarò ’gnīm citvā kīncid dāurítam āpattor ví vā hvālitōḥ* (ÇB.) *so in truth he is liable, after piling the fire, to meet with some mishap or other, or to stagger*; *īçvaram̐ vāi rathantaram udgātuç cakṣuḥ pramathitoḥ* (PB.) *the rathantara is liable to knock out the eye of the chanter*.

b. The dative is used in ÇB. instead of the genitive in a single phrase (*īçvarāú jánayitavāi*); and, in the later language, sometimes the accusative in turn. In a case or two the masc. sing. nom. *īçvaraḥ* is used, without regard to the gender or number of the word which it qualifies: thus, *tāsyé ’çvarāḥ prajā pápīyasī bhāvitoḥ* (ÇB.) *his progeny is liable to deteriorate*. And in a very few instances the word *īçvara* is omitted, and the genitive has the same value without it: thus, *dve madhyam̐dinam abhi pratyetoḥ* (AB.) *two may be added to the noon libation*; *táto dīkṣitāḥ pámanó bhāvitoḥ* (ÇB.) *then the consecrated is liable to get the itch*.

c. This construction with *īçvara*, which is the only one for the genitive infinitive in the Brāhmaṇa, is unknown in the Veda, where the genitive is found in a very small number of examples with *madhyā*, and with the root *īç*: thus, *madhyā kártōḥ* (RV.) *in the midst of action*; *īçe rāyó dātōḥ* (RV.) *he is master of the giving of wealth*; *īçe yótōḥ* (RV.) *is able to keep away*.

Unless the infinitives in *ṣaṇi* and *tari* are locative in form (their uses are those of datives), the locative infinitive is so rare, and has so little that is peculiar in its use, that it is hardly worth making any account of. An example is *uśāso budhī* (RV.) *at the awakening of the dawn*.

In the Veda, the dative infinitive forms are very much more numerous than the accusative (in RV., their occurrences are twelve times as many; in AV., more than three times); and the accusative in *tum* is rare (only four forms in RV., only eight in AV.). In the Brāhmaṇas, the accusative has risen to much greater comparative frequency (its forms are nearly twice as many as those of the dative); but the ablative-genitive, which is rare in the Veda, has also come to full equality with it. The disappearance in the classical language of all excepting the accusative in *tum* (but see 968 h) is a matter for no small surprise.

The later infinitive in *tum* is oftenest used in constructions corresponding to those of the earlier accusative: thus, *na vāṣpam aṣakat soḍhurn he could not restrain his tears*; *taṁ draṣṭum arhasi thou oughtest to see it*; *prāptum icchanti they desire to obtain*; *saṁkhyātum ārabdham having begun to count*. But also, not infrequently, in those of the other cases. So, especially, of the dative: thus, *avasthātum sthānāntaram cintaya devise another place to stay in*; *tvām anveṣṭum ihā ”gataḥ he has come hither to seek for thee*; — but likewise of the genitive: thus, *samartho gantum capable of going*; *saṁdhātum iṣvaraḥ able to mend*. Even a construction as nominative is not unknown: thus, *yuktaṁ tasya mayā samācāvāsaitum bhāryām (MBh.) it is proper for me to comfort his wife*; *na naptāraṁ svayaṁ nyāyāṁ ṣaptum evam (R.) it is not suitable thus to curse one's own grandson*; *tad vaktum na pāryate (Çatr.) it is not possible to say that*.

In the later language, as in the earlier, the infinitive in certain connections has what we look upon as a passive value. Thus, *kartum ārabdhaḥ begun to be made*; *ṣrotum na yujyate it is not fit to be heard (for hearing)*. This is especially frequent along with the passive forms of *ṣṭak*: thus, *tyaktum na ṣakyate it cannot be abandoned*; *ṣakyāv ihā ”netum they two can be brought hither*; *na ca vibhūtayaḥ ṣakyam avāptum ūrjitāḥ nor are mighty successes a thing capable of being attained*.

Gerunds

The so-called gerund is a stereotyped case (doubtless instrumental) of a verbal noun, used generally as adjunct to the logical subject of a clause, denoting an accompanying or (more often) a preceding action to that signified by the verb of the clause. It has thus the virtual value of an indeclinable participle, present or past, qualifying the actor whose action it describes.

a. Thus, for example: *ṣrutvāi ’va cā ’bruvan and hearing (or having heard) they spoke*; *tebhyaḥ pratijñāyā ’thāi ’tān paripapraccha having given them his promise, he then questioned them*.

The gerund is made in the later language by one of the two suffixes $\square\square\square\square$ *tvā* and Ψ *ya*, the former being used with a simple root, the latter with one that is compounded with a prepositional prefix — or, rarely, with an element of another kind, as adverb or noun.

a. To this distribution of uses between the two suffixes there are occasional exceptions. Thus, gerunds in *ya* from simple roots are not very rare in the epic language (e. g. *gr̥hya*, *uṣya* [*√vas dwell*], *arçya*, *īkṣya*, *cintya*, *tyajya*, *lakṣya*; also from causatives and denominatives, as *vāçya*, *vojya*, *plāvya*), and are not unknown elsewhere (e. g. *arçya* and *īkṣya* M., *prothya* AGS., *sthāpya* ÇvU.). And gerunds in *tvā* from compounded roots are met with in considerable numbers from AV. (only *pratyarpayitvā*) down: e. g. *samīrayitvā* MS., *viroçayitvā* TA., *utkṣiptvā* U., *pratyuktvā* E., *pratyasitvā* S., *prahasitvā* MBh., *saṁdarçayitvā* MBh., *vimuktvā* R., *nivedayitvā* R., *proktvā* Pañc., *anupītvā* VBS.: the great majority of them are made from the causative stem.

b. The prefixion of the negative particle, *a* or *an*, does not cause the gerund to take the form in *ya*: thus, *akṛtvā*, *amīrayitvā* (but R. has *acintya*). Of compounds with other than verbal prefixes, RV. has *punardāya*, *karnagr̥hya*, *pādagr̥hya*, *hastagr̥hya*, *aramṅkṛtya*, *akkhalīkṛtya*, *mithaspr̥dhya*; AV. has further *namaskṛtya*.

The suffix $\square\square\square\square$ *tvā* has the accent. It is usually added directly to the root, but often also with interposition of the auxiliary vowel ξ *i* — with regard to which, as well as to the form of the root before it, the formation nearly agrees with that of the participle in $\bar{\tau}$ *ta* (952 ff.).

a. Examples of the general accord of passive participle, infinitive, and gerund in regard to the use of *i* were given above, 968 a; farther specifications are called for, as follows:

b. The quotable roots in variable $\bar{\tau}$ (242) change it to \bar{i} : thus, *tīrtvā*, *stīrtvā* (also *stīrtvā*); and *car* makes also *cīrtvā* (like *cīrṇa*); — roots in \bar{a} show in general the same weakening as in the participle; but from *dhā* *put* is quotable only *dhitvā*, from *mā* *measure* *mitvā* and *mītvā*, from *dā* *give* only *dattvā*, from *chā* *chāyitvā*; — of roots in *am*, *kram* and *bhram* and *yam* make forms both with and without *i* (as in the infinitive), but *ram* has *ratvā* and *ramtvā*, and *dam* and *vam* make *damitvā* and *vamitvā*.

c. The auxiliary vowel *i* is taken by roots *gras*, *muṣ*, *ṣap*, and *ṣās* (*ṣāsitvā*) (whose participles have both forms); also by *cāy*, *nrt* (*nartitvā*), *lag*, and *svaj* (against analogy of *pple*); and *ṣuc* makes *ṣocitvā*. On the other hand, from *ruj* (*rugṇa*) and *vraç* (*vṛkṇa*) come *ruktvā* and *vṛṣtvā*. And both forms are made (as also in infinitive or participle) from *car*, *vas* *dwell* (*uṣtvā*, *uṣitvā*), *nī* (*nītvā*, *nayitvā*), and *mṛj* (*mṛṣtvā*, *mārjitvā*).

d. While the formation is in general one requiring, like the passive participle (e. g. *uptvā*, like *uptá*; *uditvá*, like *uditá*), a weak or weakened root, there are some cases in which it is made from a strong or strengthened root-form. Thus (besides the instances already given: *chāyitvā*, *rañtvā*, *çāsivā*, *cāyitvā*, *çocitvā*, *nayitvā*, *mārjītvā*), we find *charditvā* (Āpast.), *dañṣtvā*, and *spharītvā*, and, from a number of roots, a second strong form beside the more regular weak one: namely, *añktvā*, *bhañktvā*, *bhuñktvā*, *syanttvā* (beside *aktvá* etc.); *cayitvā*, *smayitvā*, *smarītvā* (beside *citvá* etc.); *roditvā* (beside *rudītvā*), and *siñcitvā* (beside *siktvá*). The last shows the influence of the present-stem; as do also *mārjītvā* (above) and *jighritvā* (√ghrft). The form *ṣṭhutvā* (Āpast.) is doubtless a false reading, for *ṣṭhyūtivā*.

The suffix य ya is added directly to the root, which is accented, but has its weak form. A root ending in a short vowel takes □□□ tya instead of य ya: thus, □□□□□ -jítya, □□□□□□□ -stútya, □□□□□ -krítya.

a. Roots in variable ळ (242) change that vowel to īr or ūr: thus, *kīrya*, *gīrya*, *tīrya* (and *tūrya*), *dīrya*, *pūrya*, *çīrya*, *stīrya* (also *strītya*); — roots in ā have for the most part -āya; but *dhā* *suck* makes *dhīya*, and double forms are found from *gā* *sing* (*gāya*, *gīya*), *pā* *drink* (*pāya*, *pīya*), *dā* *give* (*dāya*, *dāya*), *dā* *divide* (*dāya*, *dīya*), *mā* *measure*, *exchange* (*māya*, *mīya*), *sā* *bind* (*sāya*, *syā*); *lī* *cling* has *lāya* or *līya*, as if an ā-verb; and *khan* and *dham* make *khāya* and *dhmāya*, from their ā-forms; — the roots in an and am making their participle in ata (954 d) make the gerund in atya, but also later in anya, amya (e. g. *gātya*, *gāmya*; *hātya*, *hāmya*; but *tan* makes as second form *tāya*, and from *ram* only *ramya* is quotable); — the roots in īv add ya to their īv-form: thus, *ṣṭhīvyā*, *sīvyā*; — a few roots in i and u add ya to the lengthened vowel besides adding tya: thus, *i* *go* (*īya*, *ītya*; also *āya*), *ci* *gather* (*cīya*, *cītya*), and *plu*, *yu* *unite*, *su*, *stu* (*plūya*, *plutya*, etc.); while *kṣi* *destroy* has only *kṣīya*.

b. This gerund, though accented on the root-syllable, is generally a weakening formation: thus are made, without a strengthening nasal found in some other forms, *ācyā*, *ājya*, *idhya*, *ūdyā*, *ubhya*, *grathya*, *tācyā*, *daçya*, *bādhyā*, *bhajya*, *līpyā*, *lūpyā*, *vlāgyā*, *çrabhya*, *sajya*, *skābhya*, *stābhya*, *syadyā*, *svajya*; with weakening of other kinds, *grīhya* and *grībhya*, *prcchya*, *ūcyā*, *udyā*, *ūpyā*, *ūṣya* (vas *dwel*), *ūhya*, *vidhya*, *vīya*, *vṛççya*, *spīrdhya*, *hūya*; — but from a number of roots are made both a stronger and a weaker form: thus, *manthya* and *māthya*, *mārjya* and *mājya*, *rundhya* and *rūdhyā*, *çañsya* and *çāsya*, *çāsya* and *çīṣya*, *skāndya* and *skādya*, *srāñsya* and *srasya*; — and only strong forms are found from roots *arc*, *av*, *cāy*, *çī* (*çayya*), as well as from certain roots with a constant nasal: e. g. *uñch*, *kamp*, *nand*, *lamb*, *çañk*; isolated cases are *oṣya* (√uṣ *burn*), *prothya* (also *prūthya*).

c. Other special cases are *ūhya* and *ūhya* (√ūh *remove*), *gurya* and *gūrya*, *gūhya* and *gūhya*, *rūhya* and *rūhya*, *bhramya* and *bhrāmya*, *āya* (beside *ītyā*, *īya*), *ghrāya* and *jighryā*; and *ūrputya* (beside *vītyā*).

The older language has the same two gerund formations, having the same distinction, and used in the same way.

a. In RV., however, the final of ya is in the great majority of instances (fully two thirds) long (as if the instrumental ending of a derivative noun in i or ti). In AV., long ā appears only once in a RV. passage.

b. Instead of tvā alone, the Veda has three forms of the suffix, namely tvā, tvāya, and tvī. Of these three, tvī is decidedly the commonest in RV. (thirty-five occurrences, against twenty-one of tvā); but it is unknown in AV., and very rare elsewhere in the older language; tvāya is found nine times in RV. (only once outside the tenth Book), twice in AV., and but half-a-dozen times elsewhere (in ÇB., once from a causative stem: *spāçayitvāya*). The historical relation of the three forms is obscure.

c. Two other gerund suffixes, tvānam and tvīnam. are mentioned by the grammarians as of Vedic use, but they have nowhere been found to occur.

The use of this gerund, though not changing in its character, becomes much more frequent, and even excessive, in the later language.

a. Thus, in the Nala and Bhagavad-Gītā, which have only one tenth as many verb-forms as RV., there are more than three times as many examples of the gerund as in the latter.

b. In general, the gerund is an adjunct to the subject of a sentence, and expresses an act or condition belonging to the subject: thus, *vajreṇa hatvā nīr apāḥ sasarja* (RV.) *smīting with his thunderbolt, he poured forth the waters*; *pītvī sōmasya vāvṛdhe* (RV.) *having drunk of the soma, he waxed strong*; *tē yajñāsya rāsaṁ dhītvā vidūhya yajñāṁ yūpēna yopayitvā tirō* ‘bhavan (ÇB.) *having sucked out the sap of the offering, having milked the offering dry, having blocked it with the sacrificial post, they disappeared*; *çrutvāi* ‘va cā ‘bruvan (MBh.) *and having heard, they said*; *taṁ ca dūre drṣtvā gardabhī* ‘yam itī matvā dhāvitaḥ (H.) *and having seen him in the distance, thinking ‘it is a she-ass’, he ran*.

c. But if the logical subject, the real agent, is put by the construction of the sentence in a dependent case, it is still qualified by the gerund: thus, *strīyaṁ drṣtvāya kitavām tatāpa* (RV.) *it distresses the gambler (i. e. the gambler is distressed) at seeing a woman*; *tām hāi* ‘naṁ drṣtvā bhīr viveda (ÇB.) *fear came upon him (i. e. he was afraid) when he saw him*; *vidhāya proṣite vṛttim* (M.) *when he stays away after providing for her support*; *kiṁ nu me syād idaṁ kṛtvā* (MBh.) *what, I wonder, would happen to me if I did this*; — and especially, when a passive form is given to the sentence, the gerund qualifies the agent in the instrumental case (282 a):

thus, tataḥ çabdād abhijñāya sa vyāghreṇa hataḥ (H.) *thereupon he was slain by the tiger, who recognized him by his voice*; tvayā sa rājā çakuntalām puraskṛtya vaktavyaḥ (Ç.) *presenting Çakuntalā, thou must say to the king*; haṅsānām vacanam çrutvā yathā me (gen. for instr.) nāiṣadho vṛtaḥ (MBh.) *as the Nishadhan was chosen by me on hearing the words of the swans*: this construction is extremely common in much of the later Sanskrit.

d. Occasionally, the gerund qualifies an agent, especially an indefinite one, that is unexpressed: thus, tadā ’trāi ’va paktvā khāditavyaḥ (H.) *then he shall be eaten [by us] cooking him on the spot*; yad anyasya pariññāya punar anyasya dīyate (M.) *that, after being promised (lit. when one has promised her) to one, she is given again to another*; sucintya co ’ktaṁ suvicārya yat kṛtam (H.) *what one says after mature thought, and does after full deliberation*. Hence, still more elliptically, after alam: thus, alam vicārya (Ç.) *enough of hesitation*; tad alam te vanam gatvā (R.) *so have done with going to the forest*.

e. Other less regular constructions are met with, especially in the older language: thus, in the manner of a participle with man and the like (268 a), as tām hiṅsitvè ’va mene (ÇB.) *he thought he had hurt him*; tā adbhir abhiçicya nijāsyāi ’vā ’manyata (AB.) *having sprinkled them with water, he believed himself to have exhausted them*; — in the manner of a participle forming a continuous tense with √i (1075 a), as indram evāi ’tair ārabhya yanti (AB.) *by means of them they keep taking hold of Indra*; — as qualifying a subordinate member of the sentence, as purodāçam evā kūrmaṁ bhūtvā sārpaṅtam (ÇB.) *to the sacrificial cake creeping about, having become a tortoise*; ayodhyām . . . saphenām sasvanām bhūtvā jalormim iva (R.) *into Ayodhyā, like a surge that had been foamy and roaring*; — even absolutely, as ātithyēna vāi devā iṣṭvā tānt samād avindat (ÇB.) *when the gods had sacrificed with the guest-offering, strife befel them*.

f. As in the two examples before the last, a predicate word with bhūtvā is put in the same case with the subject: thus, further, tād iyām evāi ’tād bhūtvā yajati (ÇB.) *so having thus become this earth he makes offering*; yena vāmanenā ’pi bhūtvā (Vet.) *by whom, even when he had become a dwarf*. The construction is a rare one.

g. A number of gerunds have their meaning attenuated sometimes to the semblance of a preposition or adverb: such are adhikṛtya *making a subject of*, i. e. *respecting, of*; ādāya, upāgrhya *taking*, i. e. *with*; uddiçya *pointing toward*, i. e. *at*; āsādyā, *arriving at*, i. e. *along, by*; ārabhya *beginning*, i. e. *from*; sambhūya *being with*, i. e. *with*; saṁhatya *striking together*, i. e. *in unison*; prasahya *using force*, i. e. *violently*; tyaktvā, parityajya, muktvā, vihāya, uddhṛtya, varjayitvā *leaving out etc.*, i. e. *excepting, without*; and others. Examples are: çakuntalām adhikṛtya bravīmi (Ç.) *I am speaking of Çakuntalā*; tam uddiçya kṣiptalaguḍaḥ (H.) *having thrown the cudgel at him*; nimittaṁ kiñcid āsādyā (H.) *for some reason or other*.

h. The gerund is in the later language sometimes found in composition, as if a noun-stem: e. g. prasahyahaṛaṇa *taking with violence*; pretyabhāva *existence after death*; vibhajyapāṭha *separate enunciation*; sambhūyagamana *going together*. It is also often repeated (1260), in a distributive sense: e. g. sā vāi sammṛjya-sammṛjya pratāpya-pratāpya prā yacchati (ÇB.) *in each case, after wiping and warming them, he hands them over*; grhītvā-grhītvā (KÇS.) *at each taking*; unnamyo’nnamya (Pañc.) *every time that they arise*.

Adverbial Gerund in am.

The accusative of a derivative *nomen actionis* in a, used adverbially, assumes sometimes a value and construction so accordant with that of the usual gerund that it cannot well be called by a different name.

a. No example of a peculiar gerundial construction with such a form occurs either in RV. or AV., although a dozen adverbial accusatives are to be classed as representing the formation: thus, abhyākṛāmam, pratāṅkam, praṇōdam, nilāyam, abhiskādam, etc. This gerund is found especially in the Brāhmaṇas and Sūtras, where it is not rare; in the epics it is extremely infrequent; later, also, it occurs very sparingly.

b. A final vowel has vṛddhi-strengthening before the suffix: thus, nāyam, çrāvam, kāram; final ā adds y: thus, khyāyam, yāyam; a medial vowel has guṇa (if capable of it: 240): thus, kṣepam, kroçam, vartam (but ikṣam, pūram); a medial a before a single consonant is lengthened: thus, krāmam, cāram, grāham, svādam (but grantham, lambham). The accent is on the radical syllable. No un-compounded examples are found in the older language, and extremely few in the later.

c. Examples are: kāmaṁ vā imāny āṅgāni vyatyāsam çete (ÇB.) *he lies changing the position of these limbs at pleasure*; úttarām-úttarām çākhām samālāmbham rōhet (ÇB.) *he would climb, taking hold of a higher and ever a higher limb*; aparīṣu mahānāgām ivā ’bhisamsāram didrksitārah (ÇB.) *hereafter, running together as it were about a great snake, they will wish to see him*; nāmāny āsām etāni nāmagrāham (ÇB.) *with separate naming of these their names*; yō viparyāsam avagūhati (ÇB.) *whoever buries it upside down*; bāhūtkṣepam kranditum pravṛttā (Ç.) *she proceeded to cry, throwing up her arms (with arm-tossing)*; navacūtapallavāni darçam-darçam madhukarāṇām kvantitāni çrāvam-çrāvam paribabhrāma (DKC.) *he wandered about, constantly seeing the young shoots of the mango, and hearing the humming of the bees*. Repeated forms, like those in the last example, are approved in the later language; they do not occur earlier (but instead of them the repeated ordinary gerund: 994 h).

CHAPTER-XI

11.0 Derivative or Secondary Conjunction

SECONDARY conjugations are those in which a whole system of forms, like that already described as made from the simple root, is made, with greater or less completeness, from a derivative conjugation-stem; and is also usually connected with a certain definite modification of the original radical sense.

a. We have seen, indeed, that the tense-systems are also for the most part made from derivative-stems; and even that, in some cases, such stems assume the appearance and value of roots, and are made the basis of a complete conjugational system. Nor is there any distinct division-line to be drawn between tense-systems and derivative conjugations; the latter are present-systems which have been expanded into conjugations by the addition of other tenses, and of participles, infinitives, and so on. In the earliest language, their forms outside of the present-system are still quite rare, hardly more than sporadic; and even later they are — with the exception of one or two formations which attain a comparative frequency — much less common than the corresponding forms of primary conjugation.

The secondary conjugations are: I. Passive; II. Intensive; III. Desiderative; IV. Causative; V. Denominative.

a. The passive is classed here as a secondary conjugation because of its analogy with the others in respect to specific value, and freedom of formation, although it does not, like them, make its forms outside the present system from its present-stem.

I. Passive.

The passive conjugation has been already in the main described. Thus, we have seen that —

a. It has a special present-system, the stem of which is present only, and not made the basis of any of the remaining forms: this stem is formed with the accented class-sign ष यá, and it takes (with exceptions: 774) the middle endings. This present-system is treated with the others, above, 768 ff.

b. There is a special passive 3d sing. of the aorist, ending in ष i: it is treated above, 842 ff.

c. In the remaining tenses, the middle forms are used also in a passive sense.

d. But the passive use of middle forms is not common; it is oftenest met with in the perfect. The participle to a great extent takes the place of a past passive tense, and the gerundive that of a future. On the other hand, in the oldest language (RV.), middle forms of other present-systems are in a considerable number of cases employed with passive meaning.

e. According to the grammarians, there may be formed from some verbs, for passive use, a special stem for the aorist and the two future systems, coinciding in form with the peculiar 3d sing. aorist.

f. Thus, from √dā (aor. 3d sing. adāyi), beside ádāsi, dāsyé, dātāhe, also ádāyīṣi, dāyīṣyé, dāyitāhe. The permission to make this doable formation extends to all roots ending in vowels, and to grah, dṛç, and han. No such passive forms occur in the older language, and not half-a-dozen are quotable from the later (we find adhāyīṣi and asthāyīṣi in DKC., and anāyīṣata in Kuval.).

g. As to the alleged passive inflection of the periphrastic perfect, see below, 1072.

h. Besides the participle from the present tense-stem (771. 5), the passive has a past participle in त ta (952), or न na (957), and future participles, or gerundives, of various formation (961 ff.), made directly from the root.

As already pointed out (282 a), the language, especially later, has a decided predilection for the passive form of the sentence. This is given in part by the use of finite passive forms, but oftener by that of the passive participle and of the gerundive: the participle being taken in part in a present sense, but more usually in a past (whether indefinite or proximate past), and sometimes with a copula expressed, but much oftener without it; and the gerundive representing either a pure future or one with the sense of necessity or duty added. A further example is: tatrāi 'ko yuvā brāhmaṇo dṛṣṭaḥ: taṁ dṛṣtvā kāmena pīditā saṁjātā: sakhyā agre kathitam: sakhi puruṣo 'yaṁ gṛhītvā mama mātuḥ samīpam ānetavyaḥ (Vet.) *there she saw a young Brahman; at sight of him she felt the pangs of love; she said to her friend: 'friend, you must take and bring this man to my mother'.* In some styles of later Sanskrit, the prevailing expression of past time is by means of the passive participle (thus, in Vet., an extreme case, more than nine tenths).

a. As in other languages, a 3d sing. passive is freely made from intransitive as well as transitive verbs: thus, ihā "gamyatām *come hither*; tvayā tatrāi 'va sthīyatām *do you stand just there*; sarvāir jālam ādāyo 'ḍḍīyatām (H.) *let all fly up with the net*.

II. Intensive.

The intensive (sometimes also called frequentative) is that one of the secondary conjugations which is least removed from the analogy of formations already described. It is, like the present-system of the second conjugation-class (642 ff.), the inflection of a reduplicated stem, but of one that is peculiar in having a strengthened reduplication. It is decidedly less extended beyond the limits of a present-system than any other of the derivative conjugations.

a. The intensive conjugation signifies the repetition or the intensification of the action expressed by the primary conjugation of a root.

According to the grammarians, the intensive conjugation may be formed from nearly all the roots in the language — the exceptions being roots of more than one syllable, those conjugated only causatively (below, 1056), and in general those beginning with a vowel.

a. In fact, however, intensives in the later language are very rare, so rare that it is hard to tell precisely what value is to be given to the rules of the native grammar respecting them. Nor are they at all common earlier, except (comparatively) in the RV., which contains about six sevenths of the whole number (rather over a hundred) quotable from Veda and Brāhmaṇa and Sūtra-texts; AV. has less than half as many as RV., and many of them in RV. passages; from the later language are quotable about twenty of these, and about forty more, but for the most part only in an occurrence or two.

b. Hence, in the description to be given below, the actual aspect of the formation, as exhibited in the older language, will be had primarily and especially in view; and the examples will be of forms found there in use.

The strong intensive reduplication is made in three different ways:

I. a. The reduplicating syllable is, as elsewhere, composed of a single consonant with following vowel, and, so far as the consonant is concerned, follows the rules for present and perfect reduplication (590); but the vowel is a heavy one, radical a and ṛ (or ar) being reduplicated with ā, an i-vowel by e, and an u-vowel by o.

Examples are: vāvad, bābadh, çāçvas, rārandh; dādr, dādhr; cekit, tetij, nenī, vevlī; çoçuc, popruth, çoşku, johū.

II. b. The reduplicating syllable has a final consonant, taken from the end of the root. With an exception or two, this consonant is either r (or its substitute l) or a nasal.

Examples are: carcar, calcal, sarsr, marmrj, jarhr; cañkram, jañghan, tañstan, dandaç (√dañç or daç), jañjabh (√jambh or jabh), tantas (√tañs or tas), nannam (√nam), yañyam (√yam). The nasal is assimilated to the initial consonant.

c. Only roots having a or ṛ as vowel make this form of reduplication, but with such roots it is more common than either of the other forms.

d. Irregular formations of this class are: with a final other than r or n in the reduplication, badbadh; with a final nasal in the reduplication which is not found in the root, jañgah (RV.), jañjap (ÇB.; and jañgūyat PB. is perhaps from √gu; the later language has further dandah); with an anomalous initial consonant in reduplication, jarbhur from √bhur (compare the Vedic perfect jabhāra from √bhr, 789 b), galgal from √gal; with various treatment of an ṛ or ar-element, dardar and dardir, carkar and carkir, tartar and tartur, carcar and carcur, jargur and jalgul.

e. The roots i and ṛ are the only ones with vowel initial forming an intensive stem: i makes iyāy (? PU., once); ṛ makes the irregular alar or alr. As to the stem ūya, see below, 1021 b.

III. f. The reduplication is dissyllabic, an i-vowel being added after a final consonant of the reduplicating syllable. This i-vowel is in the older language short before a double consonant, and long before a single.

Examples are: ganīgām (but gānigmatam), varīvrt, vanīvāh, canīşkad, sanişvan; navīnu, davidyut (and the participles dāvidhvāt but tāvītuat). A single exception as to the quantity of the i is davidhāva.

g. This method of reduplication is followed in the older language by about thirty roots. Thus, of roots having final or penultimate n (once m), and n in the reduplicating syllable, pan, phan, san, svan, han; gam; krand, çcand, skand, syand; of roots having final or medial ṛ, and r in the, reduplicating syllable, kr make, tr, bhr, vr, mṛj, mṛç, vṛj, vṛt, sṛp; also mluc (malimluc); — further, of roots assuming in the reduplication a n not found in the root, only vah (ÇB.: the grammarians allow also kas, pat, pad; and panīpad is quotable later; and AÇS. has canīkhudat, for which TB. reads kānīkhunat); finally, of roots having u or ū as radical vowel, with av before the i-vowel, tu, dhū, nu, dyut.

h. In this class, the general rules as to the form of the reduplicating consonant (590) are violated in the case of ghanīghan and bharībhṛ, and of ganīgām, karīkr (but the regular carīkr also occurs), kanikrand, and kanişkand (but also canīşkand occurs); also in kanīkhun.

i. The reversion to more original guttural form after the reduplication in cekit, and jañghan and ghanīghan, is in accordance with what takes place elsewhere (2161).

The same root is allowed to form its intensive stem in more than one way. Thus, in the older language, dādr and dardr; dādhr and dardhr; cācal and carcar (and carcur); tartar (and tartur) and tarītr; jañgam and ganīgām; jañghan and ghanīghan; pamphan and panīphan; marmrj and marīmrj; marmṛç and marīmrç; va vṛt and varīvrt; jarbhṛ and bharībhṛ; dodhū and davīdhū; nonu and navīnu; bābadh and badbadh.

The model of normal intensive inflection is the present-system of the reduplicating conjugation-class (642 ff.); and this is indeed to a considerable extent followed, in respect to endings, strengthening of stem, and accent. But deviations from the model are not rare; and the forms are in general of too infrequent occurrence to allow of satisfactory classification and explanation.

a. The most marked irregularity is the frequent insertion of an ī between the stem and ending. According to the grammarians, this is allowed in all the strong forms before an ending beginning with a consonant; and before the ī a final vowel has guṇa-strengthening, but a medial one remains unchanged.

11.1 Periphrastic and Compound Conjugation

ONE periphrastic formation, the periphrastic future, has been already described (942 ff.), since it has become in the later language a recognized part of every verbal conjugation, and since, though still remaining essentially periphrastic, it has been so fused in its parts and altered in construction as to assume in considerable measure the semblance of an integral tense-formation.

By far the most important other formation of the class is —

The Periphrastic Perfect.

This (though almost unknown in the Veda, and coming only gradually into use in the Brāhmaṇas) is a tense widely made and frequently used in the classical Sanskrit.

a. It is made by prefixing the accusative of a derivative noun-stem in अट्‌ँ (accented) to the perfect tense of an auxiliary verb: namely, of √कृ कृ *make*, more often of √अस अस *be*, and very rarely of √भू भू *be*.

b. In the older language (see below, 1073d), कृ is almost the only auxiliary used in making this tense, as occurring very few times, and भू never. Later, also, भू is quite rare (it is found nine times in MBh., six times in Rgh., and a few times elsewhere), but as gains very greatly in currency, having become the usual auxiliary, while कृ is only exceptional.

c. Somewhat similar formations with yet other auxiliaries are not absolutely unknown in the later language: thus, varayām pracakramus (MBh.), pūrayām (etc.) vyadhū (Viracaritra), mṛgayām avāsit (ib.).

The periphrastic perfect occurs as follows:

a. It is the accepted perfect of the derivative conjugations: intensive, desiderative, causative, and denominative; the noun in अट्‌ँ being made from the present-stem which is the general basis of each conjugation: thus, from √बुद्‌‌ budh, intensive बुद्‌‌बुद्‌‌ bobudhām, desiderative बुद्‌‌बुद्‌‌सुद्‌‌ bubhutsām, causative बुद्‌‌बुद्‌‌याम bodhayām; denominative बुद्‌‌बुद्‌‌याम mantrayām.

b. The formation from causative stems (including those denominatives which have assumed the aspect of causatives: 1056) is by far the most frequent. Only a few desideratives are quotable (1034 a), and of intensives only jāgarām āsa (1020 a; beside jājāgāra).

c. Most roots beginning with a vowel in a heavy syllable (long by nature or long by position) make this perfect only, and not the simple one: thus, √आस असām from √आस अस *sit*, √इक्ष्‌‌ ikṣām from √इक्ष्‌‌ ikṣ *see*; √उज्‌‌ ujjhām from √उज्‌‌ ujjh *forsake*; √एध्‌‌ edhām from √एध्‌‌ edh *thrive* (the only examples quotable). d. Excepted are the roots ञ्‌‌ and ञ्‌‌च, and those beginning with a before two consonants (and taking ञ्‌‌ as reduplication: 788).

e. The roots (that is, stems reckoned by the grammarians as roots) of more than one syllable have their perfect of this formation: thus, cakāsām. But ūṛṇu (713) is said to form ūṛṇonāva only; while jāgr (1020) makes a perfect of either formation, and daridrā (1024 a) is said to do the same.

f. A few other roots make the periphrastic in addition to the usual reduplicated perfect. Thus, in the older language only are found the stems cāyām, tāyām, nilsyām, vāsām (√वास *live*), vidām (√विद्‌‌ *know*), vyayām, and the reduplicated stems bibhayām and juhavām; the later language adds ayām, jayām, dayām, nayām, smayām, hvayām, and the reduplicated bibharām; and the grammarians teach like formations from uṣ, kās, and the reduplicating hrī. The stem is made in every case from the present-stem, with guṇa of a final vowel.

The periphrastic perfect of the middle voice is made with the middle inflection of √कृ कृ. For passive use, the auxiliaries अस and भू are said to be allowed to take a middle inflection.

a. One or two late examples of भू with middle inflection have been pointed out, but none of अस.

b. It is unnecessary to give a paradigm of this formation, as the inflection of the auxiliaries is the same as in their independent use: for that of √कृ, see 800 k; of √भू, see 800 d; of √अस, see 800m.

c. The connection of the noun and auxiliary is not so close that other words are not occasionally allowed to come between them: thus, mīmāṅsām evā cakré (ÇB.) *he merely speculated*; vidām vā idam ayaṁ cakāra (JB.) *he verily knew this*; prabhrañçayām yo naghūṣāṁ cakāra *who made Naghusha fall headlong* (Rgh.).

The above is an account of the periphrastic formation with a derivative noun in अट्‌ँ as it appears especially in the later language; earlier, its aspect is rather that of a more general, but quite infrequent, combination of such a noun with various forms of the root कृ. Thus:

a. Of the periphrastic perfect occurs only a single example in the whole body of Vedic texts (metrical): namely, gamayām cakāra (AV.). In the Brāhmaṇas examples from causative stems begin to appear more freely, but are everywhere few in number, except in ÇB. (which has them from twenty-four roots, and a few of these in several occurrences). From desiderative stems they are yet rarer (only seven occurrences, five of them in ÇB.: see 1034 a); and from intensives they are unknown. The periphrastic perfects of primary conjugation were noted above (1071 f: in ÇB., eight stems and about eighty occurrences, chiefly from इक्ष्‌‌, भू, and विद्‌‌; that from विद्‌‌ found in the greatest number of texts).

b. Forms with the aorist of the auxiliary are in the oldest Brāhmaṇas as numerous as those with the perfect. Thus, with akar occur ramayām (K.), janayām and sādāyāmand svadāyām and sthāpayām (MS.); and

with *akran*, *vidām* (TS. TB. MS.). With the aorist optative or precative has been found only *pāvayām kriyāt* (MS.).

c. Like combinations with other tenses are not entirely unknown: thus, *juhavām karoti* (ÇÇS.). So also in the later language, where have been found quotable half-a-dozen such cases as *vidām karoti* (Pañc.), *vidām karotu* and *kurvantu* (Pañc. etc.).

d. Only two or three cases of the use of *as* instead of *kṛ* as auxiliary are met with in the older language: they are *mantrayām āsa* (AB. GB.), *janayām āsa* (ÇvU.), and *īkṣām āsa* (ÇÇS.).

e. A single example of an accented auxiliary is met with in the accentuated texts: namely, *atirecayām cakrús* (ÇB.). As was to be expected, from the nature of the combination, the noun also retains its accent (compare 945).

Participial Periphrastic Phrases.

The frequent use, especially in the later language, of a past or a future passive participle with the copula (or also without it) to make participial phrases having a value analogous to that of verb-tenses, has been already noticed (999). But other similar combinations are not unknown in any period of the language, as made with other auxiliaries, or with other participles.

a. They occur even in the Veda, but are far more common and conspicuous in the Brāhmaṇas, and become again of minor account in the later language.

Examples of the various formations are as follows:

a. A (usually present) participle with the tenses of the verb *i go*. This is the combination, on the whole, of widest and most frequent occurrence. Thus: *áyajvano vibhájann éti védaḥ* (RV.) *he ever gives away the wealth of the non-offerer*; *yathā sūcyā vāsaḥ saṁdadhad iyād evam evāi ’tābhīr yajñasya chidraṁ saṁdadhad eti* (AB.) *just as one would mend [habitually] a garment with a needle, so with these one mends any defect of the sacrifice*; *agnir vā idam vāiçvānaro dahann āit* (PB.) *Agni Vaiçvānara kept burning this creation*; *tē ’surāḥ pārājītā yānto dyāvāpṛthivī ūpāçrayan* (TB.) *those Asuras, getting beaten, took refuge with heaven and earth*; *tē ’sya gṛhāḥ paçāva upamūryāmānā īyuh* (ÇB.) *the animals, his family, would be continually destroyed*.

b. The same with the verb *car go* (continually or habitually), signifying still more distinctly than the preceding a continued or habitual action. Thus: *agnāv agniç carati prāviṣṭaḥ* (AV.) *Agni is constantly present in the fire*; *adaṇdyam daṇḍena ghnantaç caranti* (PB.) *they make a practice of beating with a rod what is undeserving of punishment*.

c. The same with the verbs *ās sit* and *sthā stand*, with a like meaning. Thus, *juhvata āsate* (K.) *they continue sacrificing*; *te ’pakramya prativāvadato ’tiṣṭhan* (AB.) *they, having gone off, kept vehemently refusing*. In the later language, *sthā* is the verb oftenest used, with predicates of various kind, to make a verbal phrase of continuance.

d. A present or future or perfect participle with *as* and *bhū be*. The participle is oftenest a future one; *as* only is used in the optative, *bhū* usually in other forms. Thus: *yaḥ pūrvam anījanaḥ syāt* (AB.) *whoever may not have made sacrifice before*; *samāvad eva yajñe kurvānā āsan* (GB.) *they did the same thing at the sacrifice*; *parikṛīḍanta āsan* (MS.) *they were playing about*; *yātra suptvā pūnar nā ’vadrāsyān bhāvati* (ÇB.) *when, after sleeping, he is not going to fall asleep again*; *havyam hi vakṣyan bhavati* (AB.) *for he is intending to carry the sacrifice*; *dāsyant syāt* (K.) *may be going to give*; *yéna vāhanena syantsyānt syāt* (ÇB.) *with what vehicle he may be about to drive*. True expressions for perfect and pluperfect and future perfect time are capable of being made by such means, and now and then are made, but in no regular and continued fashion.

Composition with Prepositional Prefixes.

All the forms, personal and other, of verbal conjugation — of both primary and secondary conjugation, and even to some extent of denominative (so far as the denominative stems have become assimilated in value to simple roots) — occur very frequently in combination with certain words of direction, elements of an adverbial character (see the next chapter), the so-called prepositions (according to the original use of that term), or the verbal prefixes.

a. Practically, in the later language, it is as if a compounded root were formed, out of root and prefix, from which then the whole conjugation (with derivatives: below, chap. XVII.) is made, just as from the simple root. Yet, even there (and still more in the older language: 1081 a–c), the combination is so loose, and the members retain so much of their independent value, that in most dictionaries (that of Sir Monier Williams is an exception) the conjugation of each root with prefixes is treated under the simple root, and not in the alphabetic order of the prefix. Derivative words, however, are by universal agreement given in their independent alphabetic place, like simple words.

Those verbal prefixes which have value as such throughout the whole history of the language are given below, in alphabetic order, with their fundamental meanings:

□□□ *āti across, beyond, past, over, to excess*;

□□□ *ādhi above, over, on, on to*;

- ánu after, along, toward;
□□□□□ antár between, among, within;
अप ápa away, forth, off;
□□□ ápi unto, close upon or on;
□□□ abhi to, unto, against (often with implied violence);
अवा áva down, of;
अत á to, unto, at;
□□□ úd up, up forth or out;
उप úpa to, unto, toward;
□□ ní down; in, into;
□□□ nís out, forth;
□□□ párá to a distance, away, forth;
□□□ pári round about, around;
□□□ prá forward, onward, forth, fore;
□□□□ práti in reversed direction, back to or against, against, in return;
□□ ví apart, asunder, away, out;
□□□ sám along, with, together.

a. Some of these, of course, are used much more widely and frequently than others. In order of frequency in the older language (as estimated by the number of roots with which they are found used in RV. and AV.), they stand as follows: pra, ā, vi, sam, abhi, ni, ud, pari, anu, upa, prati, ava, nis, ati, apa, parā, adhi, api, antar. Api is of very limited use as prefix in the later language, having become a conjunction, *too, also*.

b. The meanings given above are only the leading ones. In combinations of root and prefix they undergo much modification, both literal and figurative — yet seldom in such a way that the steps of transition from the fundamental sense are not easy to trace. Sometimes, indeed, the value of a root is hardly perceptibly modified by the addition of the prefix. An intensive force is not infrequently given by pari, vi, and sam.

Prefixes essentially akin with the above, but more distinctly adverbial, and of more restricted use, are these: ácha (or áchā) to, unto: tolerably frequent in RV. (used with over twenty roots), but already unusual in AV. (only two roots), quite restricted in B., and entirely lost in the later language;

āvis forth to sight, in view: used only with the roots bhū, as, and kṛ;

tirás through, crossways; out of sight: hardly used except with kṛ, dhā, bhū (in RV., with three or four others);

purás in front, forward: used with only half-a-dozen roots, especially kṛ, dhā, i;

prādús forth to view: only with bhū, as, kṛ.

a. A few others, as bahis outside, vinā without, alam (with bhū and kṛ) sufficiently, properly, sākṣāt in view, are still less removed from ordinary adverbs.

1079. Of yet more limited use, and of noun-rather than adverb-value, are:

çrad (or çraṭh?), only with dhā (in RV., once also with kṛ): çrad dhā believe, credit;

hiñ, only with kṛ (and obsolete in the classical language): hiñ kṛ make the sound, hing low, murmur.

a. And beside these stand yet more fortuitous combinations: see below, 1091.

More than one prefix may be set before the same root. Combinations of two are quite usual; of three, much less common; of more than three, rare. Their order is in general determined only by the requirements of the meaning, each added prefix bringing a further modification to the combination before which it is set. But अत ā is almost never allowed, either earlier or later, to be put in front of any of the others.

a. The very rare cases of apparent prefixion of ā to another prefix (as āvihanti MBh., āvitanvānāḥ BhP.) are perhaps best explained as having the ā used independently, as an adverb.

In classical Sanskrit, the prefix stands immediately before the verbal form.

a. In the earlier language, however (especially in the Veda; in the Brāhmaṇa less often and more restrictedly), its position is quite free: it may be separated from the verb by another word or words, and may even come after the form to which it belongs; it may also stand alone, qualifying a verb that is understood, or conjointly with another prefix one that is expressed.

b. Thus, sá devāñ é ḥá vakṣyati (RV.) *he shall bring the gods hither*; prá ṇa áyūñsi tāriṣat (AV.) *may he lengthen out our lives*; táv ā yātam úpa dravát (RV.) *do ye two come hither quickly*; gámad vājebhir ā sá naḥ (RV.) *may he come with gifts hither to us*; pári máṃ pári me prajám pári ṇaḥ páhi yád dhánam (AV.) *protect me, my progeny, and what wealth we own*; yátaḥ sadyá ā ca párá ca yánti (AV.) *from whence every day they advance and retire*; vy áhám sárveṇa pāpmánā [avṛtam] ví yákṣmeṇa sám áyuṣā (AV.) *I have separated from all evil, from disease, [I have joined myself] with life*; ví hy enena paçyati (AB.) *for by it he sees*; ví vā eṣá prajāyā paçúbhir ṛdhyate (TB.) *he is deprived of progeny and cattle*.

c. Three or four instances have been cited from the later language of a prefix separated from, or following, a verb; perhaps the prefix in every such case admits of being regarded as an adverb.

As regards the accent of verb-forms compounded with prefixes, only the case needs to be considered in which the prefix stands (as always in the later language) immediately before the verb; otherwise, verb and prefix are treated as two independent words.

a. A personal verbal form, as has been seen above (592), is ordinarily unaccented: before such a form, the prefix has its own accent; or, if two or more precede the same form, the one nearest the latter is so accented, and the others lose their accent.

b. If, however, the verb-form is accented, the prefix or prefixes lose their accent.

c. That is, in every case, the verb along with its normally situated prefix or prefixes so far constitutes a unity that the whole combination is allowed to take but a single accent.

d. Examples are: páre 'hi nāri púnar é 'hi kṣiprám (AV.) *go away, woman; come again quickly*; áthā 'stam vipáretana (RV.) *then scatter ye away to your home*; samācinuṣvā 'nusamprāyāhi (AV.) *gather together, go forth together after*; yád grhān upodāiti (AV.) *when he goes up to the house*; evā ca tvām sarama ājagāntha (RV.) *now that you, Saramā, have thus come hither*; yénā 'viṣṭitaḥ pravivéçithā 'pāḥ (RV.) *enveloped in which thou didst enter the waters*.

A prefix, however, not seldom has a more independent value, as a general adverb of direction, or as a preposition (in the usual modern sense of that term), belonging to and governing a noun; in such case, it is not drawn in to form part of a verbal compound, but has its own accent. The two kinds of use shade into one another, and are not divisible by any distinct and fixed line.

a. There is in RV. a considerable number of cases (some thirty) in which the pada-text gives unnecessarily, and probably wrongly, an independent accent to a prefix before an accented verb (or other prefix): resolving, for example, āruhat into ā áruhat, vyáçet into ví áçet, abhyávarṣit into abhí ávarṣit, vyāsarat into ví ā asarat (instead of ā-áruhat etc.).

In combination with the non-personal parts of the verb-system — with participles, infinitives, and gerunds — the general rule is that the prefix loses its accent, in favor of the other member of the compound. But the prefix instead has sometimes the accent: namely, when combined —

a. with the passive participle in ta or na: thus, páreta *gone forth*; antárhita *concealed*; ávapanna *fallen*; sámpūrṇa *complete* (cf. 1284).

b. But some exceptions to this rule are met with: e. g., in RV., nicitá, niṣkṛtá, praçastá, niṣattá, etc.; in AV., apakṛtá.

c. with the infinitive in tu (972), in all its cases: thus, sámhartum *to collect*; ápidhātave *to cover up*; ávagantos *of descending*. The doubly accented dative in tavāiretains its final accent, but throws the other back upon the prefix: thus, ánvetaṁvāi *for following*; ápabhartaṁvāi *for carrying off*.

The closeness of combination between the root and the prefix is indicated not only by their unity of accent, but also by the euphonic rules (e. g. 185, 192), which allow the mutual adaptations of the two to be made to some extent as if they were parts of a unitary word.

A few special irregularities call for notice:

a. In the later language, api, adhi, and ava, in connection with certain roots and their derivatives, sometimes lose the initial vowel: namely, api with nah and dhā, adhi with sthā, ava with gāh etc.: e. g. pinaddha, pihita, dhiṣṭhita, vagāhya, vataṁsa, vadānya, vaṣṭabhya, vamajjana, vekṣaṇa, valepana. In the Veda, on the other hand, iṣ is in a few cases found instead (apparently) of nis with √kṛ.

b. The final vowel of a prefix, especially an i, is (oftenest in the older language) sometimes lengthened, especially in derivative words: e. g. pratīkāra, nīvṛt, parīhāra, vīrúdh, adhīvāsá, ápīvṛta, abhīvartá; anūrúdh; avāyatī, prāvīṣ, úpāvasu. In the Veda, the initial of anu is sometimes lengthened after negative an: e. g. anānudá, anānukṛtyá.

c. In combination with √i go, the prefixes parā, pari, and pra sometimes change their r to l. In this way is formed a kind of derivative stem palāy *flee*, inflected according to the a-class, in middle voice, which is not uncommon from the Brāhmaṇas down, and has so lost the consciousness of its origin that it sometimes takes the augment prefixed: thus, apalāyīṣṭhās (ÇÇS.), apalāyata (R.), apalāyanta (MBh.); it makes the periphrastic perfect palāyām cakre. The stem palyay, similarly inflected, occurs only in one or two texts (ÇB. JB. JUB.); and plāy has been found nowhere except in MS. Also the imperfect nilāyata (TS. TB.: not separated in the pada-text) and perfect nilayām cakre (ÇB.) are doubtless a corresponding formation from √i with nis, though nearly akin in form and meaning with forms from √lī+ni. So also pari becomes pali in the combination palyaṅg (ÇB. ÇÇS.), whether viewed as a denominative formation or as √aṅg+pari. And MS. has once plākṣārayan (iii. 10. 2; in an etymology).

d. The root kṛ *make* sometimes assumes (or retains from a more original condition) an initial s after the prefixes sam, pari, nis, and upa: thus, samskurute, samaskurvan, samskṛta, etc.; pariṣkṛvanti, pariṣkṛta, etc.; nīr askṛta; upaskṛta. And √kṛ *scatter* is said by the grammarians to add s in the same manner, under certain circumstances, after apa and prati (only apaskiramāṇa, praticaskare, both late, are quotable).

e. The passive participle of the roots *dā give* and *dā cut* has often the abbreviated form *tta* after a prefix — of which the final vowel, if *i*, is lengthened (compare 955 f, and the derivative in *ti*, below, 1157 c).

f. In a few sporadic cases, the augment is taken before a prefix, instead of between it and the root: thus, *avaṣaṭkārṣīt* (GB.); *udaprapatāt* (AB.); *anvasamcarat*, *pratyasamharat*, *pratyavyūhat*, *anvavikṣetām*, *aprāṣīt*, *asambhramat* (MBh.); *abhyanimantrayat* (Har.); *vyāvasthāpi* (SDS.); compare also the forms from *palāy*, above, c. And AB. has once *niniyoja* (for *niyuyoja*, as read in the corresponding passage of ÇÇS.). Some of the apparent roots of the language have been suspected of being results of a similar unification of root and prefix: e. g. *āp* from *ā+ap*, *vyac* from *vi+ac*, *tyaj* from *ati+aj*.

g. The loss of the initial *s* of *sthā* and *stambh* after the prefix *ud* has been noticed above (233 c). Also (137 a, c), certain peculiarities of combination of a prefix with the initial vowel of a root.

As to the more general adverbial uses of the prefixes, and their prepositional uses, see the next chapter.

As to the combination of the particles *a* or an privative, *dus ill*, and *su well*, with verb-forms, see 1121 b,g,i. As to the addition of the comparative and superlative suffixes *tarām* and *tamām* to verbs, see above, 473 c.

Other Verbal Compounds.

It has been seen above that some of the prepositional prefixes are employed in combination with only very small classes of roots, namely those whose meaning makes them best fitted for auxiliary and periphrastic uses such as *kṛ make*, *bhū* and as *be*, *dhā put*, *i go* — and that the first of these are widely used in combination with a derivative in *ām* to make a periphrastic conjugation. Such roots have also been, from the earliest period of the language, but with increasing frequency, used in somewhat analogous combinations with other elements, substantive and adjective as well as adverbial; and this has become, in part, developed finally into a regular and indefinitely extensible method of increasing the resources of verbal expression.

a. The older language has a number of (mostly) reduplicative onomatopoeic compounds with roots *kṛ* and *bhū*, the prefixed element ending in *ā* or *ī* (generally the former): thus, in RV., *akkhalīkṛtya croaking*, *jañjanābhāvant flimmering*, *alalābhāvant making merry*, *kikirā kṛṇu tear*; in AV., *maṣmaṣā karam I have crushed*; in VS., *masmasā* (also TS.; MS. *mṛsmṛśā*) *kurū*; in TS., *malmalābhāvant*; in K., *manmalābhāvant*, *kikkītākāra*; in MS., *bibibābhāvant*, *bharbharā bhavat*; in AB., *bababākurvant*. The accentuation, where shown, is like that of a verb-form with accompanying prefix.

b. Further, combinations with $\sqrt{kṛ}$ of utterances used at the sacrifice, and mostly ending in *ā*: thus, *svāhā*, *svadhā*, *svagā*; also *vāṣaṭ*. In these, too, the accentuation is generally that of a verb with prefix: e. g. *svagākaroti* (ÇB.; but *svadhā karoti* [?] TA.), *vāṣaṭkuryāt* (MS.); and, with another prefix, *anuvāṣaṭkaroti* (ÇB.).

c. An instance or two also occur of ordinary words in such combinations, put in corresponding form: thus, *çulā kuryāt* (ÇB.) *may roast on a spit* (*çūla*); *anṛṇākartos* (AB.) *of getting clear of debt*; *āikyābhāvayant* (AA.) *uniting*.

a. The noun *namas obeisance, homage*, in a still more purely noun-value, becomes combined with $\sqrt{kṛ}$: in the Veda, only with the gerund, in *namaskṛtya* (beside *hastagṛhya* and *kaṇagṛhya*: above, 990 b).

b. A solitary combination with $\sqrt{i go}$ is shown by the accusative *āstam home*; which, appearing only in ordinary phrases in RV., is in AV. compounded with the participles — in *astamāyānt*, *astameṣyānt*, *āstamita* (with accent like that of ordinary compounds with a prefix) — and in the Brāhmaṇas and the later language is treated quite like a prefix: thus, *astamēti* (ÇB.).

c. Other ordinary accusative forms of adjectives in combination with verbal derivatives of *kṛ* and *bhū* are found here and there in the older language: thus, *çṛtamkṛtya* and *nagnamkṛtya* (TS.); *nagnambhāvuka*, *pāmanambhāvuka* etc. (TS. et al.); *ānaruṣkaroti* (ÇB.).

In the early but not in the earliest language, a noun-stem thus compounded with *kṛ* or *bhū* (and very rarely with *as*), in verbal nouns and ordinary derivatives, and then also in verbal forms, begins to assume a constant ending *ī* (of doubtful origin).

a. There is no instance of this in RV., unless the *ī* of *akkhalīkṛtya* (above, 1091 a) is to be so explained. In AV., besides the obscure *vātīkṛta* and *vātīkārā*, is found only *phalīkārāṇa*. In the Brāhmaṇa language, examples begin to occur more often: thus, in TS., *çyetī*, *mithunī*, *muṣṭī*; in TB., further, *phalī*, *krūrī*, *udvāsī*; in ÇB., besides some of these, also *ekī*, *kālvālī*, *tīvrī*, *daridrī*, *brāhmaṇī*, *mithunī*, *svī*; and *açvābhidānī*, of which (as of *muṣṭī*) the *ī* might be that of an ordinary grammatical form; in K., *dvī*; in GB., *pravaṇī*; in ŚB., *vajrī*; in AB., *matī* (from *matya*). From Upanishad and Sūtra are to be added *dvāitī* (MU.), *samī* (KÇS.), *navī* and *kuçalī* (AGS.). The accent is in general like that of the similar combinations treated above (1091): e.

g. *krūrīkurvānti*, *svīkṛtya*, *brāhmaṇībhūya*, *mithunībhāvantyāu*, *phalīkartavāi*, *krūrīkṛta*; but sometimes a mere collocation takes place: thus, *mithunī bhāvantī* (TS.), *phalī kriyāmāṇānām* (TB.), *vajrī bhūtvā* (TA.). The *ī* is variously treated: now as an uncombinable final, as in *çyetī akuruta* and *mithunī abhavan* (TS.); now as liable to the ordinary conversions, as in *mithunī ènaya syām*, *mithunī ābhiḥ syām*, and *svyākurvata* (ÇB.).

b. Out of such beginnings has grown in the later language the following rule:

1094. Any noun or adjective stem is liable to be compounded with verbal forms or derivatives of the roots √□□ kṛ and □□ bhū (and of □□□ as also; but such cases are extremely rare), in the manner of a verbal prefix. If the final of the stem be an a- or i-vowel, it is changed to ङ्ङ् ī; if an u-vowel, it is changed to ङ्ङ् ū.

a. Examples are: stambhībhavati becomes a post; ekacittībhūya becoming of one mind; upahāṅkarōṣi thou makest an offering; , nakhaprahārajarjarīkṛtatorn to pieces with blows of the claws; çithilībhavanti become loose; kuṇḍalīkṛta ring-shaped; surabhīkṛta made

fragrant; ādhīkaraṇa pawning; ṛjūkrtyastraightening; hetūkaraṇa taking as cause. As in the case of the denominatives (1059 c), the combinations with a-stems are the immense majority, and occur abundantly (hardly less than a thousand are quotable) in the later language, but for the most part only once or twice each; those made with i- and u-stems are a very small number. In a few instances, stems in an and as, with those finals changed to ī, are met with: e. g. ātmī-kṛ, yuvī-bhū; unmanī-kṛ, amanī-bhū; final ya after a consonant is contracted to ī: e. g. kāṅsī-kṛ; and anomalous cases like kām̐dīçī-bhū occur. Final ṛ is said to become rī, but no examples are quotable. The combinations with kṛ are about twice as frequent as those with bhū, and examples with as do not appear to have been brought to light.

b. Similar combinations are occasionally made with elements of questionable or altogether obscure character: e. g. urarī-kṛ, urī-kṛ.

c. Examples are not altogether wanting in the later language of ā as final of the compounded noun-stem (cf. 1091): thus, duḥkhā-kṛ, niṣkulā-kṛ, çambā-kṛ, and one or two others.

Of all the forms which constitute or are attached to the verbal system, the passive participle is the one most closely assimilated in its treatment as a combinable element to an ordinary adjective. Next to it come the gerund and the gerundives. Combinations of the kind above treated of are quite common with passive participles and gerunds.

Prepositions

There is, as already stated, no proper class of prepositions (in the modern sense of that term), no body of words having for their prevailing office the "government" of nouns. But many of the adverbial words indicated above are used with nouns in a way which approximates them to the more fully developed prepositions of other languages.

a. If one and another of such words — as vinā, ṛte — occurs almost solely in prepositional use, this is merely fortuitous and unessential.

Words are thus used prepositionally along with all the noun-cases excepting the dative. But in general their office is directive only, determining more definitely, or strengthening, the proper case-use of the noun. Sometimes, however, the case-use is not easy to trace, and the noun then seems to be more immediately "governed" by the preposition — that is, to have its case-form more arbitrarily determined by its association with the latter. This is oftenest true of the accusative; and also of the genitive, which has, here as elsewhere (294 b), suffered an extension of its normal sphere of use.

a. The adverbs by derivative form (1097 ff.) have least of a prepositional value (exceptions are especially a few made with the suffix tas: 1098).

b. Most of the verbal prefixes (exceptions are ud, ni, parā, pra; and ava and vi are almost such) have their prepositional or quasi-prepositional uses with cases; but much more widely in the older time than in the later: in the classical language the usage is mainly restricted to prati, anu, and ā.

c. Most of the directive words akin with the more proper prefixes are used prepositionally: some of them — as saha, vinā, upari, antarā, purā — freely, earlier and later.

d. The case-forms used adverbially are in many instances used prepositionally also: oftenest, as was to be expected, with the genitive; but frequently, and from an early time, with the accusative; more rarely with other cases.

e. We will take up now the cases for a brief exposition, beginning with those that are least freely used.

The Locative. This case is least of all used with words that can claim the name of preposition. Of directives, antār and its later derivative antarā, meaning *within, in*, are oftenest added to it, and in the classical language as well as earlier. Of frequent Vedic use with it are ā and ādhi: thus, mārtyeṣv ā among mortals; pṛthivyām ādhy oṣadhīḥ the plants upon the earth; tējo māyi dhārayā 'dhi (AV.) establish glory in me; — āpi and ūpa are much rarer: thus, yā apām āpi vratē [sānti] (RV.) who are in the domain of the waters; amūr yā ūpa sūrye [sānti] (RV.) who are up yonder in the sun; — sácā along with is not rare in RV., but almost entirely unknown later: thus, pitrōḥ sácā satī staying with her parents.

The Instrumental. The directives used with this case are almost only those which contain the associative pronominal root sa: as sahá (most frequent), sākám, sārđhám, samám, samáyā, sarátham; and, in the Veda, the prefix sám: as, te sumatībhiḥ sám pátnībhir ná vīṣaṇo naśimahi (RV.) may we be united with thy favors as men with their spouses. By substitution of the instrumental for the ablative of separation (283 a), vinā without (not Vedic) takes sometimes the instrumental; and so, in the Veda, avás down and parás beyond, with which the

ablative is also, and much more normally, construed. And *ádhi*, in RV., is used with the instrumental *snúnā* and *snúbhis*, where the locative would be expected.

The Ablative. In the prepositional constructions of the ablative (as was pointed out and partly illustrated above, 293), the ablative value of the case, and the merely directive value of the added particle, are for the most part clearly to be traced. Many of the verbal prefixes are more or less frequently joined in the older language with this case: oftenest, *ádhi* and *pári*; more sporadically, *ánu*, *ápa*, *áva*, *práti*, and the separatives *nís* and *ví*. The change of meaning of the ablative with *á* *hither*, by which it comes to fill the office of its opposite, the accusative, was sufficiently explained above (293 c). Of directive words akin with the prefixes, many — as *bahís*, *purás*, *avás*, *adhás*, *parás*, *purá*, *vinā*, and *tírás* *out of knowledge of* — accompany this case by a perfectly regular construction. Also the case-forms *arvák*, *prák*, *paçcát*, *úrdhvám*, *púrvam*, *páram*, and *ṛté* *without*, of which the natural construction with an ablative is predominant earlier.

The Accusative. Many of the verbal prefixes and related words take an accompanying accusative. Most naturally (since the accusative is essentially the *to*-case), those that express a motion or action toward anything: as *abhí*, *práti*, *ánu*, *úpa*, *á*, *áti* and *ádhi* in the sense of *over on to*, or *across, beyond*, *tírás* *through*, *ántarand antará* when meaning *between*, *pári* *around*. Examples are: *yáḥ pradīço abhí sūryo vicāste* (AV.) *what quarters the sun looks abroad unto*; *ábodhy agniḥ práty āyatīm uśásam* (RV.) *Agni has been awakened to meet the advancing dawn*; *gacchet kadācit svajanam prati* (MBh.) *she might go somewhither to her own people*; *imam prakṣyāmi nṛpatim prati* (MBh.) *him I will ask with reference to the king*; *māma cittám ánu cittébhír é ’ta* (AV.) *follow after my mind with your minds*; *é ’hy á naḥ* (AV.) *come hither to us*; *úpa na é ’hy arvān* (RV.) *come hither unto us*; *yó devó mártiyān áti* (AV.) *the god who is beyond mortals*; *adhiṣṭhāya vārcasā ’dhy anyān* (AV.) *excelling above others in glory*. Also *abhítas* and *parítas*, which have a like value with the simple *abhí* and *pári*; and *upári* *above* (oftener with genitive). Less accordant with ordinary accusative constructions is the use of this case with *adhas*, *paras*, *paras*, *vinā*, beside other cases which seem more suited to the meaning of those particles. And the same may be said of most of the adverbial case-forms with which the accusative is used. Thus, a number of instrumental of situation or direction: as *yé ’vareṇā ’dityām yé páreṇā ’dityām* (TB.) *those who are below the sun, those who are beyond the sun*; *ántareṇa yónim* (ÇB.) *within the womb*; *te hī ’dam antareṇa sarvam* (AB.) *for all this universe is between them*; *úttareṇa gārhapatyam* (ÇB.) *to the north of the householder's fire*; *dákṣiṇena védim* (ÇB.) *to the south of the sacrificial hearth*; *dákṣiṇena vṛkṣavāṭikām* (Ç.) *to the right of the orchard*; *nikaṣā yamunām* (Har.) *near the Yamunā*. Similarly, *úrdhvam* and *púrvam* have an accusative object as well as an ablative; and the same is true later of *ṛte*. *Abhimukham* *toward* has a more natural right to construction with this case.

The Genitive.

The words which are accompanied by the genitive are mostly case-forms of nouns, or of adjectives used substantively, retaining enough of the noun-character to take this case as their natural adjunct. Such are the locatives *agre* *in front of*, *abhyāçe* *near*, *arthe* and *ṛte* *for the sake of*, *nimitte* and *hetāu* *by reason of*, *madhye* *in the midst of*; and other cases, as *arthāya*, *kāraṇāt*, *sakāçāt*, *hetos*. And really, although less directly and obviously, of the same character are other adjective cases (some of them showing other constructions, already noticed):

as *adhareṇa*, *uttareṇa* and *uttarāt*, *dákṣiṇena* and *dákṣiṇāt*, *paçcát*, *úrdhvam*, *anantaram*, *samakṣam*, *sākṣāt*. More questionable, and illustrations rather of the general looseness of use of the genitive, are its constructions (almost wholly unknown in the oldest language) with more proper words of direction: thus, with the derivative *paritas*, *paratas*, and *antitas*, and *parastāt* and *purastāt* (these found in the Brāhmaṇa language: as, *saṁvatsarasya parastāt* *after a year*; *sūktasya purastāt* *before the hymn* [AB.]); with *anti*, *adhas*, *avas*, *puras*; with *upariabovē* (common later); and with *antar*.

Conjunctions.

The conjunctions, also, as a distinct class of words, are almost wanting.

a. The combination of clauses is in Sanskrit in general of a very simple character; much of what in other Indo-European languages is effected by subordinating conjunctions is here managed by means of composition of words, by the use of the gerunds (994), of *iti* (1102), of abstract nouns in case-forms, and so on.

The relative derivative adverbs, already given (1098 ff.), may properly be regarded as conjunctions; and a few other particles of kindred value, as *céd* and *néd* (1111 a).

Purely of conjunctive value are *च* *ca* *and*, and *वा* *vā* *or* (both toneless, and never having the first place in a sentence or clause).

a. Of copulative value, along with *ca*, is in the older language especially *utá* (later it becomes a particle of more indefinite use); and *ápi*, *tátas*, *táthā*, *kím* *ca*, with other particles and combinations of particles, are used often as connective of clauses.

b. Adversative is *tú* *but* (rare in the older language); also, less strongly, *u* (toneless).

c. Of illative value is *hí* *for* (originally, and in great part at every period, asseverative only): compare above, 1122 b.

d. To ca (as well as to its compound céd) belongs occasionally the meaning *if*.

e. It is needless to enter into further detail with regard to those uses which may be not less properly, or more properly, called conjunctive than adverbial, of the particles already given, under the head of Adverbs.

Interjections.

The utterances which may be classed as interjections are, as in other languages, in part voice-gestures, in part onomatopœias, and in part mutilations and corruptions of other parts of speech.

a. Of the class of voice-gestures are, for example: ā, hā, hāhā, ahaha, he, hāi (AV.), ayi, aye, hayé (RV.), aho, bāt (RV.), bata (RV.) or vata, and (probably) híruk and hurúk (RV.).

b. Onomatopœtic or imitative utterances are, for example (in the older language): ciçcā *whiz* (of an arrow: RV.); kikirā (palpitation: RV.); bāl and phát (phás?) or phál *splash* (AV.); bhúk *bow-wow* (AV.); çál *pat* (AV.); āṣ, hīṣ, as, and has (PB.); and see the words already quoted in composition with the roots kṛ and bhū, above, 1091.

c. Nouns and adjectives which have assumed an interjectional character are, for example: bhos (for the vocative bhavas, 456); are or re (voc. of ari *enemy*); dhikalas! (may be mere voice-gesture, but perhaps related with √dih); kaṣṭam *woe is me!* diṣṭyā *thank heaven!* svasti *hail!* suṣṭhu, sādhu *good, excellent!* None of these are Vedic in interjectional use.

CHAPTER-XII

12.0 Formation of Compounds Stems

THE frequent combination of declinable stems with one another to form compounds which then are treated as if simple, in respect to accent, inflection, and construction, is a conspicuous feature of the language, from its earliest period.

a. There is, however, a marked difference between the earlier and the later language as regards the length and intricacy of the combinations allowed. In Veda and Brāhmaṇa, it is quite rare that more than two stems are compounded together — except that to some much used and familiar compound, as to an integral word, a further element is sometimes added. But the later the period, and, especially, the more elaborate the style, the more a cumbrous and difficult aggregate of elements, abnegating the advantages of an inflective language, takes the place of the due syntactical union of formed words into sentences.

Sanskrit compounds fall into three principal classes:

I. a. Copulative or aggregative compounds, of which the members are syntactically coördinate: a joining together into one of words which in an uncompounded condition would be connected by the conjunction *and* (rarely *or*).

b. Examples are: índrāvāruṇāu *Indra and Varuna*, satyānr̥té *truth and falsehood*, kṛtākṛtām *done and undone*, devagandharvamānuṣoragarakṣasās *gods and Gandharvas and men and serpents and demons*.

c. The members of such a compound may obviously be of any number, two or more than two. No compound of any other class can contain more than two members — of which, however, either or both may be compound, or decompound (below, 1248).

II. d. Determinative compounds, of which the former member is syntactically dependent on the latter, as its determining or qualifying adjunct: being either, 1. a noun (or pronoun) limiting it in a case-relation, or, 2. an adjective or adverb describing it. And, according as it is the one or the other, are to be distinguished the two sub-classes: A. Dependent compounds; and B. Descriptive compounds. Their difference is not an absolute one.

e. Examples are: of dependent compounds, amitrasenā *army of enemies*, pādodaka *water for the feet*, āyurdā *life-giving*, hástakṛta *made with the hands*; of descriptive compounds, maharṣi *great sage*, priyasakhi *dear friend*, amitra *enemy*, súkṛta *well done*.

f. These two classes are of primary value; they have undergone no unifying modification in the process of composition; their character as parts of speech is determined by their final member, and they are capable of being resolved into equivalent phrases by giving the proper independent form and formal means of connection to each member. That is not the case with the remaining class, which accordingly is more fundamentally distinct from them than they are from one another.

III. g. Secondary adjective compounds, the value of which is not given by a simple resolution into their component parts, but which, though having as final member a noun, are themselves adjectives. These, again, are of two sub-classes: A. Possessive compounds, which are noun-compounds of the preceding class, with the idea of *possessing* added, turning them from nouns into adjectives; B. Compounds in which the second member is a

noun syntactically dependent on the first: namely, 1. Prepositional compounds, of a governing preposition and following noun; 2. Participial compounds (only Vedic), of a present participle and its following object.

h. The sub-class B. is comparatively small, and its second division (participial compounds) is hardly met with even in the later Vedic.

i. Examples are: *vīrasena possessing a hero-army*, *prajākāma having desire of progeny*, *tigmācṛṅga sharphorned*, *hāritasraj wearing green garlands*; *atimātrāexcessive*; *yāvayāddveṣas driving away enemies*.

j. The adjective compounds are, like simple adjectives, liable to be used, especially in the neuter, as abstract and collective nouns, and in the accusative as adverbs; and out of these uses have grown apparent special classes of compounds, reckoned and named as such by the Hindu grammarians. The relation of the classification given above to that presented in the native grammar, and widely adopted from the latter by the European grammars, will be made clear as we go on to treat the classes in detail.

A compound may, like a simple word, become a member in another compound, and this in yet another — and so on, without definite limit. The analysis of any compound, of whatever length (unless it be a copulative), must be made by a succession of bisections.

a. Thus, the dependent compound *pūrvajanmakṛta done in a previous existence* is first divisible into *krta* and the descriptive *pūrvajanman*, then this into its elements; the dependent *sakalanītiçāstratattvajña knowing the essence of all books of behavior* has first the root-stem *jña* (for $\sqrt{jña}$) *knowing* separated from the rest, which is again dependent; then this is divided into *tattva essence* and the remainder, which is descriptive; this, again, divides into *sakala all* and *nītiçāstrabooks of behavior*, of which the latter is a dependent compound and the former a possessive (*sa* and *kalā having its parts together*).

a. The final of a stem is combined with the initial of another stem in composition according to the general rules for external combination: they have been given, with their exceptions, in chap. III., above.

b. If a stem has a distinction of strong and weak forms, it regularly enters into composition as prior member in its weak form; or, if it has a triple distinction (311), in its middle form.

c. That is, especially, stems in *ṛ* or *ar*, *at* or *ant*, *ac* or *añc*, etc., show in composition the forms in *ṛ*, *at*, *ac*, etc.; while those in *an* and *in* usually (exceptions sometimes occur, as *vṛṣaṇaçvā*, *vṛṣaṇvasú*) lose their final *n*, and are combined as if *a* and *i* were their proper finals.

d. As in secondary derivation (1203 d), so also as prior member of a compound, a stem sometimes shortens its final long vowel (usually *ī*, rarely *ā*): thus, in V., *rodasiṣṛā*, *ṛṥhiviṣṥhā*, *ṛṥhiviṣṛād*, *dhārapūta*, *dhāravākā*; in B., *ṛṥhivi-dā*, *-bhāga*, *-lokā*, *sarasvatikṛta*, *senānigrāmanyāu*; in S., *garbhiniṣṛāçcitta*, *sāmidheniṣṛāṣṥṥya*, *vasatīvariṣṛāharāṇa*, *ekādaçiniliṅga*, *prapharvidā*, *devatalakṣaṇa*, *devatapradhānatva*; later, *devakinandana*, *lakṣmivardhana*, *kumāridatta*, *muhūrtaja*, *iṣṥakacita*, etc.

e. Occasionally, a stem is used as prior member of a compound which does not appear, or not in that form, as an independent word: examples are *mahā great* (apparently used independently in V. in accusative), *tuvi mighty* (V.), *dvi two*.

f. Not infrequently, the final member of a compound assumes a special form: see below, 1315.

But a case-form in the prior member of a compound is by no means rare, from the earliest period of the language. Thus:

a. Quite often, an accusative, especially before a root-stem, or a derivative in a of equivalent meaning: for example, *patamgā going by flight*, *dhanamjayā winning wealth*, *abhayaṅkarā causing absence of danger*, *puṣṥimbarā bringing prosperity*, *vācamīṅkhaṥā inciting the voice*; but also sometimes before words of other form, as *āçvamiṣṥi horse-desiring*, *çubhamyāvan going in splendor*, *subhāgaṅkārāṇa making happy*, *bhayaṅkartṛ causer of fear*. In a few cases, by analogy with these, a word receives an accusative form to which it has no right: thus, *ḥṛdamśāni*, *makṣūṅgama*, *vasumdhara*, *ātmambhari*.

b. Much more rarely, an instrumental: for example, *girāvīdh increasing by praise*, *vāçāstena stealing by incantation*, *krātṥvāmagha gladly bestowing*, *bhāṣāketubright with light*, *vidmanāpas active with wisdom*.

C. In a very few instances, a dative: thus, *nareṣṥhā serving a man*, *asmēḥiti errand to us*, and perhaps *kiyedhā* and *mahevīdh*.

d. Not seldom, a locative; and this also especially with a root-stem or a-derivative: for example, *agregā going at the head*, *diviṥṥit dwelling in the sky*, *vaneṥāḥprevailing in the wood*, *aṅgeṥṥhā existing in the limbs*, *proṣṥheçayā lying on a couch*, *sutēkara active with the soma*, *divīçara moving in the sky*; *āreçatru having enemies far removed*, *sumnāpi near in favor*, *māderaghu hasting in excitement*, *yudhiṥṥhira firm in battle*, *antevāsin dwelling near*; *apsujā born in the waters*, *ḥṛṥsvās hurling at hearts*.

e. Least often, a genitive: thus, *rāyāṥkāma desirous of wealth*, *akasyavīd knowing no one*. But the older language has a few examples of the putting together of a genitive with its governing noun, each member of the combination keeping its own accent: see below, 1267 d.

f. Ablative forms are to be seen in *balātṥkāra violence* and *balātṥkṛta*, and perhaps in *parātṥpriya*. And a stem in *ṛ* sometimes appears in a copulative compound in its nominative form: thus, *pitāputrāu father and*

son, hotāpotārāu *the invoker and purifier*. Anyonya one another is a fused phrase, of nominative and oblique case.

g. In a very few words, plural meaning is signified by plural form: thus, apsuḥ etc. (in derivation, also, apsu is used as a stem), hr̥tsvās, nṛñḥpraṇetra *conducting men*, rujaskara *causing pains*, (and dual) hanūkampa *trembling of the two jaws*.

h. Much more often, of words having gender-forms, the feminine is used in composition, when the distinctive feminine sense is to be conveyed: e. g. gopīnātha *master of the shepherdesses*, dāsīputra *son of a female slave*, mṛgīdṛṣ *gasselle-eyed*, praṇītāpraṇāyana *vessel for consecrated water*.

The accent of compounds is very various, and liable to considerable irregularity even within the limits of the same formation; and it must be left to be pointed out in detail below. All possible varieties are found to occur. Thus:

a. Each member of the compound retains its own separate accent. This is the most anomalous and infrequent method. It appears in certain Vedic copulative compounds chiefly composed of the names of divinities (so-called devatā-dvandvas: 1255 ff.), and in a small number of aggregations partly containing a genitive case-form as prior member (1267 d).

b. The accent of the compound is that of its prior member. This is especially the case in the great class of possessive compounds; but also in determinatives having the participle in ta or na as final member, in those beginning with the negative a or an, and in other less numerous and important classes.

c. The accent of the compound is that of the final member. This is not on so large a scale the case as the preceding; but it is nevertheless quite common, being found in many compounds having a verbal noun or adjective as final member, in compounds beginning with the numerals dvi and tri or the prefixes su and dus, and elsewhere in not infrequent exceptions.

d. The compound takes an accent of its own, independent of that of either of its constituents, on its final syllable (not always, of course, to be distinguished from the preceding case). This method is largely followed: especially, by the regular copulatives, and by the great mass of dependent and descriptive noun-compounds, by most possessives beginning with the negative prefix; and by others.

e. The compound has an accent which is altered from that of one of its members. This is everywhere an exceptional and sporadically occurring case, and the instances of it, noted below under each formation, do not require to be assembled here. Examples are: medhāsāti (médhā), tilāmiçra (tīla), khādihasta (khādi), yāvayāddveṣas (yāváyant); çakadhūma (dhūmā), amṛta (mr̥tā), suvīra (vīrā), tuvigrīva (grīvā). A few words — as viçva, pūrva, and sometimes sārva — take usually a changed accent as prior members of compounds.

12.1 Adjective Compounds as Nouns and as Adverbs

Compound adjectives, like simple ones, are freely used substantively as abstracts and collectives, especially in the neuter, less often in the feminine; and they are also much used adverbially, especially in the accusative neuter.

a. The matter is entitled to special notice only because certain forms of combination have become of special frequency in these uses, and because the Hindu grammarians have made out of them distinct classes of compounds, with separate names. There is nothing in the older language which by its own merits would call for particular remark under this head.

The substantively used compounds having a numeral as prior member, along with, in part, the adjective compounds themselves, are treated by the Hindus as a separate class, called dvigu.

a. The name is a sample of the class, and means *of two cows*, said to be used in the sense of *worth two cows*; as also pañcagu *bought for five cows*, dvināu *worth two ships*, pañcakapāla *made in five cups*, and so on.

b. Vedic examples of numeral abstracts and collectives are: dvirājā [*combat*] *of two kings*, triyugā *three ages*, triyojanā *space of three leagues*, tridivā *the triple heaven*, pañcayojanā *space of five leagues*, ṣaḍahā *six days' time*, daçāṅgulā *ten fingers' breadth*; and, with suffix ya, sahasrāhnyā *thousand days' journey*. Others, not numeral, but essentially of the same character, are, for example: anamitrā *freedom from enemies*, nikilbiṣā *freedom from guilt*, savidyutā *thunderstorm*, viḥṛdaya *heartlessness*, and sāhṛdaya *heartiness*, sudivā *prosperity by day*, sumṛgā and suçakunā *prosperity with beasts and birds*. Feminines of like use are not quotable from RV. or AV.; later occur such as triçatī *three hundred* (481), trilokī *the three worlds*, pañcamūlī *aggregate of five roots*.

c. As the examples show, the accent of words thus used is various; but it is more prevailing on the final syllable than in the adjective compounds in their ordinary use.

Those adverbially used accusatives of secondary adjective compounds which have an indeclinable or particle as prior member are reckoned by the Hindu grammarians as a separate class of compounds, and called by the name avyayibhāva.

a. This term is a derivative from the compound verb (1094) made up of avyaya *uninflected* and √bhū, and means *conversion to an indeclinable*.

b. The prepositional compounds (1310) are especially frequent in this use: thus, for example, *anuṣvadhām* by *one's own will*, *abhipūrvām* and *parovarām* in *succession*, *ādvādaçām* up to *twelve*, *pratidoçām* at *evening*, *samakçām* in *sight*. Instances given by the grammarians are: *adhihari* upon *Hari*, *uparājam* with the *king*, *upanadam* or *upanadi* near the *river*, *pratyagni* toward the *fire*, *pratiniçam* every *night*, *nirmakçikam* with *freedom from flies*.

c. A large and important class is made up of words having a relative adverb, especially *yathā*, as prior member. Thus, for example, *yathāvaçām* as *one chooses* (*vāçawill*), *yathākṛtām* as *done* [*before*], *according to usage*, *yathānāmā* by *name*, *yathābhāgām* according to *several portion*, *yathāṅgām* and *yathāparū* limb by *limb*, *yatrakāmam* whither *one will*, *yāvanmātrām* in *some measure*, *yāvajjivām* as *long as one lives*, *yāvatsābandhu* according to the *number of relations*.

d. These compounds are not common in the old language; RV. has with *yathā* only four of them, AV. only ten; and no such compound is used adjectively except *yācchreṣṭha* RV., *yāvachchreṣṭhā* AV. as *good as possible*. ÇB. has *yathākārīn*, *yathācārīn*, *yāthākāma*, *yāthākratu* as adjectives (followed in each case by a correlative *tāthā*). The adjective use in the later language also is quite rare as compared with the adverbial.

e. Other cases than the accusative occasionally occur: thus, instrumental, as *yathāsamkhyena*, *yathāçaktyā*, *yathepsayā*, *yathāpratiguṇāis*; and ablative, as *yathāucityāt*.

f. A class of adverbs of frequent occurrence is made with *sa*: e. g. *sakopam* *angrily*, *sādaram* *respectfully*, *sasmitam* with *a smile*, *saviçeçam* *especially*.

g. Other adverbial compounds of equivalent character occur earlier, and are common later: for example, *ṛtekarmām* without *work*, *nānārathām* on *different chariots*, *ubhayadyús* two *days in succession*, *citrapadakramam* with *wonderful progress*, *pradānapūrvam* with *accompaniment of a gift*; etc.

CHAPTER-XIII

CONCLUSION

The Dependency Grammar structure of a sentence discussed in the earlier chapter and the Karaka relations among the sentences both are verb dependent. Both of them revolve around the concept of satisfying the mutual expectancy i.e. Aakanksha of the words for each other in a sentence. From the graph structures observed and from the Karaka structures studied it seems to be possible to map the dependency relations with the Karaka relations. While the Karaka relation are mapped to English Stanford dependencies, the verb centrality of Stanford dependency framework and Karaka makes it quite possible to map the Karaka labels with some of the Stanford dependencies.

However, though the examples cover most of the generic cases, it can be observed that many of the Stanford dependencies remained unmapped with Karakas. Typically, those relations that are not much concerned with the argument structure of the verb; e.g. adverb-verb relations are given less consideration. Here, for the task of Text Summarization, the Karaka relations like Karta and Karma, which are most important roles from the action execution point of view as well as linguistic point of view, are given more emphasis. In addition, the main intention in the task of summarization was to identify the important semantic roles in the sentence rather than the annotation. Hence, much deeper analysis is not carried out.

The development part of this thesis is partial and is available at <http://sanskrit.jnu.ac.in>. It is going to be improved and completed subsequently with following additions –

- adding a *sandhi* processing module
- adding a verb analysis module for derived verbs, *karman* and *bhava vacya*
- more lexical resources
- disambiguation module

In the present work research and development (R&D) has been done for a *karaka* analysis module for Sanskrit which will help in building any larger NLP tool for Sanskrit. A partial implementation of the *Karaka Analyzer for Sanskrit (KAS)* has been done using the rule based approach. The KAS uses Java Server Pages (JSP) in the web format for the analysis of *karaka* of given *laukika* Sanskrit sentence or a text.

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³ The relative chronology of the great Sanskrit grammarians is certain, as each comments on his predecessors. Their absolute chronology is notoriously uncertain—and not relevant to this article. But I assume the following approximate dates (and use these abbreviations): Yāska fifth century b.c., Pāṇini (P) fourth century b.c., Kātyāyana (K) third century b.c., Patañjali (Pat.) second century b.c., Bharthari (Bh.) fifth century a.d., *Kāśikāvṛtti* (Kv.) seventh century a.d.

⁴ A notable example of the incompleteness of P on a topic central to his concerns is his treatment of *kṛt* affixes; see Paṣṭule, G. B., *Some primary nominal formations missing in Pāṇini*, Poona, 1968 [Google Scholar](#).

⁵ While Professor S. D. Joshi was teaching me the *samāsa* section of P at Poona University, I queried P's failure explicitly to mention the type of adverbial compound to which my quotation from Professor Burrow refers. This article arose from that query. Though Joshi is, of course, not responsible for what I have written, his

contribution is so great that I can perhaps best sum it up by saying that I merely asked questions to which he supplied answers.

⁶ *Issues in Linguistics; papers in honor of Henry and Renée Kahane*, ed. Kachru, Braj B. et al., Urbana, 1973, 85–98 [Google Scholar](#). I am grateful to Mr. Dominik Wujastyk for drawing my attention to this article, and for reading a draft of my paper critically—the adverb is essential.

⁷ Joshi, S. D., *Adjectives and substantives as single class in the ‘parts of speech’*, Poona, 1966 [Google Scholar](#).

⁸ *Atra* is derived from the pronoun *idam* by the addition of the *taddhita* affix *tra*. The full *prahriyā* (derivation) of the form is given by the following *sūtras*: 1.1.27, 7.2.102, 6.1.97, 7.2.113, 5.3.1, 5.3.10.

⁹ On P 2.1.59.

¹⁰ Ayachit, S. M., *The Gaṇapāṭha, a critical study*: Ph.D. thesis, Deccan College Research Institute, Poona, 1959 [Google Scholar](#).

¹¹ include the critical edition, ed. Sharma and Deshpande, Hyderabad, 1969–70, which was not of course available to Ayachit.

¹² *Cirena* to *cirasya* inclusive are in Ayachit's first ‘supplementary list’; *Cire* is in no list I have seen, but is attested in Monier-Williams's *Sanskrit–English dictionary*, which also quotes a neuter noun *ciram*, derived from P 6.2.6. *Cire* is altogether a marginal case—see note 1fr—but this does not affect the argument.

¹³ These terms might be better translated ‘particularizing’ and ‘particularized’, but I have retained the translation which is in general use.

¹⁴ Op. cit., especially pp. 28–9.

¹⁵ Even so careful a grammarian as Macdonell slips up quite badly on the *avyayībhāva*: he presents it as a subclass of *karmadhāraya*! (Macdonell, A. A., *A Sanskrit grammar for students*, 175, § 188.3.a.) To over-simplify by presenting only the commonest kind of *avyayībhāva* is perhaps excusable in an elementary grammar, but it is bad to omit mention of the essential criterion by which a compound is so classified, namely that it is indeclinable. [Google Scholar](#)

¹⁶ For a longer discussion of ‘Case-forms used as adverbs’, see Whitney, W. D., *Sanskrit grammar*, §§ 1110–17 [Google Scholar](#). Most adverbial forms are singular; an example of a plural form is *uccaiḥ* ‘aloud’.

¹⁷ This may be why *cire* is not in the *svarādi gaṇa*; but in that case *cirāt* should not be there either, as both forms could be derived from a noun *ciram* by 2.3.7.

¹⁸ The St. Petersburg lexicon quotes it from no authority earlier than the *Kv.*, and with a wrong reference at that.

¹⁹ I rely on Pathak, S. D., *Word index to Patañjali's Vyākaraṇa-mahābhāṣya*, Poona, 1927 [Google Scholar](#).

²⁰ Joshi, S. D., *Patañjali's Vyākaraṇa-mahābhāṣya, Samarthāhnikā*, Poona, 1968, 106 [Google Scholar](#).

²¹ I gloss over the fact that the compound could also mean ‘with adverbs’ in the plural.

²² *Suṣṭhu* and *duṣṭhu* occur as Nos. 123 and 145 in the *svarādi gaṇa* printed by Böhtlingk in his edition of P, but they are not in the critical edition of *Kv.* (see note 11 above), so would seem to be medieval additions.

²³ Pillai, K. Raghavan, *The Vākyapadīya*, Delhi, etc., 1971 [Google Scholar](#).

²⁴ *Ibid.*, 153, n. 37.

²⁵ In this section (7) it will be convenient, and unambiguous, to use ‘adverb’ as a simple equivalent of *kriyāviśeṣaṇa*. Though in theory all that is said could apply also to my category (2), in fact grammarians before Haribhāskara give examples only of my type (1).

²⁶ I have no other source of information than Abhyankar, K. V., *Paribhāṣāsaṃgraha*, Poona, 1967, 29–30 [Google Scholar](#).

²⁷ Op. cit., 88.

²⁸ Abhyankar, , op. cit., 221 [Google Scholar](#).

²⁹ Op. cit., 90.

³⁰ Joshi, S. D. and Roodbergen, J. A. F., *Patañjali's Vyākaraṇa-mahābhāṣya, Kārahāhnikā*, Poona, 1975, 123–4 [Google Scholar](#), and Cardona, Q., op. cit., § 5B2b, 88–9 [Google Scholar](#).

³¹ This is a valid example in English, but would lose its validity if translated directly into Sanskrit, which has different words for raw and cooked rice, and no word common to rice in both states. In the sentence *pacati odanam*, ‘he cooks (boiled) rice’, the noun *odanam* is *sādhyā*.

³² Op. cit., 30.

³³ *Ibid.*, 315.

³⁴ *Ibid.*, 34.

³⁵ *Ibid.*, 347.

³⁶ I am grateful to Professor B. K. Matilal for his help with this argument, part of which has appeared at 7.3.2 above.

³⁷ *Laghuśabdendusekhara*, ed. Mānavalli, Rāma Śāstrī and Śāstri, Bhāradvāja Nārāyaṇa, Benares, 1887, 313 [Google Scholar](#).

³⁸ Op. cit., § 5A, 88.

³⁹ Gonda in fact considers these forms nominative, but in this he is idiosyncratic. Gonda, Jan, ‘Some notes on adverbial case forms in the Veda’, in Vogel, Claus (ed.), *Jñānamuktāvalī: commemoration volume in honour of Johannes Nobel, Sarasvati Vihara Series 38*, New Delhi, 1959, 66–76 [Google Scholar](#).

⁴⁰ ‘On the recording of forms, indicating the parts of speech, and some other points’, in Ghatage, A. M., Dandekar, R. N. and Mehendale, M. A. (ed.), *Studies in historical Sanskrit lexicography*, Poona, 1973, 73–5 [Google Scholar](#).

⁴¹ Op. cit., 68.

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