

discourse analysis of sanskrit texts: first attempt towards computational processing

by Monali Das

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Discourse Analysis of Sanskrit Texts: First Attempt towards Computational Processing

*Thesis submitted to the University of Hyderabad
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Doctor of Philosophy

in

Sanskrit Studies

by

Monali Das

11HSPH03



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March 2016

Declaration

I, **Monali Das** hereby declare that this thesis entitled “**Discourse Analysis of Sanskrit Texts: First Attempt towards Computational Processing**” submitted by me under the guidance and supervision of **Dr. Amba P Kulkarni**, Department of Sanskrit Studies, University of Hyderabad, is a bonafide research work which is also free from plagiarism. I also declare that it has not been submitted previously in part or in full to this university or any other university or institution for the award of any degree or diploma. I hereby agree that my thesis can be deposited in Shodhganga/INFLIBNET.

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To my family and madam

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List of Abbreviations

Aṣṭā Aṣṭādhyāyī

BD Bṛhaddevatā

JNV Jaiminiyanyāyamālāvistara

MS Mīmāṃsāsūtra

Pañca Pañcatantra

raghu Raghuvaṃśam

saṃ rā Saṃkṣepa rāmāyaṇam

sama ā Samarthāhnikam

Chapter 1

Introduction

Sanskrit is the foundation and basis of the Vedic literature. The Vedic literature not only contains the collection of hymns but it is a complete library for understanding the purpose of the creation, spiritual identity of individual soul and Supreme. Sanskrit, as the classical language of India, has a huge collection of literature in almost all branches of knowledge – astronomy, mathematics, logic, philosophy, medicine, technology, dramatics, literature, poetics etc. It was the medium of serious communications for all discourses and scholarly communications until recent times. This resulted in a continuous production of literature in Sanskrit, which is the richest literature in the history of humankind. The total corpus of Sanskrit is almost 100 times those in Greek and Latin put together. The picture is totally changed in the last two centuries. The traditional learning methods are replaced by the Western learning methods. As a consequence, the knowledge in Sanskrit texts became inaccessible to the modern Indian scholars. The main reasons behind the difficulty in accessing Sanskrit texts are:

- Sanskrit texts are continuous strings of characters without any punctuation marks

etc. because, Sanskrit is influenced by a very rich oral tradition. Hence, most of the times, scholars need to guess the word or sentence boundaries.

- Sanskrit is very rich in inflectional morphology. Hence, sometimes it is very hard to remember all the inflectional forms of a word.
- There are also some cases like, meaning shift, meaning reduction and meaning expansion which makes it difficult for a modern Sanskrit scholar to recognize the proper meaning of a word.
- Presentation of a text is counted as another reason behind the inaccessibility. There are many types of literature found in Sanskrit. Among them, the sūtra type literature has its own structure. One sūtra may be commented upon by later scholars for more clarification. This further may over and again be commented upon by later scholars. This leads to a nested discourse structure. Likewise, other types of literature in Sanskrit also have the nested structure. For example, in Pañcatantra we find nested stories – before ending a story another story begins which in turn may have another story and so on. Hence, for modern scholars, more analysis is necessary to get the faithful meaning of a text. Since modern scholars are trained with the modern learning methods, it is obvious to find difficulty to get familiar with the nested structure.

In the field of Sanskrit computational works, *Sanskrit Heritage*¹ by Prof. Gérard Huet provides many computational tools for Sanskrit viz. Sanskrit reader, parser, lemmatizer and tagger. *Digital Corpus of Sanskrit*² developed by Oliver Hellwig provides searching facility and tools for automatic segmentation and tagging. Other language analysis tools like POS tagger, sandhi splitter, tiñanta generator are developed by *Special Centre*

¹<http://sanskrit.inria.fr>

²<http://kjc-fs-cluster.kjc.uni-heidelberg.de/dcs>

for Sanskrit Studies³ (Jawaharlal Nehru University). A full-fledged constraint parser⁴ which handles some inter-sentential relations as well, is developed by Kulkarni et al. (2010). This parser uses the concept of *ākāṅkṣā* (expectancy) and *sannidhi* (proximity). For analysis of Sanskrit texts *a consortium of seven institutions*⁵ have been engaged in a project which provides guidelines to tag POS, sandhi, samāsa, kāraka etc. Under this project, the language analysis tools like sandhi splitter, sandhi analyser, morphological analyser, morphological generator, POS tagger, kāraka level parser etc. have been developed. A compound processor has been developed by Kumar et al. (2010).

Now it is quite clear that almost all computational tools till developed are basically centred on sentence and its various components. This means that we are still at the level of word analysis, segmentation and parsing. Simple sentences are analysed on each possible linguistic level till now.

In order to understand a text, sentence level understanding is not enough. We also need to understand the inner meaning of the text and what a paragraph or a discourse does mean. Hence, we need to go beyond sentence level analysis towards discourse level analysis. Nowadays linguists are very much interested in the way how language is used. Discourse structure studies have become a very challenging task for linguists. Among the modern scholars, Harris (1952) proposed the connectedness of sentences. In linguistics discourse refers to a connected speech (spoken or written). We cannot say anything that made up of a sequence of a sentence is a text. A text is a coherent object that has many (explicit or implicit) connective devices, linking words and sentences.

The concept of discourse is not new for Indian scholars. Three traditional Indian

³<http://sanskrit.jnu.ac.in>

⁴<http://sanskrit.uohyd.ac.in/scl>

⁵University of Hyderabad, Hyderabad; Jawaharlal University, New Delhi; International Institute of Information Technology, Hyderabad; Sanskrit Academy, Hyderabad; Poornaprajna Vidyapeetha, Bangalore; Rashtriya Sanskrit Vidyapeetha, Tirupati; Jagadguru Ramanandacharya Rajasthan Sanskrit University, Jaipur

schools⁶ have carried out serious discussions on sentence, discourse and its various aspects under the title *Śābdabodha*. A discourse is defined by Indian scholars as, “a group of sentences which serves a single purpose or idea”⁷. From centuries behind our scholars from various schools discussed about the instrumentality of padārthas and sub-sentences, which plays main role behind the verbal cognition of discourse. Some scholars like Viśwanātha say, words after getting syntactic unity among themselves become instrumental in *mahāvākyārthabodha* (meaning of sub-sentences are instrumental). Vaiyākaraṇas say that word meaning as a group is instrumental in *mahāvākyārthabodha*. Nāgeśa’s view is that the meaning of sub-sentences in a sequence would be instrumental in *mahāvākyārthabodha*. Among the three traditional schools, *Mīmāṃsā* school directly deals with sentence, meaning etc.

While surveying the computational efforts made in the field of discourse in Sanskrit, we found computational tools developed for *anaphora resolution* in Sanskrit texts by Pralayankar and Devi (2010) and *Sanskrit Anaphora Resolution System* developed as a part of M. Phil. research by Madhav Gopal⁸. There are some other efforts centred around the idea of *saṅgati* from Indian traditional śāstras. *Saṅgati* is a theory of text representation which shows the continuity between texts. Discourse parser which uses Rhetorical Structure Theory (RST) in union with *saṅgati* is proposed by Subalalitha and Parthasarathi (2012).

In order to understand whether it is possible to identify the discourse structure automatically, I decided to undertake a study in discourse level analysis.

⁶Nyāya, mīmāṃsā, vyākaraṇa

⁷http://www.ciil-lisindia.net/Sanskrit/Sanskrit_struct.html

⁸<http://sanskrit.jnu.ac.in/sars/index.jsp>

1.1 Organisation

The main goal of our work is to look at various theories of discourse analysis in Indian tradition, collect ongoing computational efforts on discourse analysis in the West, compare both Indian and Western theories and finally develop a computational model for automatic tagging at the discourse level.

In the second chapter we survey Indian literature in order to understand the nature of texts, then the nature of commentary and their types. Underlying structures of some Sanskrit texts are illustrated. We also survey various schemes with regards to the discourse analysis discussed in Sanskrit literature. Indian tradition discusses many levels of analysis required to precisely understand a text, which is also reviewed.

We have dedicated the third chapter to review Western discourse theories in the light of computational aspect. Since the advent of computers, several attempts are being made towards the automatic analysis of texts at the discourse level, which are briefly described here.

A close comparison between Penn Discourse Treebank and Sanskrit tagging scheme is furnished in the fourth chapter. Out of various discourse tagging schemes like Penn Discourse Treebank, Rhetorical Structure Theory, Linguistics Discourse Model, Discourse Lexicalized Tag, Discourse GraphBank, Segmented Discourse Representation Theory and Discourse Structure Model, we chose Penn Discourse Treebank to compare with Sanskrit tagging scheme since the level of analysis in both these schemes matches. Both these schemes discuss inter-sentential tags and their arguments while other tagging schemes concentrate on different areas of discourse analysis. Towards the end of the chapter, we present the result of comparison between both tagging schemes briefly. Multiple senses of some lexical cues found in Sanskrit are also drawn up.

We review various topic level coherence relations in the fifth chapter. By taking one example, we show how these coherence relations are helpful in order to understand the structure of the text. Coherence relations show how the topics within a text are related to each other. Taking Patañjali's *Mahābhāṣya* as a sample text for analysis, we present a detailed study about its overall structure. In order to understand individual structures of sūtras, we chose commentary on one *paribhāṣā sūtra* and one *saṃjñā sūtra* and exercised a close comparison.

In the sixth chapter we survey the sub-topic level discourse relations discussed in *mīmāṃsā* and *vyākaraṇa* texts. To list out sub-topic level discourse relations, we chose *Samarthāhnika* of *Mahābhāṣya*. A brief report on the set of 10 relations used for developing a Discourse Treebank of Sanskrit corpus is presented. We have described a set of lexical cues to identify sub-topic level relations. The underlying structure of *Samarthāhnika* is represented in terms of Finite State Automata which describes the semantics of the tags. This sub-topic level discourse structure is followed by almost all *āhnika*-s⁹ of *Mahābhāṣya*. Based on the list of lexical cues and Finite State Automata model, we developed an automatic tagger at sub-topic level and tested it in 9 *āhnikas* of *Mahābhāṣya*. Quality of the tagger is evaluated based on precision, recall and F-measure results. The tagger with minor changes is extended to analyse *Śābarabhāṣya* text, which shows the model is general for various kinds of texts.

In the concluding chapter, we propose some directions for further studies in discourse analysis for Sanskrit.

⁹Etymological definition of *āhnika* is 'what may be read in one day'

Chapter 2

Indian Discourse Tradition

India has a rich tradition of linguistics more than two millennia old. Paṇini's (around 500 BC) contribution to the grammar is as important milestone in the development as that of Euclid in the case of development of geometry in Europe (Staal, 1965). In Indian philosophy, Language is the fundamental concern. All Indian philosophical discussions began from the fundamental problem of communication. The discussions on the problem of meaning and the process of understanding the texts by philosophers like Bhartṛhari, Gaṅgeśa and Kumārilabhaṭṭa resulted in three distinct schools of thought. Mīmāṃsā, Nyāya, Buddhist and Jaina schools are intrinsically language oriented. Grammar school is specifically interested in language problems. Mīmāṃsā school is mainly concerned with the methodology of textual interpretation. For instance Mīmāṃsakas proposed the concept of *ākāṅkṣā* (expectancy), *yogyatā* (consistency) and *āsatti* (contiguity) for understanding sentence meaning. Nyāya school is interested in the theory of knowledge while Vyākaraṇa school focuses on formation and analysis of word and sentence. With an aim to understand the Vedas these schools developed the theories of verbal cognition - *Śābdabodha*.

2.1 Indian Textual Tradition

In Indian tradition knowledge has been transmitted orally. Over many centuries, various schools of thought have maintained their traditional information intact. Since compactness is essential for oral transmission, these texts have been concisely structured, using various techniques, such as embedded metalanguage rules etc. It is astonishing that the whole Vedic text is transmitted without any modification even with respect to a syllable. The process of retrieving information encoded in these texts is highly complex that one or more interpretations are required to understand a text. This series of interpretations form a nested structure of commentaries and critique.

Kapoor (2005, p. 40-42) remarks that Pāṇini has mentioned five classes of Sanskrit literature texts that existed in his time, viz.

1. *Dr̥ṣṭa*: The compositions which are seen or visualised or directly intuited or not an adaptation of a work already exists, come under *dr̥ṣṭa* literature. For example, mantras which are directly realised.
2. *Prokta*: The literature which is expressed or taught is known as *prokta*. ‘Taught’ is in the sense that it expounds one’s own or other’s composition. For example, *Kalpa Sūtra*, *Nirukta*, *Prātiśākhya* etc.
3. *Upajñāta*: The knowledge which has been conceptualised or knowledge acquired by one without being taught is known as *upajñāta*. For example, *Aṣṭādhyāyī*.
4. *Kṛta*: The literature which has been composed by self is known as *kṛta*. For example, prose and poetic literature like *Mahābhārata*, *Rāmāyaṇa*.
5. *Vyākhyāna*: A commentary, explanation or interpretation is known as *vyākhyāna*. For example, *Mahābhāṣya*.

2.2 The Commentary Tradition

There are two ways to look at the meaning of commentary or interpretation.

- Interpretation unfolds the meaning which is already lying in the text.
- Interpretation is a reconstruction of the text to be interpreted.

The commentary tradition is a continuous and cumulative tradition in India (Kapoor, 2005, p. 44). India has a very long tradition of text interpretation. Vedas are the foundation of Indian knowledge system. Six major philosophical schools¹ interpret Vedic texts in their own ways to unfold the enfolded knowledge. The act of interpretation is not only to make the ideas and meanings clear but much more than mere deciphering the meaning contained in the text. Yāska's *Nirukta* may be taken as the very first task of interpretation on Vedic words. In the course of time sūtra literature was developed. Sūtra style is highly useful to grasp wordings and recollect easily. Thereupon all philosophical systems came recorded in the sūtra form. Almost all śāstras, such as *śikṣā*, *chandas*, *vyākaraṇa*, *jyotiṣa*, *kalpa*, *yoga*, *vedānta*, *nyāya*, *mīmāṃsā* and *vaiśeṣika* composed sūtra texts to lay down their essential teachings. We can see a high influence of the sūtra style in Indian literature. The sūtra text is a manual consisting of strings of short sentences or aphoristic rules hanging together like threads (Johannes, 2010, p. 182). For a proper understanding of a sūtra we may need one or more commentaries.

The system of commentary tends to develop the exact meaning of texts. There are some conditions which makes an interpretation authentic (Roy, 2007, p. 7) which are listed below -

¹Nyāya, vaiśeṣika, sāmkhya, yoga, vedānta and mīmāṃsā

- An interpretation must be coherent and present a unified picture of all the details.
- The interpreter must take the author's intention as a whole.
- It has to locate and specify the basic issues to be explored.
- It should take into account the historical and cultural background, both of the author and interpreter.
- It should be creative and suggestive.

It is quite impossible to understand such a text like *Mīmāṃsā sūtra*, without a close study of commentary. The oldest commentary on *Mīmāṃsā sūtra* available today is *Śābarabhāṣya*. Likewise, Kātyāyana is the first commentator on *Aṣṭādhyāyī* of Pāṇini. Patañjali's *Mahābhāṣya* is also a very rich commentary. The texts which have come in for extensive interpretation, deal not only with the supernatural, but with the rules of conduct or modes of daily life or with the theses of different disciplines.

Task of interpretation is three-fold (Kapoor, 2005, p. 48) viz.,

- To determine and explain the meaning of the text
- To establish the relevance and significance of the Śāstra
- To articulate the rational and rationality of the assertion and defend them against counter philosophies or objections

2.2.1 Types of Commentaries

In Indian tradition some generic words found for commentary viz. *bhāṣya*², *vṛtti*³, *vi-varaṇa*⁴, *vyākhyāna* or *vyākhyā*⁵ and *vārtika*⁶, are considered synonyms. However technically they are different according to the nature of interpretation.

Commentaries can broadly be classified into two types (Kapoor, 2005, p. 57) viz.,

1. Descriptive: The one that analyses the rules and explains their operation and their domain, is called *vṛtti*.
2. Analytic: It is the commentary on rules, that brings out the unexpressed or the implicit content of the rule, like *vārtika* and *bhāṣya*.

Kapoor (2005, p. 57) remarks that eight types of different commentaries are listed in *Kāvya Mīmāṃsā* by Rājaśekhara.

1. *Vṛtti* is a commentary that explains the ideational content of a sūtra.
2. *Paddhati* is analysis of *vṛtti*.
3. *Bhāṣya* is detailed analysis that takes into account the possible objection and counter arguments.
4. *Samīkṣā* gives an explanation of the intended and deeper meaning and issues which is implicit in a *bhāṣya* analysis.

²A commentary on a sūtra whose function is to unpack and weave together

³A commentary which analyses the rules in detail

⁴A commentary which confines itself solely to performing this role

⁵An explanation

⁶A subcommentary on a *bhāṣya*, defending its particular construction of the sūtra over alternatives, making revisions and adjustments as necessary

5. *Ṭīkā* is mere indication of meaning in the simplest and briefest language.
6. *Pañjikā* explains the difficult words only.
7. *Kārikā* is a brief statement on the meaning of sūtra.
8. *Vārtika* is an analysis of unexpressed or suggested meaning and implications of sūtra.

Indian commentaries are of different types. To show these differences, we have selected one example each from two major schools of Indian tradition, the first one being *Mīmāṃsā Sūtra* of Jaiminī and the second one Pāṇini's *Aṣṭādhyāyī*.

Mīmāṃsā Sūtra of Jaiminī is known as the foundation text of *Mīmāṃsā*. It has 12 chapters and 2700 sūtras. Commentaries on *Jaiminīya Mīmāṃsā Sūtra* can be divided into three categories, as explained below.

- Direct or independent commentaries are developed in a single school of thought which unfold the meaning of a subject. This type of commentaries are separate works on the entire subject.
- Interlaced commentaries cross each other and are inter-connected, typically passing alternately over and under them, as if woven together.
 - Chronologically sequential commentaries are a kind of interlaced commentaries. They take the preceding commentaries into account and have occurred in order of time.

Structure of commentaries found in *Mīmāṃsā Sūtra* is shown in figure 2.1.

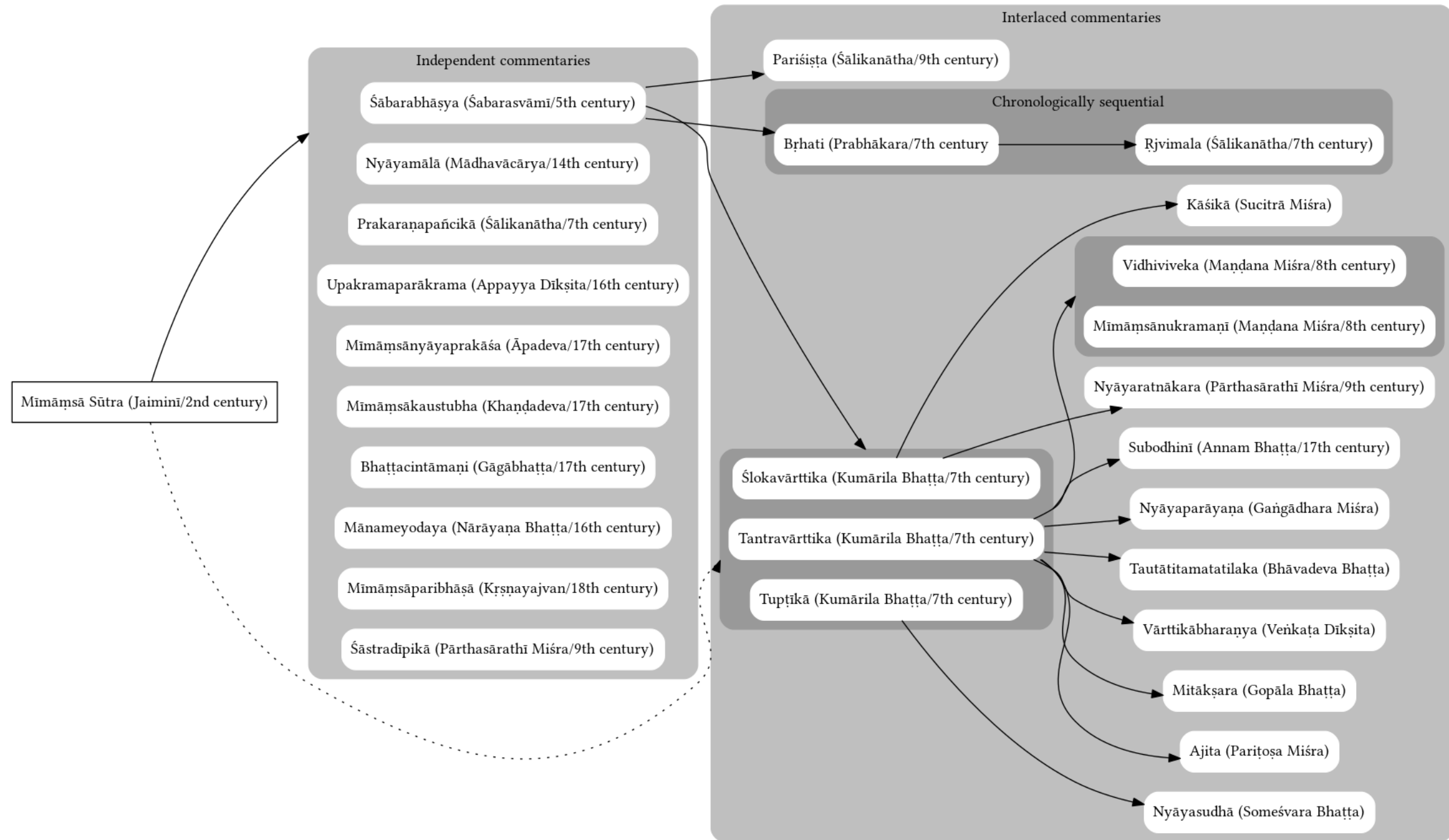


Figure 2.1: Structure of commentaries on Mīmāṃsā

Commentaries on Pāṇini's *Aṣṭādhyāyī* are of four types. Among these the direct and the interlaced commentaries are the same as in *Mīmāṃsā Sūtra*. The rest two are -

- Commentaries on rule's topic based arrangement are totally different from other commentaries. In *Aṣṭādhyāyī*, sūtras are arranged in an order focusing brevity rather than their logical application. Later some vaiyākaraṇas organised sūtras into topics according to their application and types. *Siddhāntakaumudī* by Bhaṭṭoji Dīkṣita is an example of such commentaries.
- Philosophical commentaries concentrate on the sole of the whole subject instead of concentrating on the original rules and their parallel commentaries. For example, *Vākyapadīya* by Bhartṛhari.

Structure of four types of commentaries found on *Aṣṭādhyāyī* is shown in figure 2.2.

Tubb and Boose (2007, p. 3-5) mentions five features of a commentary as quoted in *Nyāyakośa*,

Padacchedaḥ padārthoktir vighraho vākyayojanā
Ākṣepeṣu samādhānam vyākhyānam pañcalakṣaṇam.

Padaccheda is the separation of words in the text explaining where one word ends and next word begins.

Padārthokti is the meaning of words. It is a problem to decide appropriate meaning of words to the respective context because multiple meanings of words give rise to ambiguity. Paraphrasing is a technique to avoid multiple meanings.

Vighraha explains required grammatical analysis of each word.

Vākyayojanā discusses construction of each sentence and whole text.

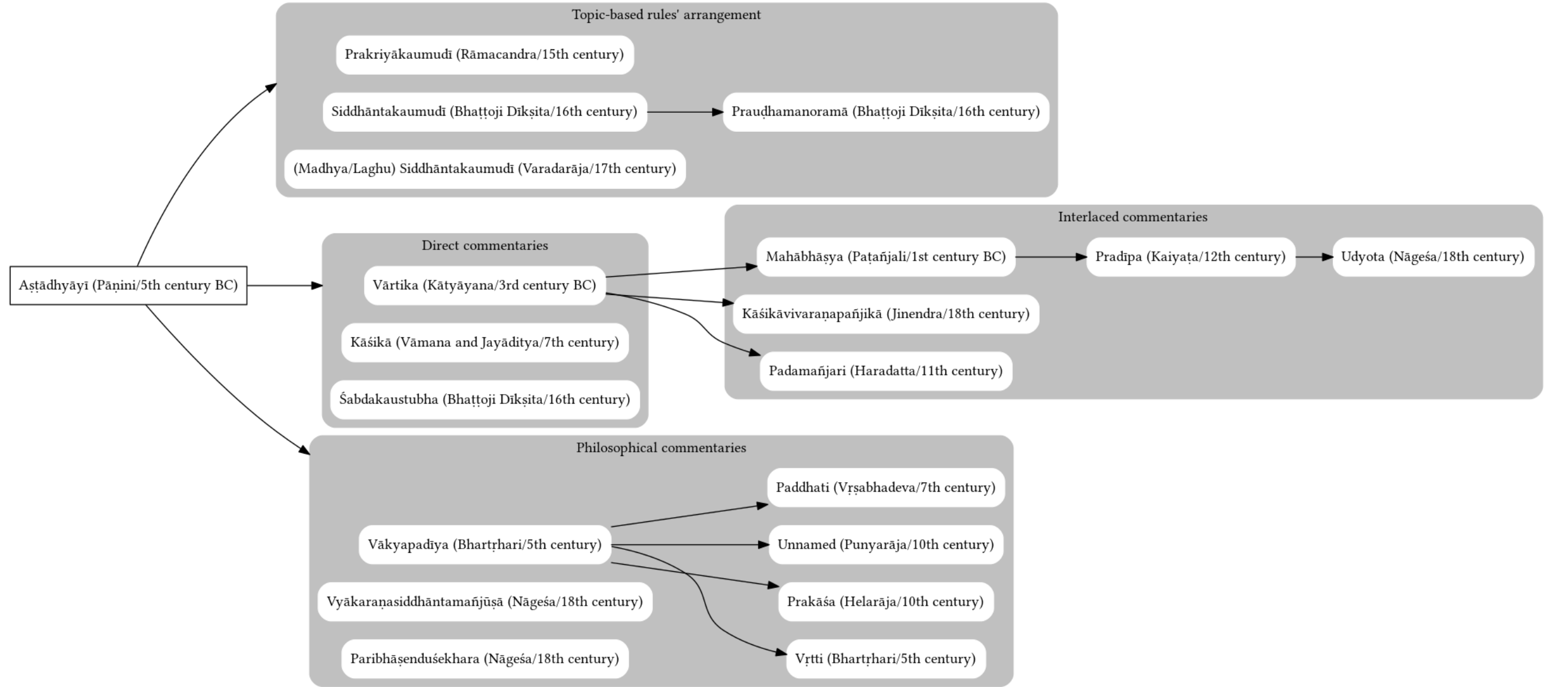


Figure 2.2: Structure of commentaries on Aṣṭādhyāyī

Ākṣepasamādhāna clears doubts and ambiguities in the text raising objections and answering them. *Ākṣepasamādhāna* concentrates on the implications of the text instead of concentrating on glossing of the words. This style is also known as *bhāṣya* style. They are oral debates, question and answer or objection and resolution raised while learning.

Kulkarni and Das (2012) describes that commentary writing is highly nested. For a given text, there may be multiple commentaries, commentaries on those commentaries, sub-commentaries and so on. In the field of commentary writing, three distinct trends are found in Indian tradition viz.

Bhāṣya paraṃparā The original text is in sūtra form. This is followed by a commentary which explains the sūtra, optionally followed by an explanation (ṭikā) or a note (ṭippani). Multiple commentaries are possible at each level. Figure 2.3 shows structure of bhāṣya paraṃparā on *Mahābhāṣya*.

Khaṇḍana maṇḍana paraṃparā Here the original text establishes a theory and later scholars write criticisms on it attacking the original view and proposing a new view. It is also possible that a series of such texts to criticize a previous theory in the series and to propose a new theory. These texts form a tree structure, where siblings indicate different criticisms of the same text leading to different view points. Figure 2.4 shows the structure of khaṇḍana maṇḍana paraṃparā on *Dvaitasiddhānta*.

Prakaraṇa grantha paraṃparā The book that explains the terms and terminologies used in śāstras are called ‘Prakaraṇa granthas’. They are related to the original texts but have their own nested commentaries. Figure 2.5 shows the structure of prakaraṇa granthas on *Advaitasiddhānta*.

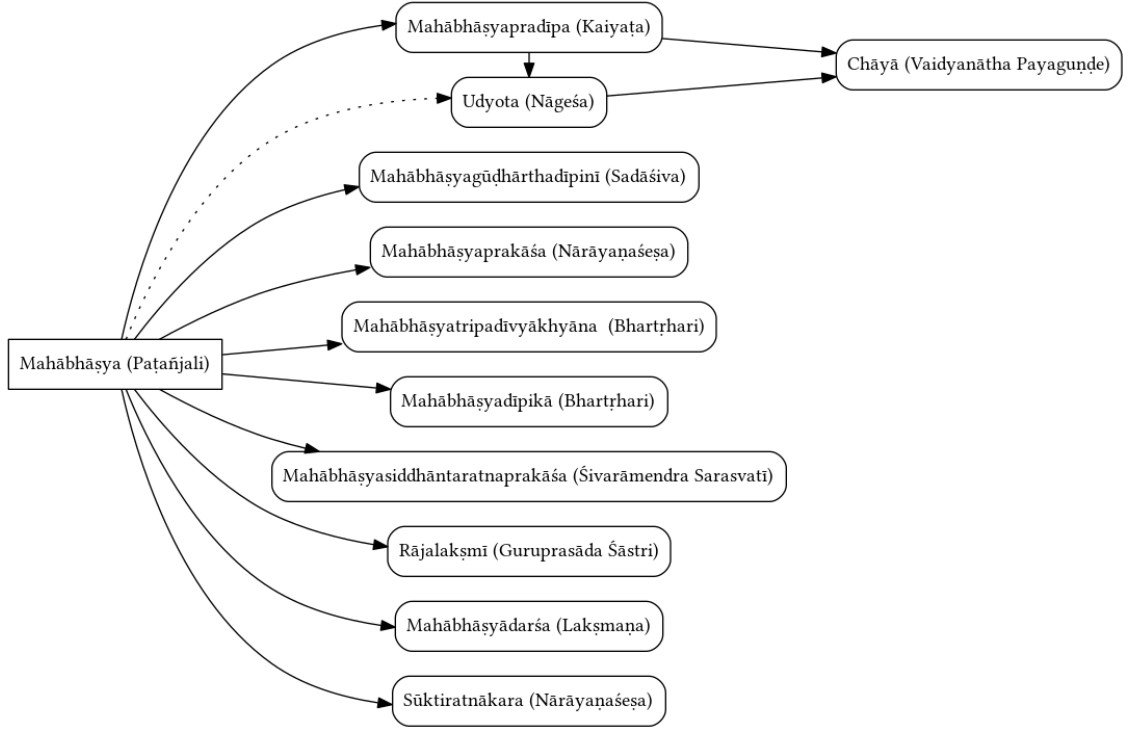


Figure 2.3: Bhāṣya granthas on Mahābhāṣya

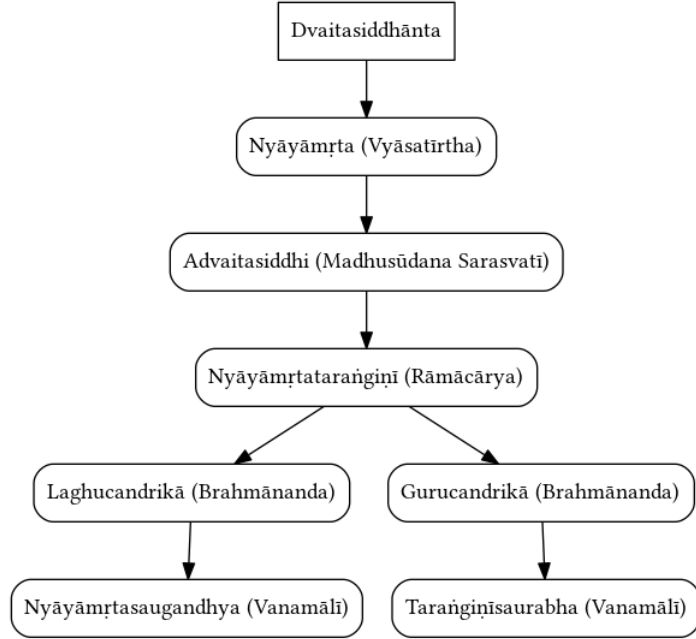


Figure 2.4: Khaṇḍana maṇḍana granthas on Dvaitasiddhānta

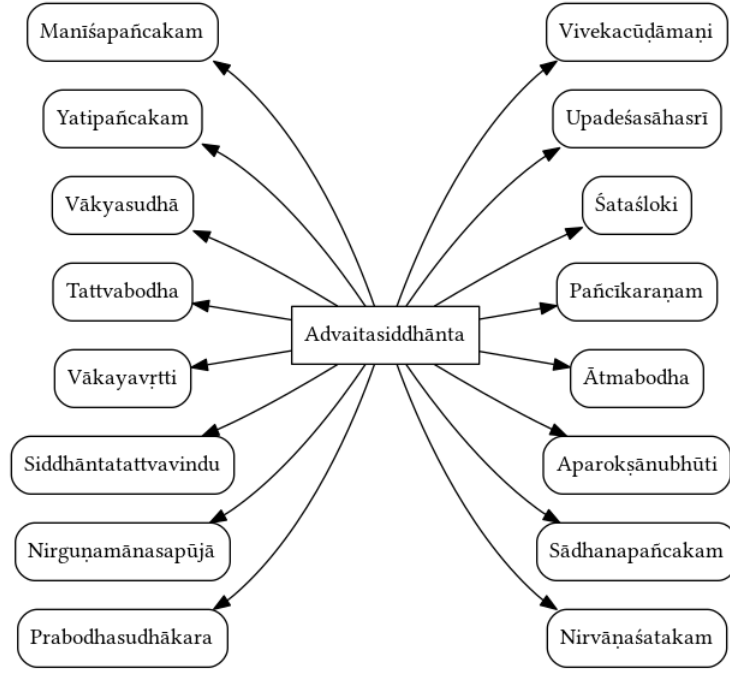


Figure 2.5: Prakaraṇa granthas on Advaitasiddhānta

A commentary interprets the original texts or fixes the meaning to the texts. The commentary tradition includes the whole gamut of textual compositions. Indian texts range from brief *sūtras* to *mahākāvyas*. Most of the *śāstric* texts in India are verbal texts marked with accents which are very brief in nature. The brevity demands to debrief those texts for understanding. The main goal of commentary tradition is to interpret these texts. Due to the oral transmission method, the texts need necessarily to be short so that they could be stored accurately in memory. Through several devices, authors achieved economy in words and syllables. The *sūtra* style writing approach contributed to brevity and hence increased the complexity of the text. This made the explanatory commentaries necessary. The topics in Indian texts are thematically organised in the form of *prakaraṇa*, *adhyāya*, *pariccheda* etc. The chief commentary of *sūtra* is called *bhāṣya* (where each *sūtra* is interpreted and elaborately discussed and sometimes challenged). The commentary on *bhāṣya* is called *ṭīkā* (where new objections are raised upon the same subject matter for discussion refuted). This proves that Indian tradition

is an interpretative tradition. Hence, Indian tradition wanted a specific way of learning. Commentary is a tool that triggers thought process in the mind of learners. The commentaries keep a high standard of the original text.

Commentary is also used as a text maintenance mechanism. Many texts in Indian literature can be seen lost nowadays. Texts tend to become opaque and are lost. For example, we can find only one extant commentary on *Mīmāṃsā Sūtra*. But Indian schools of thought do not allow their system to die. This is also a reason behind commentary writing tradition.

2.3 Indian Discourse Tradition

Indian theories are developed in three directions. The first one dealing with word and sentence formation and analysis leads to the establishment of *vyākaraṇa* (grammar) school. The second one dealing with the semantics, logic and inference leads to the formation of *nyāya* (logic) school of thought. The third one dealing with discourse analysis resulted in *mīmāṃsā* (exegesis) school. These schools differ mainly in the chief qualificand of the cognition, however more or less they agree on various other relations at gross level. As we glance Indian literature, we notice discussions on various aspects of textual analysis which basically deal with the coherence of texts. The coherence is judged at different levels right from the relations between two adjoining sentences to the coherence at the level of texts with respect to the discipline. The *mīmāṃsakas* discuss various types of discourse relations called *saṅgati*-s for checking the consistency and coherence of the text. Goldstucker (1865, p.4) notes that earliest mention of *saṅgati* is found in the sloka below.

Śāstre'dhyāye tathā pāde nyāyasaṅgatayastridhā.

Śāstrādiviṣaye jñāte tattatsaṅgatiṛūhyatām. (JNV 5)

Saṅgatis are not only discussed in *Mīmāṃsā Sūtra* but also in *Vedāntasūtra* (Vasu, 2002, p.4-5). Following the discussions the coherence is tested at various levels:

1. Sāstra saṅgati (Bhattacharya, 1989) is subject level coherence (consistency with the scripture)
2. Adhyāya saṅgati (Bhattacharya, 1989) is book level coherence (consistency with the whole book).
3. Pāda saṅgati (Bhattacharya, 1989) is section level coherence (consistency with whole chapter).
4. Adhikaraṇa saṅgati (Chattopadhyay, 1992) is topic level coherence.

Further naiyāyikas (logicians) discussed about six topic level saṅgatis (Sastri, 1916).

They are -

- (a) Prasaṅga - Corollary.
- (b) Upodghāta - Pre-requisite.
- (c) Hetūtā - Causal dependence.
- (d) Avasara - Provide an opportunity for further inquiry.
- (e) Nirvāhakaikya - The adjacent sections have a common end.
- (f) Kāryaikya - The adjacent sections are joint causal factors of a common effect.

A detailed discussion on six types of saṅgatis has been carried out in chapter 5.

One *adhikaraṇa* leads to some particular association of ideas. In a *pāda* there are many *adhikaraṇas*. Bhattacharya (1989) and Brahmachari (2008) discuss about the *saṅgatis* which binds one *adhikaraṇa* with another. They are of six sorts viz.

- Ākṣepa - Objection
- Drṣṭānta - Example
- Pratyudāharaṇa - Counter-example
- Prasāṅga - Corollary/Incidental illustration
- Upodghāta/Utpatti - Pre-requisite/Introduction
- Apavāda - Exception

These four *saṅgatis* help to show how a scripture/text/śāstra is coherent. As an example we can take *Vedāntasūtra*. *Vedāntasūtra* consists of four chapters (*adhyāya*) with 555 *sūtras*. Each chapter is divided into four quarters (*pāda*). Each quarter consists of several groups called *adhikaraṇas* or topical sections. An *adhikaraṇa* consists of several *sūtras*.

Every *adhikaraṇa* (topic) consists of one or more sub-topics with each sub-topic explained in one or more paragraphs. Every paragraph has one or more sentences. We need to understand relations between words in a sentence, relations between sentences in a paragraph and relations between paragraphs or sub-topics in a topic. Three levels of analysis found in an *adhikaraṇa* are explained in Kulkarni and Das (2012).

1. **Sentential analysis** establishes relations among words in a sentence. In the traditional learning schools, sentence level analysis is introduced, at a tender age of

9 or 10, immediately after the students have memorized *Śabdarūpa* (noun-word forms), *Dhātupāṭha* (verbal forms) and *Amarakośa* (a thesaurus). Then the students are taught one chapter of *Raghuvamśa* of Kālidāsa to imbibe the methodology of analysing a text. There are two prominent approaches viz. *kathambhūtinī* and *anvayamukhī* (Tubb and Boose, 2007, p.149-151).

In the first approach, the teacher gives the basic skeleton of a sentence and fills in other details by asking questions that bring out the ways in which those parts fit into the construction of the original text. These questions are centred around the heads seeking their various modifiers. This method of analysis is more close to the modern dependency parsing credited to Tesnière (1959). In the second approach, the teacher arranges all the words in the most easily understandable prose order. The dependency relations in Sanskrit have been proposed and thoroughly examined by generations of scholars over a period of more than 2 millennia. Thus we are fortunate to have a well defined, time tested tag-set for Sanskrit, unlike other languages such as English where special efforts were put in as described in PARC (King et al., 2003), Stanford Dependency Manual (Marneffe et al., 2006) etc. for defining the set of relations.

Various relations described in the traditional grammar books have been compiled and classified by Ramakrishnamacharyulu (2009) under two broad headings viz. inter-sentential and intra-sentential relations. This work provided a starting point for developing guidelines (Ramakrishnamacharyulu et al., 2011) for annotation of Sanskrit texts at *kāraka* (syntactico-semantic relations) level and also for the development of an automatic parser for Sanskrit. The tag-set was further examined for the appropriateness of granularity (Kulkarni and Ramakrishnamacharyulu, 2013). A set of 31 relations were selected from 90 relations proposed in the original proposal by Ramakrishnamacharyulu (2009). The reduction in the number

of rules was to avoid the fine-grain distinction involving extra-linguistic knowledge. A constraint based parser is developed to parse Sanskrit sentences using these relations⁷. A dependency treebank of around 30K words is also annotated using this scheme.

2. **Inter-sentential analysis** establishes relations between sentences. In Ramakrishnamacharyulu (2009), inter-sentential relations are classified into 9 sub-headings. These relations are discussed in detail in chapter 4.
3. **Sub-topic level analysis** establishes relations between successive paragraphs showing the consistency of the argument leading to a sub-topic. Under this level we see two different tag-sets - one found in *mīmāṃsaka*'s analysis and the other in *vaiyākaraṇa*'s analysis.

The relations given by *mīmāṃsakas* according to Bhattacharya (1989) are -

- Ākṣepa - Objection
- Dṛṣṭānta - Example
- Pratyudāharaṇa - Counter-example
- Prasaṅga - Corollary
- Upodghāta - Pre-requisite
- Apavāda - Exception

Joshi (1987), which is a reprinted edition of Kudala (1912), is marked up with relations between sub-topics. A fine-grain distribution of these relations are mentioned in Joshi (1968). The coarse-grained relations in Joshi (1968) which are common with Kudala (1912) are -

⁷<http://sanskrit.uohyd.ac.in/scl/SHMT/index.html>

- Praśna - Question
- Uttara - Answer
- Ākṣepa - Objection
- Samādhāna - Justification
- Vyākhyā - Explanation
- Bādhaka - Rejection
- Sādhaka - Reaffirmation
- Dūṣaṇa - Criticism
- Udāharaṇa - Example

In this chapter we have made a survey of Indian discourse literature, Indian textual tradition and Indian commentary tradition in order to understand the nature of texts. We have looked at nested structure in commentary tradition showing different saṅgatis discussed in Sanskrit literature through one example of *Vedāntasūtra*. We have also listed the types of analyses needed to understand the coherence in an adhikaraṇa. Like mentioned before, as the first attempt towards computational processing of discourse in Sanskrit we have looked at discourse theories discussed in Sanskrit literature only.

Chapter 3

Western Computational Discourse Theories

‘A sequence of utterances is a discourse. Such a sequence of utterances has to be coherent (topics which are related and events which are connected). Such utterances have to fulfil a purpose in discourse’ (Sporleder, 2009). Discourse level analysis is an important module in Natural Language Processing which takes us beyond sentence level analysis. It is a study about how sentences combine to form texts. In the developmental history of discourse, linguists such as Van Dijk (1972), De Beaugrande (1980), Halliday and Hasan (1976) have made a significant impact¹. At most early age of discourse analysis when linguists were mostly concerned about analysing single sentences. At the same time Zellig Harris was interested in the distribution of linguistic elements in extended texts and the links between the texts. While studying stories, newspapers, notices etc., a person usually expects them to be coherent and meaningful. Likewise discourse analysts are interested in organisation of written interaction. Discourse structures are the pat-

¹Sharma, Vishnu Kumar and Sharma, Mahesh Kumar, Linguistic Discourse Analysis: Introduction and Structure, <http://call-for-papers.sas.upenn.edu/node/39688>

terns that one sees in multi-sentence texts. These structures are necessary for extracting information from the text. In modern linguistics four types of discourse structure are discussed. (Das and Kulkarni, 2013)

1. **Topic Structure:** Discourse can be structured by its topics. Topic structure gives a broad outline of the topics in a given text. In a text each topic involves a set of entities which may change from topic to topic.
2. **Functional Structure:** Discourse can be structured by functions served by its elements, such as, by their role in communication. It identifies various sections within a topic serving different functions.
3. **Event Structure:** Discourse can be structured by events. This identifies various events in a discourse and show them on a timeline.
4. **Coherence Relation:** Based on the linguistic clues and from the functional and event structure various coherence relations are identified.

Discourse relations can be triggered by structure. Different triggers encourage different annotation schemes. In the recent past, there have been several efforts on discourse analysis in computational linguistics. Some of the the major efforts in this field are discussed here.

3.1 Penn Discourse Treebank (Joshi et al., 2006)

The goal of Penn Discourse Treebank (PDTB) is to annotate million word Wall Street Journal (2304 articles) corpus in the Penn Treebank with each of its discourse connectives and their arguments. It aims to annotate explicit and implicit connectives and

their arguments, attribution and sense. Chapter 4 contains a detailed study on Penn Discourse Treebank.

3.2 Rhetorical Structure Theory (Mann and Thompson, 1987)

Basically Rhetorical Structure Theory (RST) is a theory of text organisation. It was developed in 1983 by Bill Mann, Sandy Thompson and Christian Matthiessen. It is designed to explain the coherence of texts by assigning a structure to the text in terms of relations. RST makes three basic assumptions viz. (a) Texts are not just strings of clauses. Clauses are related to one another in various ways. (b) Relations, which can be described functionally in terms of the purposes of the writer and the writer's assumptions about the reader, reflect the writer's options for organising and presenting the concepts. (c) The most common type of text relation are nucleus-satellite relation.

The basic components in RST mechanism are -

1. Relations: The text connected by discourse relations are defined to hold between two non-overlapping text spans. They are called as Nucleus² and Satellite³.
2. Schema: Schema is defined in terms of relations, specify how spans of text can co-occur. With a schema application condition, a possible RST text structure can be determined. Schema is associated with individual nodes in the discourse structure of a text.

²The salient part of the text

³Additional information supplied about the nucleus

3. Text structures: Structural analysis of a text is a set of schema applications such that the following constraints hold: completeness, connectedness and adjacency.

Relations in RST can be broadly categorised as mono-nuclear and multi-nuclear relations which are briefly explained here.

Mono-nuclear relations These relations hold between two text spans, where the nucleus is more salient to the discourse structure and the satellite represents supporting information.

(If you put the baby down)¹, (she will scream)².

In the above example, the first text span represents the nucleus and the later text span represents the satellite.

Mono-nuclear relations can broadly be classified into two - presentational relations and subject matter relations. They, along with their sub-classifications, are described here.

Presentational relations These are pragmatic relations whose intended effect is to increase some inclination in the reader. Presentational relations are discussed below.

- **Antithesis:** In an antithesis relation, the situation presented in nucleus comes in contrast with the situation presented in satellite. For example, in a story where speaker plays the main role, the first clause in this sentence can be assigned the status of nucleus and hence the relation is antithesis.

- Background: Satellite provides information that helps the reader to understand the nucleus. But satellite is not the cause, reason, motivation of the situation presented in the nucleus.
- Concession: The situation indicated in the nucleus is contrary to expectation in the light of the information presented in the satellite. In some cases, which text span is satellite and which is nucleus do not depend on the semantics of the spans, but rather on the intention of the writer.
- Enablement: The situation presented in the nucleus is unrealised. The action presented in the satellite increase the chances of the situation on the nucleus being realised.
- Evidence: Satellite text span presents a credible statement that increases the reader's belief in the nuclear text span.
- Justify: Reader's comprehending satellite increases reader's readiness to accept writer's right to present nucleus.
- Motivation: Comprehending satellite increases reader's desire to perform action in nucleus.
- Preparation: Satellite precedes nucleus in the text; satellite tends to make Reader more ready, interested or oriented for reading nucleus.
- Restatement: Satellite and nucleus are roughly of comparable size. The satellite restates the information presented in the nucleus, typically with slightly different wording.
- Summary: Satellite summarises the information presented in the nucleus. In such case, the emphasis is on the situation presented in the nucleus and the size of the

summary will be shorter than the size of the nucleus. As the other case, nucleus summarises the information presented in the satellite. The emphasis will be on the summary and the size of the summary will be shorter than the size of the satellite.

Subject matter relations These are a kind of informational or semantic relations whose intended effect is that the reader recognises the relation in question. They are discussed below.

- **Circumstance:** The situation presented in the satellite provides the context in which the situation presented in the nucleus should be interpreted. The satellite is not the cause, reason or motivation of the situation presented in the nucleus.
- **Condition:** The truth of the proposition associated with the nucleus is a consequence of the fulfilment of the condition in the satellite. The satellite presents a situation that is not realised.
- **Elaboration:** The satellite presents some additional details about the situation presented in the nucleus. This relation is extremely common at all levels of the discourse structure, and is especially popular to show relations across large spans of information.
- **Evaluation:** The situation presented in satellite assesses the situation presented in the nucleus. The focus is on the situation in the nucleus and not on the evaluation in the satellite. In an evaluation relation, the nucleus and satellite are both attributed to the same agent.
- **Interpretation:** The situation presented in the nucleus interprets the situation presented in the satellite and constitutes the opinion of the writer of the situation

presented in the satellite. In such a case, the interpretation, i.e., the writer's perspective, is the most important part. Here it seems that the interpretation is more important than the actual fact.

- Means: A means satellite explains by which means the nucleus was done. In words, the satellite answers a 'by which means' or 'how' question that can be assigned to the nucleus. The relation can be usually paraphrased as 'the nucleus by means of the satellite'.
- Non-volitional cause: Satellite, by means other than motivating a volitional action, caused nucleus. Reader might not know the particular cause of the situation without the presentation of satellite. Presentation of nucleus is more central than satellite to writer's purposes.
- Non-volitional result: Nucleus caused satellite. Presentation of nucleus is more central to writer's purposes.
- Otherwise: This is a mutually exclusive relation between two elements of equal importance. The situation presented by both the satellite and the nucleus are unrealised.
- Purpose: The satellite text span presents the effect intended by the actor of the action presented in the nuclear text span.
- Solutionhood: The nucleus text span is presented as the solution to the problem posed in the satellite text span.
- Unconditional: Nucleus does not depend on satellite.
- Unless: Satellite affects the realisation of nucleus; nucleus is realised provided that satellite is not realised.

- Volitional cause: Satellite could have caused the agent of the volitional action in nucleus to perform that action. Without the presentation of satellite, reader might not regard the action as motivated or know the particular motivation. Here, nucleus is more central to writer's purposes.
- Volitional result: Nucleus could have caused satellite. The presentation of nucleus is more central to writer's purposes than presentation of satellite.

Multi-nuclear relations They hold between two or more text spans, each of which has the same weight in the discourse structure. For example,

(Peel oranges,)¹ (and slice crosswise.)² (Arrange in a bowl)³ (and sprinkle with rum an coconut.)⁴ (Chill until ready to serve.)⁵.

Multi-nuclear relations are listed below.

- Conjunction: In this relation the items are conjoined to form a unit in which each item plays a comparable role.
- Contrast: Typically, a contrast relation includes a contrastive lexical cue, such as *but, however, while* etc.
- Disjunction: This is a relation whose elements can be listed as alternatives, either positive or negative.
- Joint: This is not a rhetorical relation, but a pseudo relation to be used when no other relation can be determined in order to construct a full tree.
- List: This is a relation whose elements can be listed, but which are not in a comparison, contrast or other stronger type of multi-nuclear relations. A list relation

usually exhibits some sort of parallel structure between the units involved in the relation.

- Multi-nuclear restatement: An item is primarily a re-expression of one linked to it and the items will be of comparable importance to the purposes of writer.
- Sequence: There is a succession relationship between the situations in the nuclei.

3.3 Linguistics Discourse Model (Polanyi, 1988)

Linguistic Discourse Model (LDM) is a comprehensive theory of structural and semantic relations obtaining among clauses in discourse. This model is developed to provide proper semantic interpretation for every utterance in a discourse.

LDM consists of a set of discourse grammars, a set of recursive rules of discourse formation and a set of semantic interpretation rules. Each clause is assigned its context of interpretation and integrated into developing the Discourse Parse Tree (DPT). LDM has four types of structures, viz.

1. List structures, including narratives, which are, sequentially ordered lists of events
2. Expansion structures, in which one unit gives more detail of some sort about some aspect of a preceding unit
3. Binary structures such as if/then, and/or/but relations in which there is a logical connective connecting the constituents
4. Semantically unrelated interruption units

Five types of discourse operators have been identified in LDM:

1. **Assigners:** Assigners operate at the interaction and speech event level signalling socially relevant material such as who is present in the interaction and precisely whom is implicated by a subsequent (or previous) utterance or set of utterances. *Hello*, as well as proper names used as vocatives are examples of assigners.
2. **Speech Act Markers:** Assigners are related to speech act markers such as exclamations and WH-words which also perform a social function. Exclamations express the speaker's attitude towards another utterance. WH-words implicate the recipient of the utterance to produce an appropriate response which will complete the semantic interpretation of the questioned element.
3. **Logical operators:** WH-words in their functioning are closely connected to logical operators, such as *yes, no, maybe, probably, absolutely* etc. which often function as suppletive utterances to WH clauses.
4. **Connectors:** Connectors such as *and, or, therefore, because* etc. are often used as individual clauses together.
5. **PUSH and POP markers:** These operators signal the embedding, continuation and returns to and from discourse constituents at the various levels. PUSH and POP markers such as *O.K., well, so, anyway* as well as extra-linguistic markers such as change in tone of voice etc.

The LDM parser The LDM parser analyses a discourse using grammars of constituents of possible units of various types. The parser has two functions -

- To segment the discourse into discourse constituent units.
- To assign a structural description to the discourse on a left-to-right, clause-by-clause basis, specifying at any moment which discourse units have been com-

pleted, which are structurally accessible for completion, and which, left incomplete, are no longer available for completion.

Discourse parse trees Once a text has been segmented into Basic Discourse Units (BDU), an open right tree representing structure of the discourse is built up. The completed tree shows, for any given point in the discourse, which discourse units (DCU) remain available for continuation and which DCUs are no longer available.

3.4 Discourse Lexicalized Tag (Webber et al., 2001)

Discourse Lexicalized Tag (D-LTAG) is a discourse-level extension of Lexicalized Tree Adjoining Grammar (LTAG), in which discourse syntax is projected by different types of discourse connectives and discourse interpretation is a product of compositional rules, anaphora resolution, and inference. It considers discourse relations are triggered by lexical elements, focusing on -

- The source of arguments to such relations
- The additional content that the relations contribute

It also considers discourse relations that may hold between unmarked adjacent clauses. D-LTAG holds that the sources of discourse meaning resemble the sources of sentence meaning i.e,

- Structure: Verbs, subjects and objects conveying predicate-argument relations
- Adjacency: Noun-noun modifiers conveying relations implicitly

- Anaphora: Modifiers like *other* and *next*, conveying relations anaphorically

D-LTAG predicates are discourse connectives. They are -

- Coordinating conjunctions
- Subordinating conjunctions and subordinators
- Paired (parallel) constructions
- Discourse adverbials

It associates a lexical entry with the set of trees that represent its local discourse configurations. Elements of lexicalized tag for discourse: D-LTAG has both initial trees and auxiliary trees.

- Initial trees localize the predicate-argument dependencies of discourse connectives.
- Two types of auxiliary trees are used.
 - The first is for structural connectives that convey a continuation of the prior discourse, e.g. a modification that serves to further a description of a discourse situation or of one or more entities within it.
 - The second type of auxiliary D-LTAG tree is used to represent discourse adverbials such as *then*, *otherwise*, *(in the) meanwhile*, etc. Like structural connectives, discourse adverbials relate the interpretations of two simple or complex discourse units.

3.5 Discourse GraphBank (Wolf and Gibson, 2005)

GraphBank is the graph based representation of discourse. Texts cannot always be described in a tree structure because crossing dependencies and nodes with multiple parents appear frequently in texts. To address this problem, general graph representation was proposed by Wolf and Gibson (2005). Graph annotations of discourse are available for 135 documents (105 from AP Newswire and 30 from the Wall Street Journal) as part of the GraphBank corpus. Clauses are the basic discourse segments in this annotation. These units are represented as nodes in a graph and are linked with one another through 11 different rhetorical relations, as follows -

- | | | |
|-------------------------|----------------------|---------------|
| 1. Cause-effect | 5. Example | 9. Similarity |
| 2. Condition | 6. Generalization | 10. Contrast |
| 3. Violated expectation | 7. Attribution | 11. Same |
| 4. Elaboration | 8. Temporal sequence | |

The following assumptions are made about the data structure that represents coherence relations in texts -

- The data structure is a directed graph where nodes represent discourse segments and groups of discourse segments, and labelled directed arcs represent coherence relations holding between the discourse structures and groups of discourse structures.
- Discourse structures are non-overlapping units of text.
- Groups of discourse structures are connected sub-graphs of a coherence graph.

- A graph representing a coherent text is connected. An unconnected graph implies that the underlying text is not fully coherent and that it contains discourse segments that do not relate to any other discourse segment in the text.

3.6 Segmented Discourse Representation Theory (Asher and Lascarides, 2007)

Segmented Discourse Representation Theory (SDRT) attempts to model a semantic-s/pragmatics interface. It focuses on how interpreting an utterance involves supplementing its compositional and lexical semantics with additional content. It accounts for several discourse phenomena such as, anaphora resolution and word sense disambiguation. SDRT is grounded in dynamic semantics with a discourse structure defined via rhetorical relations between segments. The theory attempts to explicit the interactions between semantic content of the segments and global, pragmatic structure of the discourse. SDRT provides a logic for representing and interpreting the logical forms of discourse, and a logic for constructing logical forms too. SDRT is wedded to dynamic semantics. It extends prior work on discourse structure by assigning rhetorical relations a precise dynamic semantics. Dynamic semantics is used to account for various anaphora: pronouns, tense and presupposition.

3.7 Discourse Structure Model (Grosz, 1986)

In this theory, discourse structure is composed of three separate but interrelated components. These three components are described below -

1. Linguistic structure: This is a structure of utterances that make up a discourse. Linguistic structure's basic elements are utterances and the clauses. This structure consists of discourse segments and an embedding relationship that can be held between them. Linguistic expressions reflect discourse structures like,
 - Cue phrases (for example, in the first place)
 - Change in aspect and tense
 - Change in intonation and gesture
2. Attentional structure: Attentional state contains information about objects, properties, relations and discourse intentions in focus of participants' attention. This is listener centric.
3. Intentional structure: Here intentions organized in hierarchical discourse structure. This is speaker centric.

Mann and Thompson (1987) proposed Rhetorical Structure Theory (RST) for discourse analysis. The intentional and informational relations between adjacent texts are represented in the form of binary tree structure. Wolf and Gibson (2005) suggested Dependency Graph Structure (DG) to show the relations between the topic and sub-topic segments. The segments here unlike RST need not be adjacent. Polanyi (1988) suggested Linguistic Discourse Model (LDM) which resembles RST. In this model each node inherits the properties of its parent node and a parent node is an interpretation of its children nodes and the relations between them.

The discourse tag-set proposal by Joshi et al. (2006) in the form of Penn Discourse Treebank (PDTB) was further extended to Arabic (Alsaif, 2012), Chinese (Xue, 2005), Turkish (Zeyrek and Webber, 2008) and Hindi (Prasad et al., 2008). (Mladova et al.,

2008) suggested a scheme for Czech and English (Praguan Discourse Treebank) which is consistent with the dependency treebank of Prague.

Leed Arabic Discourse Treebank (Alsaif, 2012) LADTB uses annotation principle of PDTB. Discourse connectives are defined as lexical expressions that relate two text arguments expressing abstract objects. This connective should indicate one or more discourse relations. The discourse annotator of argument predicator connectives covers three main annotation task: (a) identification of explicit Arabic discourse connectives, (b) disambiguating discourse connectives, (c) annotating the two arguments.

Chinese Discourse Treebank (Xue, 2005) The project focuses on discourse connectives, which include explicit connectives, discourse adverbials, as well as implicit connectives.

Turkish Discourse Treebank (Zeyrek and Webber, 2008) The project extends the METU Turkish corpus (Say et al., 2002) from a sentence level to discourse level resource by annotating discourse connectives and their arguments. It take discourse connectives as discourse level predicates taking only two arguments, which may span one or more clauses and sentences that are adjacent or non-adjacent to the connective.

Hindi Discourse Treebank (Prasad et al., 2009) Following the PDTB approach it takes discourse relations to be realised in one of three ways as (a) explicit connectives, (b) implicit connectives, (c) alternative lexicalization.

Praguan Discourse Treebank (Mladova et al., 2008) It proposes to build a discourse annotation scheme for Czech and English on the basis of a consistent annotation scheme

assigning sentences their underlying structure in the form of dependency tree. The discourse layer of the treebank contains two sub-projects: (a) lexically-grounded approach of identification of discourse connectives (b) annotations of extended textual co-reference and bridging relations.

Thread Discourse Structure over Technical Web Forum (Wang et al., 2012) It is a task of parsing user forum threads to determine the labelled dependencies between posts. The aim is to enhance information access and support sharing, by mining the discourse structure of troubleshooting-oriented web user forum threads. It also aims to predict the links between posts and to show the manner of each link, in the form of the discourse structure of the thread. This work builds directly on earlier work of a subset of the authors Kim et al. (2010). The discourse structure of a thread is modelled as a rooted directed acyclic graph (DAG), with the posts in the thread represented as nodes in the DAG. The reply-to relations between posts take the form of directed edges between nodes in the DAG, and dialogue acts (DA) are used to label the edges. Thread discourse structure can be used to facilitate different tasks in web user forums. For example, the information extracted from thread discourse structure can be used to improve solvedness, thread-level retrieval, sentence-level shallow information extraction, near-duplicate thread detection etc.

Different from the discourse analysis models mentioned above, we have found a discourse parser which is developed by taking the ideas of RST from western paradigm and Saṅgati from Indian discourse theories. This model is proposed by Subalalitha and Parthasarathi (2012). They proposed two discourse parsers: saṅgati based and RST-saṅgati based. 500 Tamil tourism specific documents and 21 RST-discourse tree English documents are taken for evaluation. Comparison of the result produced by parsers notes that (a) RST-saṅgati based parser gives 96% precision and 87.99% recall, (b) saṅ-

gati based parser gives 74.62% and 57.3% recall, and (c) RST based parser gives 91.19% precision and 68% recall. The result shows that, the RST-saṅgati based discourse parser could lead a richer representation.

In this chapter we reviewed several western discourse theories with their principles and methods, that have been made towards the automatic analysis of texts at discourse level. PDTB constitutes a vast major of western discourse analysis efforts and many discourse theories have been developed on the base of PDTB for various languages. There are some other attempts made for modern Indian languages towards computational processing at discourse level by taking Indian traditional concepts. However there are no such attempts made for Sanskrit so far.

Chapter 4

Inter-sentential Tagging: Comparison between Sanskrit Tagging Scheme and Penn Discourse Treebank

4.1 Sanskrit Tagging Scheme

Pāṇini's system of knowledge representation is based on kāraka theory. Kārakas are relations that mediate mappings from semantic relations to phonological representations in terms of case endings. A sentence may be constituted of one or more words. Definition of a sentence is given in various texts. Some of the notable ones are given below.

- Raja (1963, p.152) defines sentence as a collection of words, quoting *padasaṃghā-tajaṃ vākyam*. (BD II, 117)

- Raja (1963, p.152) also quotes *arthaikyativād ekaṃ vākyaṃ sākāṅkṣaṃ ced vibhāge syāt* (MS II, 1.46) which means that a group of words serving a single purpose forms a sentence, if on analysis the separate words are found to have mutual expectancy.
- Sharma (1998, p.32) defines a sentence as *vākyaṃ padasamūhaḥ* quoting *Nyāyakośa*, *Tattvacintāmaṇi* and *Tarkasaṃgraha*

A complex sentence is thus, by implication, a construction where two or more verbal stems occur stated explicitly or implicitly. A complex sentence can be analysed into two or more simple sentences. Relations between them are expressed either syntactically or semantically. Pāṇini used only six kārakas viz. *kartā*, *karman*, *karaṇam*, *sampradānam*, *apādānam* and *adhikaraṇam* to represent a gamut of semantic relations between a verb and a noun. In addition he mentions several relations that show the relation of a subordinate verb with the main verb such as *pūrvakālīnatva*, *samakālīnatva* etc. Ramakrishnamacharyulu (2009) have consolidated and summarised syntactico-semantic relations which are discussed in various books on śābdabodha theories of different schools. A tag set has also been prepared to mark these relations. It contains two types of tags.

1. Inter-sentential tags to mark relations between two sentences.
2. Intra-sentential tags to mark relations between words in a sentence.

In the course of discourse analysis we look at inter-sentential relations only. Most of the inter-sentential connectives are particles like, *ca*, *vā*, *api* etc.

4.1.1 Inter-sentential Relations

Relations which join two *tiñantas* or the argument in the domain of one *tiñanta* with those of the other are called inter-sentential relations. Inter-sentential relations may be classified as,

1. Relations denoted by link words.
2. Relations denoted by non-finite verbs.

Relations denoted by link words Link words are connecting words between more than one *tiñantas* in a sentence. *Kintu*, *parantu*, *atha*, *apica* etc. are some of the link words. While using these connectives, after the first sentence is completed the second sentence will start with one of these connectives. Also there are connectors which occur in pairs such as, *yadi-tarhi*, *yadyapi-tathāpi*, *yadā-tadā* etc. These relations are marked separately in individual sentences. Such as, while *yadi* is used in the first sentence, *tarhi* will be used in the second sentence. In case of paired connectives, we can use either or both of them to connect two sentences.

Relations denoted by non-finite verbs Apart from the link words there are some non-finite verbal suffixes which link two sentences. Suffixes such as, *ktvā*, *tumun*, *śatṛ* and *śānac*. The *ktvā* suffix denotes an activity which precedes the activity denoted by the main verb. The *ktvā* ending verb is related to main verb. The *tumun* suffix denotes the purpose of the main activity. The *śatṛ* and *śānac* suffixes are used to denote the simultaneity of two activities.

In inter-sentential relations, some of the connectives connecting two sentences are single while most of them are paired connectives. There are two different structures

for representing single and paired connectives, as discussed in Kulkarni and Das (2012). These structures are shown in figure 4.1 and 4.2.

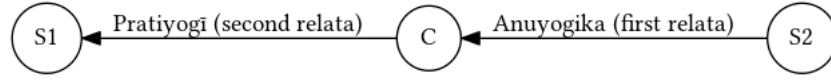


Figure 4.1: Discourse structure with single connective

If C is the connective connecting two sentences S1 and S2, the general structure is represented in figure 4.1.

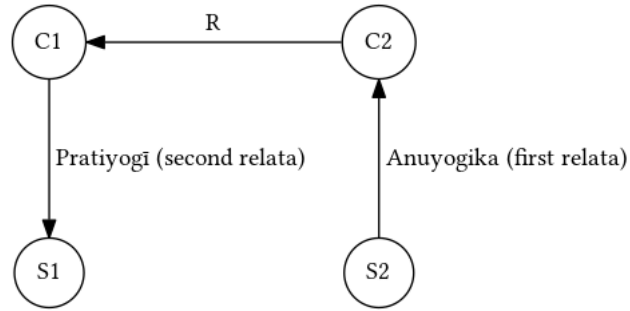


Figure 4.2: Discourse structure with paired connectives

When there are paired connectives C1 and C2 connecting S1 and S2, the relation between them is represented in figure 4.2. Here R binds C1 and C2.

4.1.2 Explicit Relations

1. **Samānakālah (simultaneity of time):** Yadā, tadā, yasmin kāle, tasmin kāle.

Example,

Sanskrit: Yadā meghaḥ varṣati tadā mayūraḥ nṛtyati.

Gloss: when cloud rains then peacock dance.

English: When it rains the peacock dances.

2. **Samānādhikaraṇatvam (colocation):** Yatra, tatra, yasmin, tasmin. Example,

Sanskrit: Yatra nāryastu pūjyante tatra devatāḥ ramante.

Gloss: where women worshipped there gods resides.

English: Where women are worshipped the god reside there.

3. **Hetuhetumadbhāvaḥ (cause effect relationship):** Yataḥ, tataḥ, yasmāt, tasmāt, ataḥ. Example,

Sanskrit: Yataḥ ayam samaye na āgataḥ

Gloss: because he in_time not came

Sanskrit: tataḥ parīkṣāyām na anumataḥ.

Gloss: hence in_exam not permitted.

English: Because he did not arrive in time, he was not permitted to write the exam.

4. **Asāphalyam (failure):** Kintu. Example,

Sanskrit: Gajendraḥ tīvram prayatnam_akarot

Gloss: Gajendra lot tried

Sanskrit: kintu nakragrahāt na muktaḥ.

Gloss: but from_crocodile_jaw not escape.

English: Gajendra tried a lot but could not escape from the jaw of the crocodile.

5. **Anantarakālīnatvam (following action):** Atha. Example,

Sanskrit: Prathamam ahaṁ śṛṇomi atha likhāmi.

Gloss: First I listen then write.

English: First I will listen and then will write.

6. **Kāraṇasatve'api kāryābhāvaḥ / kāraṇābhāve'api kāryotpattiḥ (non-productive effort or product without cause):** Yadyapi, tathāpi, athāpi. Example,

Sanskrit: Yadyapi ayam bahu prayāsaṁ kṛtavān

Gloss: Even-though he lot tried

Sanskrit: tathāpi parīkṣāyām tu anuttīrṇaḥ.

Gloss: still examination failed.

English: Even-though he tried very hard, still he failed in the examination.

7. **Pratibandhaḥ (conditional):** Yadi, tarhi, cet, tarhyeva. Example,

Sanskrit: Yadi bhavān icchati

Gloss: If you wish

Sanskrit: tarhi aham bhavataḥ grāham āgamiṣyāmi.

Gloss: then I your house will_come.

English: If you wish then I will come to your house.

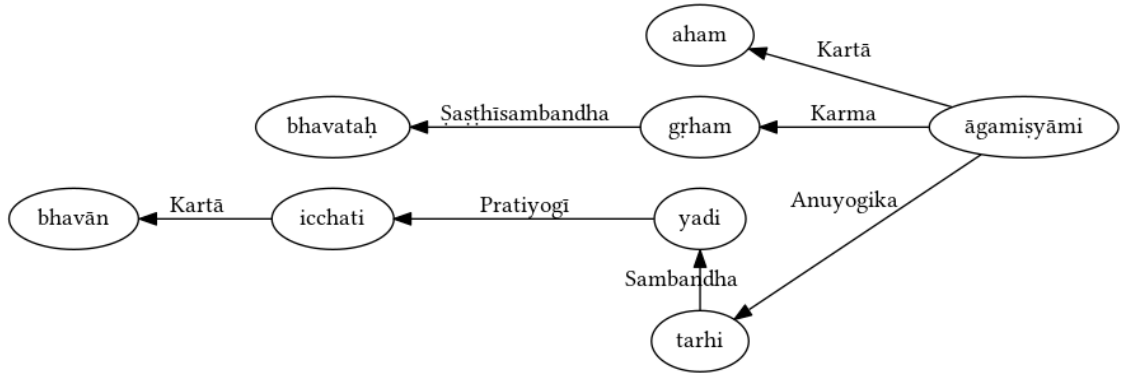


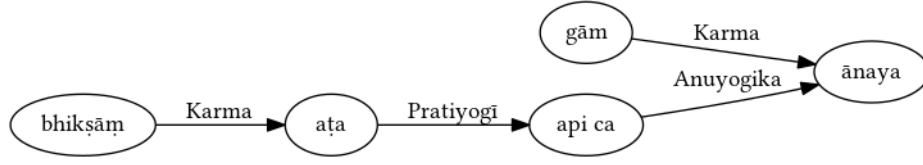
Figure 4.3: Structure of paired connectives *yadi-tarhi*

8. **Samuccayaḥ (conjunction):** Ca, apica, kiñca. Example,

Sanskrit: Bhikṣām aṭa apica gām ānaya.

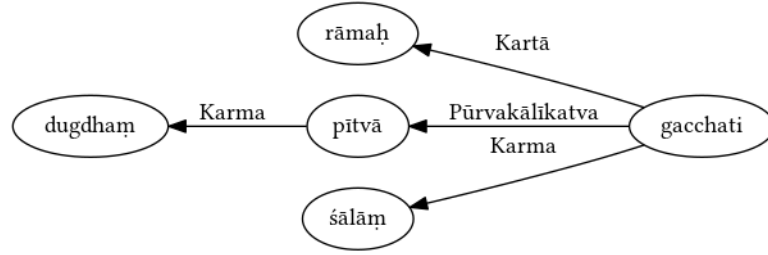
Gloss: alms ask and also cow bring.

English: Seek for alms and also bring cows.

Figure 4.4: Structure of single connective *apica*

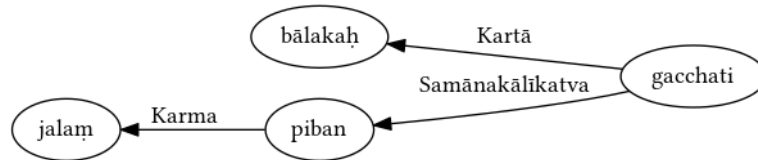
9. **Pūrvakālikatvam (precedence):** The non-finite verb form ending with suffix *ktvā* ‘adverbial participial’. The *ktvā* ending verb is related to main verb by the relation of *pūrvakālīnatvam*. Example,

Sanskrit: Rāmaḥ dugdham pītvā śālāṃ gacchati.
 Gloss: Rama milk after_drinking school goes.
 English: Ram goes to school after drinking milk.

Figure 4.5: Structure of *ktvā* suffix

10. **Samānakālikatvam (Simultaneity of two activities) :** The non-finite verb form ending with suffix *Śatr* and *Śānac* ‘present participle’. Example,

Sanskrit: Bālakaḥ jalam piban gacchati.
 Gloss: boy water drinking goes.
 English: The boy drinks water while going.

Figure 4.6: Structure of *śatr/śānac* suffix

11. **Prayojanam (purpose of the main activity):** The non-finite verb form ending with suffix *tumun* ‘to-infinitive’. Example,

Sanskrit: Aham bhavantam mama gr̥he bhoktum āhvayāmi.

Gloss: I you my in_house to_have_food invite.

English: I invite you to my house for lunch/dinner.

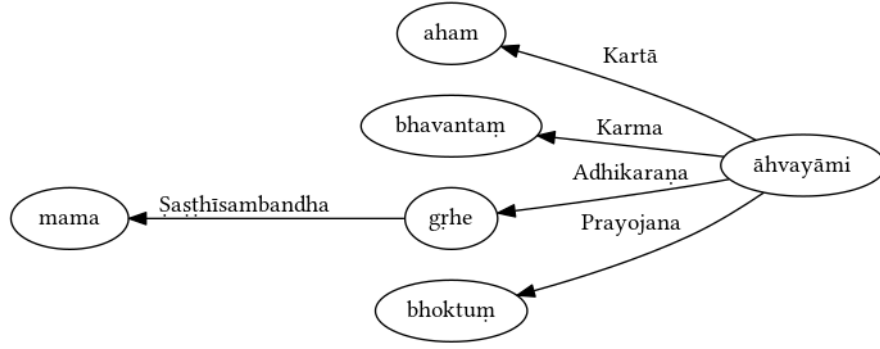


Figure 4.7: Structure of *tumun* suffix

The explicit connectives are underlined. In the case of single connectives the structure will be similar to figure 4.4. And the structure of paired connectives will be similar to figure 4.3.

In the case of paired connectives, instances of using either of the connectives or both are found. For example, some possible instances of the paired connective *yadi-tarhi* are given below,

1 Sanskrit: Yadi bhavān icchati

Gloss: If you wish

Sanskrit: tarhi aham bhavataḥ gr̥ham āgamiṣyāmi.

Gloss: then I your house will_come.

English: If you wish then I will come to your house.

- 2 Sanskrit: bhavān icchati
 Gloss: you wish
 Sanskrit: tarhi aham bhavataḥ gr̥ham āgamiṣyāmi.
 Gloss: then I your house will_come.
 English: You wish then I will come to your house.
- 3 Sanskrit: Yadi bhavān icchati
 Gloss: If you wish
 Sanskrit: aham bhavataḥ gr̥ham āgamiṣyāmi.
 Gloss: I your house will_come.
 English: If you wish I will come to your house.

4.1.3 Implicit Relations

Sentential connectives are not merely recognised through explicit connectives but there are some cases also where no discourse connectives found explicitly but the sentences are related through some connectives which need to be inferred. In this case a possible connective is inserted and the connective is called implicit connective. According to Speijer (1886), the omission or absence of a connective between parts of sentence happens because of the excitement of speaker.

Here are some examples of implicit connectives -

- *Astu evaṃ saḥ mahātmā vayaṃ (ca) kṛpaṇāḥ.* (Pañca. 26)
- *Na te doṣo ayaṃ (kintu) svāmino doṣo.* (ibid. 113)

- *Tasmin daśarathe gate tu vasiṣṭhapramukhaiḥ dvijaiḥ rājyāya niyuḥyamānaḥ mahābalaḥ bharataḥ rājyaṃ na aicchat (kintu) rāmapādaprasādakaḥ saḥ vīraḥ vanaṃ jagāma. (saṃ rā 33-34) ¹*
- *Ameyātmā saḥ mahātmānam rāmam abhigamya pradakṣiṇam (ca) kṛtvā sītā tatvataḥ dṛṣṭā iti nyavedayat. (ibid. 78) ²*
- *Janakasya kule jātā devamāyā iva nirmītā rāmasya dayitā nityaṃ prāṇasamā bhāryā sarvalakṣaṇasampannā nārīṇām uttamā vadhuḥ sītā api yathā śasīnaṃ rohiṇī (tathā) rāmaṃ anugatā. (ibid. 26-28) ³*
- *Purā śakram upasthāya urvī prati yāsyataḥ tava pathi surabhiḥ kalpatarucchāyām āśritā āsīt. (Tadā) dharmalopabhayāt ṛtusnātām imāṃ rājñīm smaran tvaṃ pradakṣiṇakriyārḥāyām tasyām sādhu na ācaraḥ. (raghu. 75-76) ⁴*
- *Atha ekadhenorḥ kṛśānupratimāt aparādhacaṇḍāt guroḥ bibheṣi, (tarhi) ghatodhniḥ koṭīśaḥ gāḥ sparśayatā bhavatā asya manyuḥ vinetuṃ śakyaḥ. (ibid. 49) ⁵*

¹This śloka is the part of anvaya of the original one.

Rājā daśarathaḥ svargaṃ jagāma vilapan sutam.
Gate tu tasmin bharato vasiṣṭhapramukhaiḥ. (saṃ rā 33)
Niyuḥyamāno rājyāya naicchadrājyaṃ mahābalaḥ.
Sa jagāma vanaṃ viro rāmapādaprasādakaḥ. (saṃ rā 34)

² So'bhigamya mahātmānam kṛtvā rāmaṃ pradakṣiṇam.
Nyavedadayameyātmā dṛṣṭā sīteti tatvataḥ. (ibid. 78)

³ Rāmasya dayitā bhāryā nityaṃ prāṇasamā hitā.
Janakasya kule jātā devamāyeva nirmītā.
Sarvalakṣaṇasampannā nārīṇām uttamā vadhuḥ.
Sītāpyanugatā rāmaṃ śasīnaṃ rohiṇī yathā. (ibid. 26-28)

⁴ Purā śakramupasthāya tavorvī prati yāsyataḥ.
Āsītkalpatarucchāyām āśritā surabhiḥ pathi.
Dharmalopabhayādrājñīm ṛtusnātām imāṃ smaran.
Pradakṣiṇakriyārḥāyām tasyām tvaṃ sādhu nācaraḥ. (raghu. 75-76)

⁵ Atha ekadhenoraparādhacaṇḍādguroḥ kṛśānupratimādbibheṣi.
Śakyo'sya manyurbhavatā vinetuṃ gāḥ koṭīśaḥ sparśayatā ghatodhniḥ. (ibid. 49)

- *Hi devadārau tava mahān yatnaḥ (ataḥ) paravān bhavān api idam avaiti (yat) rakṣyaṃ vināśya svayaṃ akṣatena niyoktuḥ agre sthātum hi na śakyam.* (ibid. 56) ⁶

In these examples the implicit connectives are shown within brackets.

4.1.4 Argument Structure

Sanskrit being a free word order language, there is no specific order for the connectives. However the order between the arguments and the connectives is still well defined. The possible orders of connectives and the arguments in case of single connectives are given below,

- Arg1 Arg2 (con).
(Aham bhavataḥ gr̥ham āgamiṣyāmi)^{arg1} (bhavān icchati)^{arg2} cet^{con}.
- Arg1 (con) Arg2.
(Prathamam aham śṛṇomi)^{arg1} atha^{con} (likhāmi)^{arg2}.
- (con) Arg1 Arg2.
Yadi^{con} (bhavān icchati)^{arg1} (aham bhavataḥ gr̥ham āgamiṣyāmi)^{arg2}.

Arg1 and *Arg2* refers to the first and second sentences and *con* is for the connective. From the above examples it is clear that the connective may appear at the beginning of first sentence, at the end of second sentence or between two sentences.

In case of paired connectives the following orders are possible,

⁶ Bhavānapidaṃ paravānavaiti mahānhi yatnastava devadārau.
Sthātum niyokturna hi śakyamagre vināśya rakṣyaṃ svayamakṣatena. (ibid. 56)

- (con1) Arg1 (con2) Arg2.

Yadi^{con1} (bhavān icchati)^{arg1} tarhi^{con2} (aham bhavataḥ gr̥ham āgamiṣyāmi)^{arg2}.

- (con2) Arg2 (con1) Arg1.

Tadā^{con2} (mayūraḥ nṛtyati)^{arg2} yadā^{con1} (meghaḥ varṣati)^{arg1}.

Arg1 and Arg2 stand for arguments and con1 and con2 represents connectives.

Further either of con1 and con2 can be absent. Hence we can have sentence constructions like -

- Arg1 (con2) Arg2.

(Bhavān icchati)^{arg1} tarhi^{con2} (aham bhavataḥ gr̥ham āgamiṣyāmi)^{arg2}.

- Arg2 (con1) Arg1.

(Aham bhavataḥ gr̥ham āgamiṣyāmi)^{arg2} yadi^{con1} (bhavān icchati)^{arg1}.

- (con1) Arg1 Arg2.

Yadi^{con1} (bhavān icchati)^{arg1} (aham bhavataḥ gr̥ham āgamiṣyāmi)^{arg2}.

4.2 Penn Discourse Treebank

There have been several efforts taken towards discourse analysis in computational linguistics. The major effort is the proposal of discourse tag-set by Joshi et al. (2006) in the form of Penn Discourse Treebank (PDTB). The annotation scheme is originally developed for English. The original goal of Penn Discourse Treebank (PDTB) is to annotate the million word Wall Street Journal corpus in the Penn Treebank, in which discourse

connectives are annotated along with their arguments. PDTB focuses on encoding discourse relations. It has annotated the argument structure, senses and attribution of discourse connectives. In PDTB discourse connectives are seen as discourse predicates taking two and only two text spans as arguments and they are marked as Arg1 and Arg2. There are two types of discourse relations in PDTB - explicit and implicit.

4.2.1 Explicit Connectives

Explicit connectives are words or group of words which serve as connectives and can explicitly be identified in a sentence.

1. Identification of explicit connectives from grammatical classes.

- Subordinating conjunctions: Because, when, since, although. For example,
*The federal government suspended sales of U. S. savings bonds because Congress has not lifted the ceiling on government debt.*⁷
- Coordinating conjunctions: And, or, nor, but. For example,
*The House has voted to raise the ceiling to \$3.1 trillion, but the Senate isn't expected to act until next week at the earliest.*⁸
- Adverbials: However, otherwise. For example,
*Working Woman, with circulation near one million, and Working Mother, with 625,000 circulation, are legitimate magazine success stories. The magazine success, however, was for years lackluster and unfocused.*⁹

2. Modified connectives: Connectives occurring with adverbs such as only, even, at least etc. are marked as modified connectives with the connective as head and

⁷The Penn Discourse Treebank 2.0 Annotation Manual, The PDTB Research Group, 2007, p 8

⁸ibid, p. 8

⁹ibid, p. 8

the adverb as modifier. For example,

*You can do all this (even) if you are not a reporter or a researcher or a scholar or a member of Congress.*¹⁰

3. Parallel connectives: Pairs of connectives where one part presupposes the presence of the other, and where both together take the same two arguments. For example,

*If the answers to these questions are affirmative, then institutional investors are likely to be favorably disposed toward a specific poison pill.*¹¹

4. Conjoined connectives: Conjoined connectives like when and if and if and when are treated as complex connectives. For example,

*When and if the trust runs out of cash – which seems increasingly likely – it will need to convert its Manville stock to cash.*¹²

4.2.2 Implicit Connectives

Discourse relations are not always realised through explicit connectives, but sometimes are left to be inferred by the reader. Such inferred relations are annotated by inserting an implicit connective that best expresses the inferred relation. For example,

Several leveraged funds don't want to cut the amount they borrow because it would slash the income they pay shareholders, fund officials said. But a few funds have taken other defensive steps. *Some have raised their cash positions to record levels.* Implicit = BECAUSE High cash positions help buffer a fund when the market falls.¹³

¹⁰ibid, p. 9

¹¹ibid, p. 10

¹²ibid, p. 10

¹³ibid, p. 17

There are three distinct pre-defined labels where implicit connectives could not be provided.

- **AltLex**: Where a discourse relation is inferred, but insertion of an implicit connective leads to redundancy in the expression of the relation due to relation being alternatively lexicalized by some other expression. For example,
And she further stunned her listeners by revealing her secret garden design method: Commissioning a friend to spend “five or six thousand dollars . . . on books that I ultimately cut up.” AltLex [After that], the layout had been easy.¹⁴
- **EntRel**: Where an entity based coherence relation could be perceived between the sentences. For example,
Hale Milgrim, 41 years old, senior vice president, marketing at Elecktra Entertainment Inc., was named president of Capitol Records Inc., a unit of this entertainment concern. EntRel Mr. Milgrim succeeds David Berman, who resigned last month.¹⁵
- **NoRel**: Where neither a discourse relation nor entity based coherence relation can be inferred between the adjacent sentences. For example,
Jacobs Engineering Group Inc.’s Jacobs International unit was selected to design and build a microcomputer-systems manufacturing plant in County Kildare, Ireland, for Intel Corp. *Jacobs is an international engineering and construction concern.* NoRel Total capital investment at the site could be as much as \$400 million, according to Intel.¹⁶

¹⁴ibid, p. 22

¹⁵ibid, p. 23

¹⁶ibid, p. 25

4.2.3 Argument Structure

Structure of Explicit Connectives

Arguments are simply labelled as Arg1 and Arg2 in PDTB. Connectives are labelled as Conn. Arg2, is syntactically bound to the connective and Arg1, is the other argument. Supplements to Arg1 and Arg2, called as Sup1 and Sup2. Sup1 for material supplementary to Arg1. Sup2, for material supplementary to Arg2.

The possible orders of connectives and their arguments are:

- Arg1 Conn Arg2

*The federal government suspended sales of U.S. savings bonds because Congress has not lifted the ceiling on government debt.*¹⁷

- Conn Arg2 Arg1

*Because it operates on a fiscal year, Bear Stearns's yearly filings are available much earlier than those of other firms.*¹⁸

- Arg2 Conn Arg1 Arg2.

*Most oil companies, when they set exploration and production budgets for this year, forecast revenue of \$15 for each barrel of crude produced.*¹⁹

From above it is clear that connectives and their arguments can appear in any relative order. Arg2 may appear between discontinuous parts of Arg1. There is no restriction on how far an argument can be from its corresponding connective.

¹⁷ibid, p. 10

¹⁸ibid, p. 11

¹⁹ibid, p. 11

Structure of Implicit Connectives

Implicit connectives are annotated by first selecting the first character of Arg2 as the textual span for the implicit connective, then selecting the text spans for Arg1 and Arg2 of the relation, and finally providing a word or phrase to express the relation. In the case of AltLex, instead of providing a word/phrase, the text span in Arg2 expressing the relation is selected and marked. EntRel and NoRel annotations only involve selection of the first character of Arg2 as the placeholder for the relation and then selection of the adjacent sentences as Arg1 and Arg2.

An implicit relation can be annotated between a parenthetical sentence and the sentence outside the parentheses that precedes it.

4.2.4 Sense

Joshi et al. (2007) provides sense tags for both explicit and implicit connectives and AltLex relations. No senses are provided for EntRel and NoRel. There might have more than one sense for each. The purpose of sense annotation is to tag the correct sense. Sense tags provide a semantic description of the relation between the arguments of connectives. The tag set of senses is organised hierarchically²⁰ as shown in figure 4.8.

Temporal The connective indicates that the situations described in the arguments are related temporally.

- Asynchronous: when the connective indicates that the situations described in the two arguments are temporally ordered.

²⁰ibid, p. 26-37

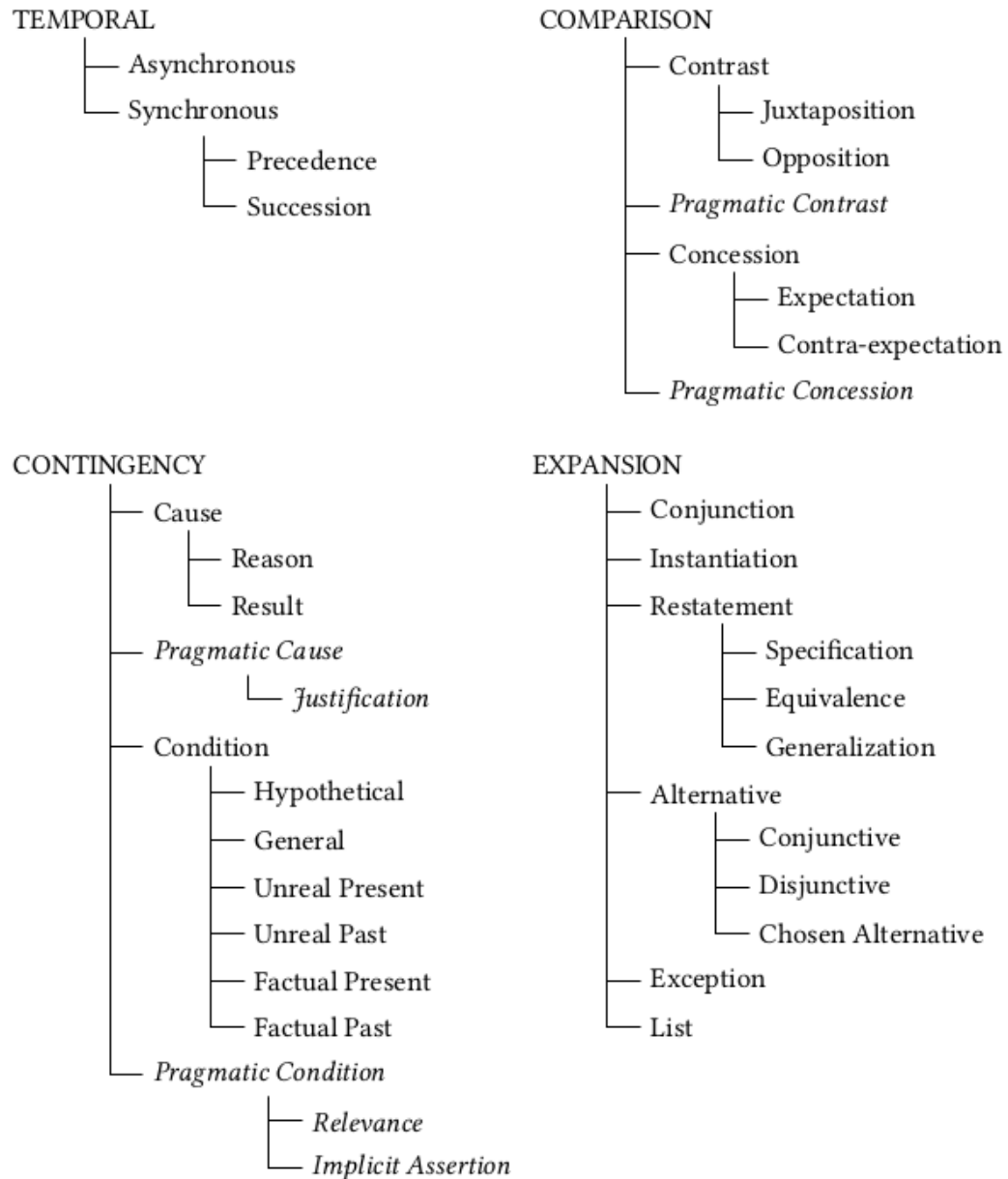


Figure 4.8: Hierarchy of sense tags

- Precedence: when the connective indicates that the situation in Arg1 precedes the situation described in Arg2.
- Succession: when the connective indicates that the situation described in

Arg1 follows the situation described in Arg2.

- Synchronous: when the connective indicates that the situations described in Arg1 and Arg2 overlap.

Contingency The connective indicates that one of the situations described in Arg1 and Arg2 causally influences the other.

- Cause: when the connective indicates that the situations described in Arg1 and Arg2 are causally influenced and the two are not in a conditional relation.
 - Reason: when the connective indicates that the situation described in Arg2 is the cause and the situation described in Arg1 is the effect.
 - Result: when the connective indicates that the situation in Arg2 is the effect brought about by the situation described in Arg1.
- Pragmatic cause:
 - Justification: when the connective indicates that Arg1 expresses a claim and Arg2 provides justification for this claim.
- Condition: used to describe all sub-types of conditional relations. It allows some basic inferences about the semantic contribution of the arguments.
 - Hypothetical: if Arg2 holds true, Arg1 is caused to hold at some instant in all possible futures. However, Arg1 can be true in the future independently of Arg2.
 - General: describes either a generic truth about the world or a statement that describes a regular outcome every time the condition holds true.

- Factual present: when the connective indicates that Arg2 is a situation that has either been presented as a fact in the prior discourse or is believed by somebody other than the speaker/writer.
- Factual past: Arg2 describes a situation that is assumed to have taken place at a time in the past.
- Unreal present: when the connective indicates that Arg2 describes a condition that either does not hold at present.
- Unreal past: when the connective indicates that Arg2 describes a situation that did not occur in the past and Arg1 expresses what the consequence would have been if it had.
- Pragmatic cognition: is used for instances of conditional constructions whose interpretation deviates from that of the semantics of condition.
 - Relevance: conditional (Arg2) provides the context in which the description of the situation in Arg1 is relevant.
 - Implicit assertion: applies in special rhetorical uses of if-constructions when the interpretation of the conditional construction is an implicit assertion.

Comparison The connective indicates that a discourse relation is established between Arg1 and Arg2 in order to highlight prominent differences between the two situations.

- Contrast: when the connective indicates that Arg1 and Arg2 share a predicate or property and a difference is highlighted with respect to the values assigned to the shared property.
 - Juxtaposition: when the connective indicates that the values assigned to some shared property are taken to be alternative.

- Opposition: when the connective indicates that the values assigned to some shared property are the extremes of a gradable scale.
- Pragmatic contrast: when the connective indicates a contrast between one of the arguments and an inference that can be drawn from the other, in many cases at the speech act level: The contrast is not between the situations described in Arg1 and Arg2.
- Concession: when the connective indicates that one of the arguments describes a situation A which causes C, while the other asserts (or implies) $\neg C$. Alternatively, one argument denotes a fact that triggers a set of potential consequences, while the other denies one or more of them.
- Pragmatic concession

Expansion It covers those relations which expand the discourse and move its narrative or exposition forward.

- Instantiation: when the connective indicates that Arg1 evokes a set and Arg2 describes it in further detail.
- Restatement: when it indicates that the semantics of Arg2 restates the semantics of Arg1. It is inferred that the situations described in Arg1 and Arg2 hold true at the same time.
 - Specification: when Arg2 describes the situation described in Arg1 in more detail.
 - Generalization: when the connective indicates that Arg2 summarizes Arg1, or in some cases expresses a conclusion based on Arg1.

- Equivalence: when the connective indicates that Arg1 and Arg2 describe the same situation from different perspectives.
- Alternative: when the connective indicates that its two arguments denote alternative situations.
 - Conjunctive: when the connective indicates that both alternatives hold or are possible.
 - Disjunctive: when two situations are evoked in the discourse but only one of them holds.
 - Chosen Alternative: when the connective indicates that two alternatives are evoked in the discourse but only one is taken.
- Exception: when the connective indicates that Arg2 specifies an exception to the generalization specified by Arg1.
- Conjunction: when the connective indicates that the situation described in Arg2 provides additional, discourse new, information that is related to the situation described in Arg1.
- List: when Arg1 and Arg2 are members of a list, defined in the prior discourse.

4.2.5 Attribution

The relation of attribution is a relation of ownership between abstract objects and individuals or agents. Joshi et al. (2007) notes that discourse relation may hold either between the attributions themselves or only between the abstract object arguments of the attribution. Example,

When Mr. Green won a \$240,000 verdict in a land condemnation case against the state in June 1983, **he says** Judge O’Kicki unexpectedly awarded him an additional \$100,000. Here the temporal relation denoted by *when* is expressed between the eventuality of *Mr. Green winning the verdict* and *the Judge giving him an additional award*.

4.3 Comparison between Sanskrit Tagging Scheme and Penn Discourse Treebank

Computational discourse theories discussed in the West are reviewed in chapter 3. From the discussion it is clear that most of the western computational discourse theories concentrate on various aspects of discourse. Penn Discourse Treebank tagging scheme is found very close to Sanskrit tagging scheme. Both of the tagging schemes have common topic of discussion as they both concentrate on inter-sentential connectives, relations, their argument and senses.

We have done a close comparison between them. The available Sanskrit tagging scheme does not have any guideline for marking implicit relations. The comparison made is only between the explicit relations in both and their arguments and senses. Table 4.1 shows that explicit relations found through some lexical cues are present in both tagging schemes.

Explicit Discourse Connectives in PDTB	Inter-sentential Discourse Connectives for Sanskrit
Subordinating conjunctions (<i>because, when, since, although</i>)	Hetuhetumadbhāvaḥ (<i>yataḥ, tataḥ, yasmāt, tasmāt, ataḥ</i>)
Coordinating conjunctions (<i>and, or, nor, but</i>)	Asāphalyam, anantarakālinatvam, samuccayaḥ (<i>kintu, atha, api ca, kiñca</i>)

Adverbials, modified connectives (<i>how-ever, otherwise, then, as a result, (partly) because, (even) if</i>)	Some pronominal adverbs (<i>yatra, tatra, yataḥ, tataḥ, yathā, tathā, yadā, tadā, yadyapi, tathāpi</i>)
Parallel connectives (<i>on the one hand, on the other hand, either, or</i>)	Samānakālaḥ, samānādhikaraṇatvam, pratibandhaḥ, kāraṇasatve'pi kāryābhāvaḥ (<i>yasmin kāle-tasmin kāle, yadā-tadā, yatra-tatra, yasmin-tasmin, yadi-tarhi, yadyapi, tathāpi</i>)
Conjoined connectives (<i>if and when</i>)	<i>yadi cet</i>

Table 4.1: Comparison between PDTB and Sanskrit Tag sets

In the case of both subordinating conjunction and *hetu hetumadbhāvaḥ*, the lexical cues are essential parts of complex sentences which include at least two clauses, with one of the clauses being independent and the other being dependent. Lexical cues of these tags are used to emphasis the idea in the main clause. Hence, both of them fall under same grammatical category.

While comparing coordinating conjunctions with the corresponding Sanskrit tags, *asāphalyam, anantarakālīnatvam* and *samuccayaḥ* came under the same grammatical category. In both the lexical cues joins two or more sentences. Lexical cues of these tags are used to emphasis two main clauses.

According to the comparison in Sanskrit tagging scheme some of the pronominal adverbs falls under the adverbials and modified connectives in PDTB. (Speijer, 1886) describes that pronominal adverbs are formed by the addition of adverbial suffixes to pronominal roots.

1. The suffix *tas* makes adverbs having an ablative sense like, *tatas*, *yatas*, *atas* and their forms like, *yataḥ*, *tataḥ*, *yasmāt*, *tasmāt*, *ataḥ*.
2. The suffix *tra* makes adverbs having a locative sense like, *yatra*, *tatra*.
3. The suffix *thā* makes adverbs of manner like, *yathā*, *tathā*.
4. The suffix *dā* makes adverbs having a time sense like, *yadā*, *tadā*.

Parallel connectives and *samānakālīnatvam*, *samānādhikaraṇatvam*, *pratibandhaḥ*, *kāraṇasatve'pi kāryābhāvaḥ*, shares the same grammatical rules. Parallel connective, viz. pairs of connectives where one part presupposes the presence of the other, and where both together take the same two arguments. The tags under pronominal adverbs are also parallel connectives.

Conjoined connectives may be compared to the constructions like, *yadi cet*. With 'yadi', 'cet' being added redundantly. For example, *yadi cet syāt* (if it should be).²¹

The argument structure in both tagging schemes does not impose any specific word order. While the arguments can appear in any order, the argument with which the connector is associated determines whether it is the first or the second argument.

PDTB discusses about the senses of each lexical cue and attributions of each lexical cue separately. While in Sanskrit tagging scheme the senses are found in the tags itself, so there is no need to discuss about senses separately. For example,

- In the tag *hetuhetumadbhāvaḥ*, *hetu* means *cause* and *hetumad* means *effect*, which means the cause effect relationship. The tag name *subordinating conjunction* of

²¹<http://sanskrit.inria.fr/MW/210.html>

PDTB itself does not make any sense. It only refers to the lexical cues that introduces the subordinate clause. But in Sanskrit each lexical cue have the same sense as their respective tag. For example,

Sanskrit: Yataḥ ayam samaye na āgataḥ tataḥ parīkṣāyām na anumataḥ

English: Because he did not arrive in time, he was not permitted to write the exam.

Yataḥ (because) always contains a sense of cause and ataḥ or tataḥ (hence) always contains a sense of the effect or result of the cause. In the example, the sentence with yataḥ presents a cause viz. **he did not arrive in time** and the sentence with tataḥ presents the effect of the first sentence, viz. **he was not permitted to write the exam.**

- The tag *asāphalyam*, which means non fulfilment of expected activity. The tag name *coordinating conjunction* itself does not make any sense. The lexical cue *kintu*, make sense of non fulfilment of expected activity and failure. For example,

Sanskrit: Gajendraḥ tīvram prayatnam_akarot kintu nakragrahāt na muktaḥ.

English: Gajendra tried a lot but could not escape from the jaw of the crocodile.

In this example, the connective *kintu* represents the failure viz. **could not escape from the jaw of the crocodile.**

- The tag *anantarakālīnatvam*, which means following action. The tag name *coordinating conjunction* in PDTB does not make any sense except joining two or more words, phrases and sentences. The connective *atha* does not only connects two sentences but the connective itself represents the sense of a following action. For example,

Sanskrit: Prathamam ahaṃ śṛṇomi atha likhāmi.

English: First I will listen and then will write.

Here **listening is followed by writing** expressed through the connective *atha*.

- The lexical cues for the tag *sammucayaḥ*, which means conjunction are *ca* and *api ca*. *Ca* can connect words and verbs. It joins a subordinate fact with a principle one. *Api ca* used to express emphasis, in the sense of even, also. For example,

Sanskrit: Bhikṣām aṭa apica gāṃ ānaya.

English: Seek for alms and also bring cows.

In this example *api ca* used to emphasize both of the activities viz. **seek for alms** and also **bring cows**.

- The tag *samānakālaḥ* expresses the sense of simultaneity of time. In PDTB, the tag parallel connective only express the meaning that connectives are coming in pairs and both together takes the same two arguments. The lexical cues in Sanskrit Tagging Scheme are *yadā–tadā*, *yasmin kāle–tasmin kāle*. These lexical cues contains the sense of simultaneity of time. For example,

Sanskrit: Yadā meghaḥ varṣati tadā mayūraḥ nṛtyati.

English: When it rains the peacock dances.

This example shows how *yadā* and *tadā* expresses simultaneity in time between two different activities viz. **when it rains at the same time** peacock dances.

- The tag *samānādhikaraṇatvam* expresses the sense of co-location. Lexical cue is *yatra–tatra*. For example,

Sanskrit: Yatra nāryastu pūjyante tatra devatāḥ ramante.

English: Where women are worshipped there the god reside.

This example show how *yatra* and *tatra* expresses two activities occurs in the same location viz. **the place where** women are worshipped **in the same place** god resides.

- Lexical cues for tag *pratibandhaḥ*, which means conditional, is *yadi–tarhi* (if–then). This express the sense of condition. This tag fall in the same grammatical category with parallel connectives of PDTB. But as discussed the tag parallel connective does not have the sense of condition, simultaneity of time and co-location etc. But Sanskrit tags have the same sense as their lexical cues. For example,

Sanskrit: Yadi bhavān icchati tarhi aham bhavataḥ gr̥ham āgamiṣyāmi.

English: If you wish then I will come to your house.

In this sentence *yadi–tarhi* together express the sense of condition.

- The tag *kāraṇasatve’api kāryābhāvaḥ / kāraṇābhāve’api kāryotpattiḥ* says about non-productive effort or product without cause. Lexical cue is *yadyapi–tathāpi* (even though–still). It expresses the sense of non-productive effort or product without cause. This tag is similar to parallel connectives in PDTB. For example,

Sanskrit: Yadyapi ayaṁ bahu prayāsaṁ kṛtavān tathāpi parīkṣāyām tu anuttīrṇaḥ.

English: Even-though he tried very hard, still he failed in the examination.

In the example *yadyapi–tathāpi* together expresses non-productive effort viz. **he tried very hard, he failed in the examination.**

The lexical cues and their senses are not limited to the above discussion. Each lexical cue contains more than one sense. Some of our traditional śāstras discuss the senses of almost all lexical cues. Srivatsankacarya (2004) and Speijer (1886) list out some of the inter-sentential connectives and their senses.

Connective	Meaning/Sense
atha	- to annex a new sentence - shows change in the subject/action - indicates temporal meaning

	- shows two contrasting ideas - sometimes used to start some auspicious work - to show the immediate sequence - to introduce new topic
athavā	- indeed - used to correct one's self
api	- and, too, moreover, also, even, though - shows conjunction
ca	- and - shows the copulation - shows an another side of an argument - to complete a verse
api ca/tathā ca	- add something to what has been said
vā	- or - shows the disjunction like <i>yadivā and athavā</i> - shows alternate - shows similarity - just added to complete a verse
na/na ca/na vā/ na tu/na hi/nāpi	- shows the negation - connects negative sentences
hi	- for, because, since - annex sentences containing motive, reason, cause
kim ca/aparam ca/ anyacca	- further, moreover - shows the importance of what is added - shows the conjunction of more than one event - shows the intermediate

tu/param tu/kintu	- but - shows the doubt upon what is said previously - shows the contradiction - shows antithesis - shows similarity - introduces a slightly different idea or modification or correction of what has been said before - shows the exact opposite of a situation
yathā	- to express the comparison - sometimes acts as causal particle - serves to paraphrase the object of knowing, saying, declaring etc. - points to the result - also consequence and purpose of aim - shows capability - shows repetition - shows example - in which manner or way
tathā	- so, likewise, and, too - added with yathā it shows the comparison - shows promise or agreement - shows example
tadyathā	- is for instance
yat	- for - shows the cause or motivation or intention or circumstance

	- to paraphrase a fact - to paraphrase the object of knowing, saying, declaring - to introduce a new sentence
yataḥ	- for - shows the cause or motivation or intention - denote material cause - to paraphrase the object of knowing, saying, declaring - shows an another view
yasmāt	- for - shows the cause or motivation or intention - denote material cause
yena	- to express purpose or intention
yatra	- shows the colocation when added with tatra
tat/tasmāt /tataḥ/ataḥ/tarhi	- therefore, hence, for this reason - shows the conclusion - tataḥ is also to subjoin what is subsequent in time - tat also added to make inference
tu/param tu/kintu/ param/punaḥ	- on the other hand, again, but, yet - shows antithesis
yadyapi	- though, although
tathāpi	- nevertheless, however, yet
yadā/tadā	- when/then - are temporal conjunctions. Hence they shows the simultaneity of time
yāvat	- as long as, while, until - says to time

	- also a conjunction of manners like as far as, in so much as
tāvat	- added with yāvat and shows the simultaneity of the two actions - shows the combination of equal qualities - shows manner or humanity - shows the sequence - shows the scope or period
yadi	- if - shows some supposition - shows some choices or options - puts some condition
tarhi	then - at that time or moment or in that case - correlative of yadi
yadi cet	- being added redundantly

Table 4.2: Lexical cues and their senses

At the time of comparison, neither Sanskrit parser that handles the connectives nor sense tagged data was available. Therefore no further comparison could be done.

In this chapter we have reviewed and compared PDTB and Sanskrit Tagging Scheme. Both schemes were presented in detail with examples, their argument structure and sense. We have shown the representation method at inter-sentential level for Sanskrit in order to show the necessity of separate tagging scheme to annotate Sanskrit texts at inter-sentential level.

Chapter 5

Topic Level Discourse Analysis

Among the four types of coherence levels discussed in Indian literature, *adhikaraṇa saṅgati* (topic level coherence) is the most important one. *Adhikaraṇa saṅgati* deals with the inter-relations of the topics. Each *adhikaraṇa* contains one or more *sūtras*, pertaining to a topic, which are examined, analysed and given a conclusive verdict upon. Topic level discourse structure is discussed in *Mīmāṃsā Sūtra*.

Chattopadhyay (1992, p. 4) names five aspects of *adhikaraṇa* in the śloka below. Though five aspects may not always be present clearly in every *adhikaraṇa*.

Viśayaḥ saṁśayaścaiva vicāro nirṇayastathā

Prayojanena sahitam etat syād aṅga pañcakam.

It means, typically an *adhikaraṇa* consists of, the topic (*viśaya*), doubts (*saṁśaya*), discussions/arguments (*vicāra*), conclusion (*nirṇaya*) and the purpose (*prayojanam*).

Naiyāyika-s discussed about six topic level relations (Sastri, 1916). Six kinds of relevance discussed by the naiyāyika Rāmarudra are listed in Vattanky (2003, p. 3), as follows -

Saprasaṅga upodghāto hetutāvasarastathā
Nirvāhakaikyaṃ kāryaikyaṃ śodhā saṅgatiṣyate.

1. Prasaṅga - corollary
2. Upodghāta - introduction
3. Hetutā - causal dependence
4. Avasara - opportunity
5. Nirvāhakaikya - having the same cause
6. Kāryaikya - having the same effect

Examining a few texts like *Tarkasaṃgraha* and *Mahābhāṣya*, we noticed that these texts are structured with the topic level saṅgatis of naiyāyikas. Hence in what follows, we describe these saṅgatis with examples from *Tarkasaṃgraha*. Later we examine the structure of *Mahābhāṣya* from this perspective.

Prasaṅga It means corollary or related. This relation links those texts which are related but not necessarily in sequence. It is described as, *smṛtasya upekṣānarhatvam* (Vattanky, 2003, p.69). *Prasaṅga* is that which is remembered and cannot be left unmentioned.

For example, while talking about *ekārthībhāva* (single integrated meaning) in *samarthāhnikā* of *Mahābhāṣya* the next topic which is coming by *prasaṅga saṅgati* is the properties of *ekārthībhāva*. In this case while discussing the single integrated meaning we cannot simply ignore and jump to the next topic viz., *vyapekṣā* (the second meaning of *samartha*).

Upodghāta It means the pre-requisite. This is an introduction and this links the introductory part of any text to its respective explanatory part of the text. It is described as, *prakṛtopapādakam upodghātaḥ* (Vattanky, 2003, p. 3). It means that while discussing a topic, we need to introduce all topics that are pre-requisite for the proper understanding of the present topic.

For example, *anumāna* is defined as *parāmarśajanya jñānam anumitiḥ*. In order to understand the *anumāna* (inference) properly one should know what is *parāmarśa* (consideration) and how it is the cause for *anumāna*. Hence, *parāmarśa* is treated as *upodghāta*.

Hetutā This is a cause effect relationship. Hetutā means causeness. Among the four testimonies of Nyāya philosophy, *anumāna* can be taken as an example. *Anumiti* (inferential knowledge) is the cause of *anumāna*. So there is a cause and effect relation between them. *Anumiti* is the effect and *anumāna* is the cause. Here the first knowledge is the cause for the second knowledge.

For example, for the effect *fire in hill*, the cause may be *because of smoke*. Now if we are talking about the cause then there must be a curiosity about the effect. Likewise, if one is talking about the effect then there must be a curiosity about the cause.

Avasara It provides an opportunity for further inquiry. It is described as, *pratibandhakībhūtajijñāsānivṛttau avaśyavaktavyatvam* (Vattanky, 2003, p.3). It means when the hindrance in the form of desire to know has been removed what is necessary to be treated next is an occasion. Here order is the main factor.

For example, four testimonies are described in Nyāya philosophy viz. *pratyakṣa* (perception), *anumāna* (inference), *upamāna* (comparison) and *śabda* (verbal testimony),

which are the source of valid knowledge. First *pratyakṣa* (perception) has been discussed. After this the question would be: what is the other factor? or what is to be stated after this as the source of valid knowledge? Then comes *anumāna*. Also, since *anumāna* depends on the *pratyakṣa*, without explaining *pratyakṣa*, one can not go to *anumāna*. Likewise *pratyakṣa* gives a way for further discussions about *anumāna*. After discussing *anumāna* (inference), the curiosity is to know about what should be the next as the source of valid knowledge. The order thus depends on the dependability of the concepts on previous concepts, and this decides the order of the concepts to be discussed. Thus the order of discussion is to take the topics in the order in which they are enumerated. The previous topic gives an *avasara* or an opportunity to the next one. Hence, *anumāna*, *upamāna* and *śabda* are related to *pratyakṣa* with *avasara*.

Nirvāhakaikya It means different effects having the same cause. If one cause produces two or more effects and one effect is treated after the other by the relevance of having the same cause.

For example, in cooking, *softening of rice* and *changing the colour*, are two effects of the same cause viz. *cooking*. Hence, both effects are related to the cause with *nirvāhakaikya* relation.

Kāryaikya This means different causes having the same effect. It occurs when two causes together produce one and the same effect.

For example, *vyāpti* (pervasion) and *pakṣadharmatā* (knowledge of the subject) are the causal conditions for *anumāna*. Thus, they are related to *anumāna* with the *kāryaikya* relation.

We illustrate how these coherence relations help in understanding the structure of a text with the help of one example from *Tarkasaṃgraha*. Figure 5.1 shows the order in which various topics are introduced and the relations between these topics.

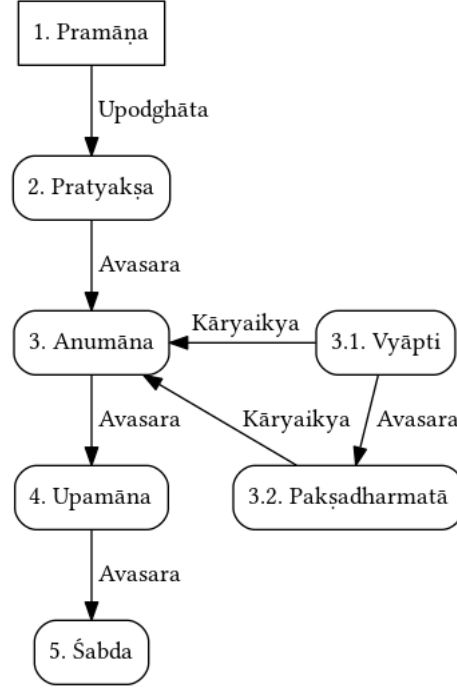


Figure 5.1: Topic level analysis of four pramāṇa-s

Pratyakṣa has *upodghāta* relation with *pramāṇa*. *Pratyakṣa* is the first *pramāṇa* which is going to be introduced, so the link between introductory and explanatory is *upodghāta*. After explaining *pratyakṣya pramāṇa* there is a opportunity for *anumāna pramāṇa*. The second one, *anumāna* cannot be treated before the first one, *pratyakṣa*. The reason is that the desire to know the first topic is the hindrance to the treatment of the second. Hence, when the desire to know the first topic is fulfilled, then naturally the second topic is taken up. Likewise, *upamāna* and *śabda pramāṇa*-s are treated as *avasara*. There are two nodes from *anumāna*, *vyāpti* and *pakṣadharmatā*. *Vyāpti* and *pakṣadharmatā* have the same effect, that is *anumāna*. Hence both of them are related with *anumāna* through *kāryaikya*.

5.1 Topic Level Analysis of Mahābhāṣya: A Case Study

Pāṇini's *Aṣṭādhyāyī* (circa 500 BC) is an important milestone in the developmental history of Indian theories of language analysis. *Aṣṭādhyāyī* is in sūtra¹ (compact aphorism) form and hence to understand it one needs an explanation or commentary. Patañjali's work is a monumental work in the tradition of *pāṇinian* grammar. *Patañjali* wrote a detailed commentary on *Aṣṭādhyāyī* known as *Mahābhāṣya* (the great/large commentary).

5.1.1 Mahābhāṣya

Mahābhāṣya is the oldest commentary on Pāṇini's grammar, which comments on 1228 sūtras of Pāṇini in *Aṣṭādhyāyī*'s order. It is written in a very unique style. It is a bulky work, explaining, and sometimes correcting Pāṇini's sūtras. It supports Pāṇini where Kātyāyana finds fault with him; while on other occasions it agrees with the Kātyāyana as against Pāṇini. (Bhattacharya and Sarkar, 2004a, p.831)

In the history of Indian literature the text of *Mahābhāṣya* became an important frontier. This is just not only a plain commentary on sūtras but it discusses more general linguistic and philosophical issues about -

- Śabda and artha
- Primary meaning of a word

¹Sutra is defined as

Alpākṣaram asandigdham sāravat viśvato mukham.
Astobham anavadyam ca sūtram sūtravido viduḥ.

A sūtra contains minimum number of words, is unambiguous, contains the essence of the topic, has universal validity and is devoid of any faults.

- Sphoṭa
- Purpose of learning grammar

Datta (1988, p.1491) notes that *Mahābhāṣya* has set a model of exegetical writings. It is written in a lively conversational style. Patañjali often mentions matters from everyday life and hints at the social conditions of his time, which make his work more interesting and valuable. *Mahābhāṣya* is accepted as the earliest philosophical work of the grammarians.

Basically *Mahābhāṣya* is a series of dialogues between teacher and students, where by raising questions and objections they finally reach to a conclusion. All these discourses under each sūtra are very well structured. In Kudala (1912), we found that the editors of *Mahābhāṣya* have tried to identify the purpose of each topic and provide a heading to each topic. These headings are very much useful for us to study the topic level relations.

For example, the commentary under the sūtra *karmaṇā yamabhipraiti saḥ sampradānam* (Aṣṭā 1.4.32) is marked with topic level and sub-topic level headings by Joshi and Roodbergen (1975), as follows -

Karmaṇā yamabhipraiti saḥ sampradānam : 1.4.32

1. (Atha padakṛtyādhikaraṇam)

(Praśnabhāṣyam) Karmagrahaṇam kimartham.

(Uttarabhāṣyam) Yam abhipraiti saḥ sampradānam iti iyati ucyamāne karmaṇaḥ eva sampradānasañjñā prasajyeta. Karmagrahaṇe punaḥ kriyamāṇe na doṣaḥ bhavati. Karma nimittatvena āśrīyate.

(Praśnabhāṣyam) Atha yamsagrahaṇam kimartham.

(Uttarabhāṣyam) Karmaṇā abhipraiti sampradānam iti iyati ucyamāne abhiprayataḥ eva sampradānasamjñā prasajyeta. Yamsagrahaṇe punaḥ kriyamāṇe na doṣaḥ bhavati. Yamsagrahaṇāt abhiprayataḥ sampradānasamjñā nirbhajyate.

(Praśnabhāṣyam) Atha abhipragrahaṇam kimartham.

(Uttarabhāṣyam) Karmaṇā yam eti sa sampradānam iti iyati ucyamāne yam eva sampratyeti tatra eva syāt. Upādhyāyāya gām dadāti iti. Iha na syāt. Upādhyāyāya gām adāt. Upādhyāyāya gām dāsyati iti. Abhipragrahaṇe punaḥ kriyamāṇe na doṣaḥ bhavati. Abhiḥ ābhimukhye vartate praśabdaḥ ādikarmaṇi. Tena yam ca abhipraiti yam ca abhipraiṣyati yam ca abhiprāgād ābhimukhyamātre sarvatra siddham bhavati.

(Iti padakṛtyādhikaraṇam)

2. (Atha nyūnatāpūrtyādhikaraṇam)

(Nyūnatāpūrtibhāṣyam) Kriyāgrahaṇam api kartavyam. Iha api yathā syāt. Śrādhāya nigarhate yuddhāya sannahyate patye śete iti.

(Ākṣepabhāṣyam) Tat tarhi vaktavyam.

(Samādhānabhāṣyam) Na vaktavyam. Katham. Kriyām hi loke karma iti upacaranti. Kām kriyām kariṣyasi kim karma kariṣyasi iti.

(Samādhānabādhakabhāṣyam) Evam api kartavyam. Kṛtrima akṛtrimayoḥ kṛtrime sampratyaḥ bhavati.

(Samādhānasādhakabhāṣyam) Kriyā api kṛtrimam karma.

(Samādhānabādhakabhāṣyam) Na sidhyati. Kartuḥ īpsitatamam karma iti ucyate. Katham ca nāma kriyayā kriyā īpsitatamā syāt.

(Samādhānasādhakabhāṣyam) Kriyā api kriyayā īpsitatamā bhavati. Kayā kriyayā. Sandarśanakriyayā vā prārthayatikriyayā vā adhyavasyatikriyayā vā. Iha yaḥ eṣaḥ manuṣyaḥ prekṣāpūrvakārī bhavati saḥ buddhyā tāvat kamcidartham sam-

paśyati. Sandrṣṭe prārthanā prārthanāyām adhavasāyaḥ adhyavasāye ārambhaḥ ārambhe nirvṛttiḥ nirvṛtttau phalāvāptiḥ. Evam kriyā api kṛtrimam karma.

(Nyūnatāpūrtyantarabhāṣyam) Evam api karmaṇaḥ karaṇasañjñā vaktavyā sampradānasya ca karmasañjñā. Paśunā rudram yajate. Paśum rudrāya dadāti iti arthaḥ. Agnau kila paśuḥ prakṣipyate tat rudrāya apahriyate iti.

(Iti nyūnatāpūrtyadhikaraṇam)

In this example, the first topic for discussion of the sūtra *karmaṇā yamabhipraiti saḥ sampradānam* is named as *padakṛtyādhikaraṇam*. This name says that this topic discusses about the words in the sūtra and their meaning. These types of labelling not only express the meaning of the topic, but also help us understanding the relations between the topics and thus the overall discourse structure.

The text of *Mahābhāṣya* follows a very well defined discourse structure. It contains commentaries on various sūtras and the supplementary sūtras called as *vārttika*-s. The relevant level of discourse analysis for *Mahābhāṣya* is then the *adhikaraṇa* (topic) level analysis and all the lower level analysis viz. *sub-topic level* and *inter-sentential*. The *sūtra/vārttika* sets up the new topic and all the discussions under this follow a well defined structure.

5.2 Structure of Saṁjñā and Paribhāṣā Sūtras

The sūtras in *Aṣṭādhyāyī* are of six types viz., *saṁjñā* (technical rules), *paribhāṣā* (interpretive rules), *vidhi* (operation rules), *niyama* (restriction rules), *atideśa* (extension rules) and *adhikāra* (governing rules). From these rules we chose one sūtra from *saṁjñā* and one from *paribhāṣā* to look the structure of commentary on these.

5.2.1 Structure of a Commentary on Saṁjñā Sūtra

Sharma (2002, p.102) carries out a detailed discussion on various kinds of sūtras. *Saṁjñā sūtra*-s define technical terms. Pāṇini has used more than 100 technical terms which can be classified into three categories -

1. Which assign a saṁjñā to a linguistic term.
2. Which assign a saṁjñā to the meaning of a linguistic term .
3. Which assign a saṁjñā to the feature of a sound segment.

For each *saṁjñā sūtra*, Patañjali justifies the definition by following the following structure. We explain this structure with an example of *dhruvamapāye apādānam* (Aṣṭā 1.4.24) as given in Joshi and Roodbergen (1975).

Dhruvamapāye apādānam: 1.4.24

1. (Atha dhruvagrahaṇaprayojanādhikaraṇam)

(Praśnabhāṣyam) Dhruvam iti kimartham.

(Uttarabhāṣyam) Grāmāt āgacchati śakaṭena.

(Pratyudāharaṇabādhakabhāṣyam) Na etat asti. Karaṇasañjñā atra bādhikā bhaviṣyati.

(Pratyudāharaṇāntarabhāṣyam) Idam tarhi. Grāmāt āgacchan kaṁsapātryām pāṇinā odanam bhuṅkte iti.

(Ākṣepabhāṣyam) Atra api adhikaraṇasañjñā bādhikā bhaviṣyati.

(Pratyudāharaṇāntarabhāṣyam) Idam tarhi. Vṛkṣasya paṇam patati. Kuḍyasya piṇḍaḥ patiti iti.

(Iti dhruvagrahaṇaprayojanādhikaraṇam)

2. (Atha nyūnatāpūrtyadhikaraṇam)

(Nyūnatāpūrtivārttikam) Jugupsāvirāmapramādārthānām upasamkhyānam.1.

(Vyākhyābhāṣyam) Jugupsāvirāmapramādārthānām upasamkhyānam kartavyam.

Jugupsā. Adharmāt jugupsate. Adharmāt bibhatsate. Virāma. Dharmāt viramati.

Dharmāt nivartate. Pramāda. Dharmāt pramādyati. Dharmāt muhyati. Iha ca upasamkhyānam kartavyam. Sāmkāśyakebhyaḥ pāṭaliputrakāḥ abhirūpatarāḥ iti.

(Praśnabhāṣyam) Tat tarhi idam vaktavyam.

(Vārttikapratyākhyānabhāṣyam) Na vaktavyam. Iha tāvat adharmāt jugupsate

adharmāt bibhatsate iti yaḥ eṣaḥ manuṣyaḥ prekṣāpūrvakārī bhavati saḥ paśyati

duḥkhaḥ adharmāḥ na anena kṛtyam asti iti. Saḥ buddhyā samprāpya nivartate.

Tatra dhruvamapāye apādānam iti eva siddham. Iha ca dharmāt viramati dhar-

māt nivartate iti dharmāt pramādyati dharmāt muhyati iti. Yaḥ eṣaḥ manuṣyaḥ

sambhinnabuddhiḥ bhavati saḥ paśyati na idam kiṃcit dharmāḥ nāma na enam

kariṣyāmi iti. Saḥ buddhyā samprāpya nivartate. Tatra dhruvamapāye apādā-

nam iti eva siddham. Iha ca sāmkāśyakebhyaḥ pāṭaliputrakāḥ abhirūpatarāḥ iti

yaḥ taiḥ sāmyam gataṁ bhavati saḥ etat prayuṅkte.

(Iti nyūnatāpūrtyadhikaraṇam)

3. (Atha anupapattiparihārādhikaraṇam)

(Ākṣepavārttikam) Gatiyukteṣu apādānasañjñā na upapadyate adhruvatvāt.2.

(Vyākhyābhāṣyam) Gatiyukteṣu apādānasañjñā na upapadyate. Aśvāt trastāt pati-

taḥ. Rathāt pravītāt patitaḥ. Sārthāt gacchataḥ hīnaḥ iti. Kim kāraṇam. Adhru-

vatvāt.

(Samādhānavārttikam) Na vā adhrauvyasya avivikṣitatvāt.3.

(Vyākhyābhāṣyam) Na vā eṣaḥ doṣaḥ. Kim kāraṇam. Adhrauvyasya avivakṣi-

tatvāt. Na atra adhrauvyam vivakṣitam. Kim tarhi. Dhrauvyam. Iha tāvat aśvāt

trastāt patitaḥ iti yat rathe rathatvam ramante asmin rathaḥ iti tat dhruvam tat ca

vivakṣitam. Sārthāt gacchataḥ hīnaḥ iti yat tatsārthe sārthatvam saḥārthibhāvaḥ tat dhruvam tat ca vivakṣiktaḥ.

(Ākṣepabhāṣyam) Yadi api tāvat atra etat śakyate vaktum ye tu ete atyanta gatiyuktāḥ tatra katham. Dhāvataḥ patitaḥ tvaramāṇāt patitaḥ iti.

(Samādhānabhāṣyam) Atra api na vā adhrauvyasya avivakṣitatvāt iti eva siddham. Katham punaḥ sataḥ nāma avivakṣā syāt. Sataḥ api avivakṣā bhavati. Tat yathā alomikā eḍakā anudarā kanya iti. Asataḥ ca vivakṣā bhavati. Samudraḥ kuṇḍikā vindhyaḥ vardhitakam iti.

(Iti anupapattiparihārādhikaraṇam)

The commentary on this sūtra is split into three topics.

1. Dhruvagrahaṇaprayojanādhikaraṇam (purpose of using the word *dhruvam*)
2. Nyūnatāpūrtyādhikaraṇam (adding missing remaining cases)
3. Anupapattiparihārādhikaraṇam (showing that the definition does not overshoot)

The structure of the commentary on *dhruvamapāye'pādānam* is shown in figure 5.2.

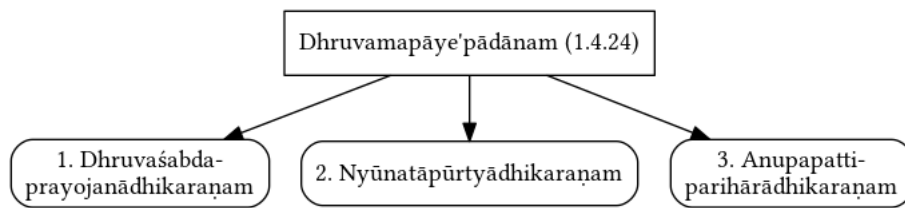


Figure 5.2: Structure of commentary on ‘dhruvamapāye’pādānam’

In order to decide the relations between topics, let us see the commentary under each of them.

1. **Dhruvagrahaṇaprayojanādhikaraṇam** This topic deals with the purpose behind the word *dhruvam* in this sūtra. What is the meaning of this word? *Dhruvam* means *stable* or *fixed point*. Hence, meaning of the sūtra is “a kāraka functioning as relative fixed point with respect to movement away from it is called *apādāna*”. The need of this particular word is, only the fixed point should be marked as *apādāna* none other than that.

For example, *vr̥kṣāt par̥ṇaṃ patati* (*leaf falls from the tree*). For separation of the leaf, tree is the fixed point. Hence, tree has got *apādāna saṁjñā*.

This topic thus opens up the discussion by providing the meaning of the word *dhruvam*.

2. **Nyūnatāpūrtyādhikaraṇam** According to the previous discussion, fixed point should be marked as *apādāna*. But in the next paragraph Patañjali accepts the vārttika which provides a list of few abstract terms (*guṇavācī*) like, *jugupsā* (disgust), *virāma* (cessation), *pramāda* (neglect) etc. which he says can also be marked as *apādāna*.

In the case of these words, the original definition with *dhruvam* is not applicable since there is no separation. Hence it was necessary to extend the definition in order to avoid non applicability of the definition in these cases.

3. **Anupapattiparihārādhikaraṇam** The next two vārttikas discuss the possibility of overshooting of this definition in the cases where the point of separation itself is not fixed. The second vārttika rules out this possibility. Thus the discussion under these two vārttikas is to establish the fact that - all the cases where the definition is applicable are genuine cases, and there is no *ativyāpti* (overshooting).

The example discussed is, *dhāvataḥ aśvāt patati* (*falls from the running horse*) where the point of separation is in motion. As far as falling is concerned, the

horse is the fixed point, though it is running and hence there is no *ativyāpti*.

As we notice, the purpose of each of these three paragraphs is to establish the fact that the definition is applicable only in the cases where it should be and nowhere else. Hence the relations are of *nirvāhakaikya* - to serve the purpose of establishing the correctness of definition.

The structure is shown below in figure 5.3, on the sūtra *dhruvamapāye'pādānam* (Aṣṭā 1.4.24).

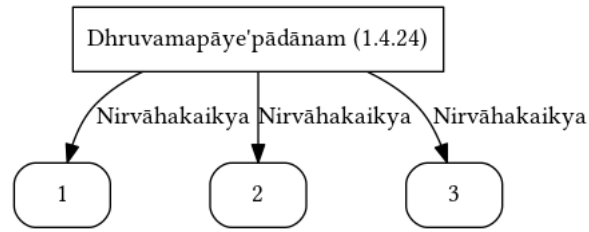


Figure 5.3: Topic level relations in the commentary on ‘dhruvamapāye’pādānam’

5.2.2 Structure of a Commentary on Paribhāṣā Sūtra

Paribhāṣā sūtra-s are explanatory sūtras of Pāṇini, which explain the terminology used in Aṣṭādhyāyī. These sūtras teach the way in which other sūtras should be interpreted.

After looking such structure of a *saṁjñā sūtra*, there was a curiosity to know about the discourse structure of other sūtras as well. We chose a commentary on *samarthaḥ padavidhiḥ* (Aṣṭā 2.1.1) in order to understand the topic level structure of *paribhāṣā sūtras*.

In the case of *paribhāṣā sūtra*, unlike *saṁjñā sūtra*, we need to understand the purpose and the semantics of the sūtra after understanding the meaning of each word and the syntax. The commentary on this sūtra has 14 topics, as marked by Joshi (1968).

First topic explains ‘what is the etymology of the word *vidhi* and its meaning’. Then Patañjali discusses about the type of sūtra viz. whether it is an *adhikāra sūtra* or a *paribhāṣā sūtra*. After all these discussions begins the next topic about the purpose of this sūtra.

Then, to understand the semantics of the sūtra we begin with the meaning of the first word *samartha*. While discussing about the word *samartha*, there must be a discussion about the single integrated meaning which is the primary meaning of *samartha*. In this context, various properties of single integrated meaning come into discussion with few examples. In this context he discusses about the denotation of word meaning which are natural or taught by grammar. He also discusses about the definition of *vṛtti*.

After discussing the single integrated meaning and its various properties, in the next topic he refutes the objection that is brought against semantic connection. Here the discussion starts on the second meaning of *samartha* viz. *vyapekṣā*. Definition of a sentence is also discussed in this context. He then discusses about how to form a compound of a compound by giving one example of *rājagavīkṣīra*.

After looking at two meanings of *samartha*, the next topic for discussion is about the second word in the sūtra viz. *padavidhi* and its purpose. Now some special discussions coming about the word *samartha* is meaningless are also refuted. Then he rises questions about the syntactic agreement by giving an example of *vīrapuruṣaḥ*. Finally the discussion is on the minimum numbers of constituents in a compound.

The underlying structure of *samarthaḥ padavidhiḥ* is shown in the diagram 5.4.

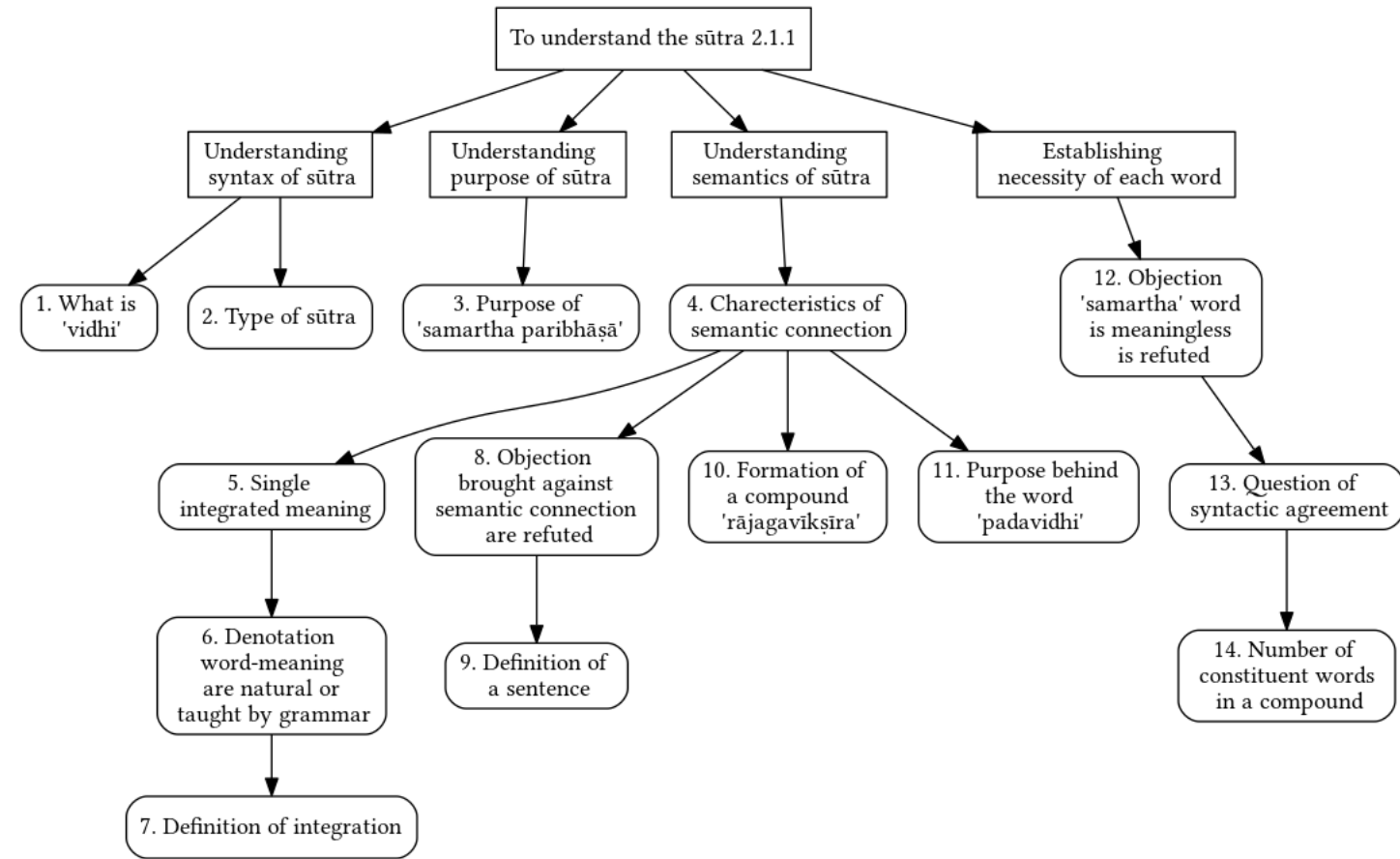


Figure 5.4: Structure of commentary on ‘samarthaḥ padavidhiḥ’

14 topic headings and the coherence relations discussed in Kulkarni and Das (2012) are further modified and explained here -

1. Atha vidhiśabdārthanirūpaṇādhikaraṇam

As the topic name suggests, in this section the meaning of the word *vidhi* is examined.

2. Atha paribhāṣātnirūpaṇādhikaraṇam

This section is about the rule type. Here it is examined that is it a *paribhāṣā* or *adhikāra sūtra*.

3. Atha samarthaparibhāṣāprayojanādhikaraṇam

The topic name here shows that in this section purpose of the *samartha-paribhāṣā* is discussed.

4. Atha sāmārthyalakṣaṇabhedanirūpaṇādhikaraṇam

In this section the different characteristics of semantic connection (*sāmārthya*) are examined.

The first four *adhikaraṇas* discuss about the word *vidhi*, its derivation, type of the *sūtra*, necessity of the *sūtra* and its characteristics etc. All of their purpose is to define only what the words in the *sūtra* says. Hence, all these three are marked as *nirvāhakaikya*.

5. Atha ekārthībhāvaphalanirūpaṇādhikaraṇam

In this section first meaning of *samartha* is examined through some examples.

Here the single integrated meaning is going to be introduced. So this *adhikaraṇa* is marked as *upodghāta*.

6. Atha arthābhīdhānasya svābhāvīkatvanirūpaṇādhikaraṇam

This section discuss about the denotation of word meaning are natural or taught by grammar.

While discussing the features of single integrated meaning, it reminds about the denotation of word meaning. This discussion cannot be left unmentioned. So, this adhikaraṇa is marked as *prasaṅga*.

7. Atha vṛttīlakṣaṇabhedavarṇanādhikaraṇam

The topic name expresses that this section is on different definitions of *vṛtti* (integration).

After explaining the relation between the word and meaning, an opportunity for meaning of integration rises. So, this adhikaraṇa is marked as *avasara*.

8. Atha sāmāthyadūṣaṇanirākaraṇādhikaraṇam

In this section objections brought against semantic connection are refuted. The objection is about, the possibility of the second meaning of *sāmātha* viz. *vyapekṣā*.

After discussing the single integrated meaning, there is an opportunity for discussing second meaning of *sāmātha*. Hence, this adhikaraṇa is marked as *avasara*.

9. Atha vākyalakṣaṇādhikaraṇam

In this section the discussion is about the definition of the sentence.

While discussing the second meaning of *sāmātha*, the definition of a sentence was remembered and it cannot be left unmentioned. Hence, it is marked as *prasaṅga*.

10. Atha rājagavīkṣīre samāsanirṇayādhikaraṇam

This section is about how the *sāmāthya* plays role in forming a compound with three components with an example of *rājagavīkṣīra*.

After discussing the second meaning of *samartha*, there is an opportunity to discuss about the role of *sāmarthya* in compound formation. Hence this adhikaraṇa is marked as *avasara*.

11. Atha padavidhigrahaṇaprayojanādhikaraṇam

This section deals with the purpose behind the use of the second word in the sūtra *padavidhi*.

The first word *samartha* was discussed previously. After that there was opportunity for the second meaning of the word *samartha*. After all the discussions the next opportunity came for the second word in the sūtra *padavidhi* and its properties. Hence, this adhikaraṇa is marked as *avasara*.

12. Atha nirdeśānarthakyaparihārādhikaraṇam

This section objects that the word *samartha* is meaningless in the sūtra and the objection is then refuted.

While discussing about *padavidhi*, the author raises some doubts about the words in the sūtra and that is refuted. This section shows the necessity of each word in the sūtra. Hence it is marked as *nirvāhakaikyam*.

13. Atha samānādhikaraṇyopapādanādhikaraṇam

In this section compound formation following syntactic agreement is explained. There is an objection on syntactic agreement.

This topic is linked through *ākṣepa*.

14. Atha samāsayogyapadasaṁkhyānirṇayādhikaraṇam

This section deals with the number of constituent words in a compound.

While discussing about the syntactic agreement, possible number of a constituent words in a compound was remembered. Hence, it is marked as *prasaṅga*.

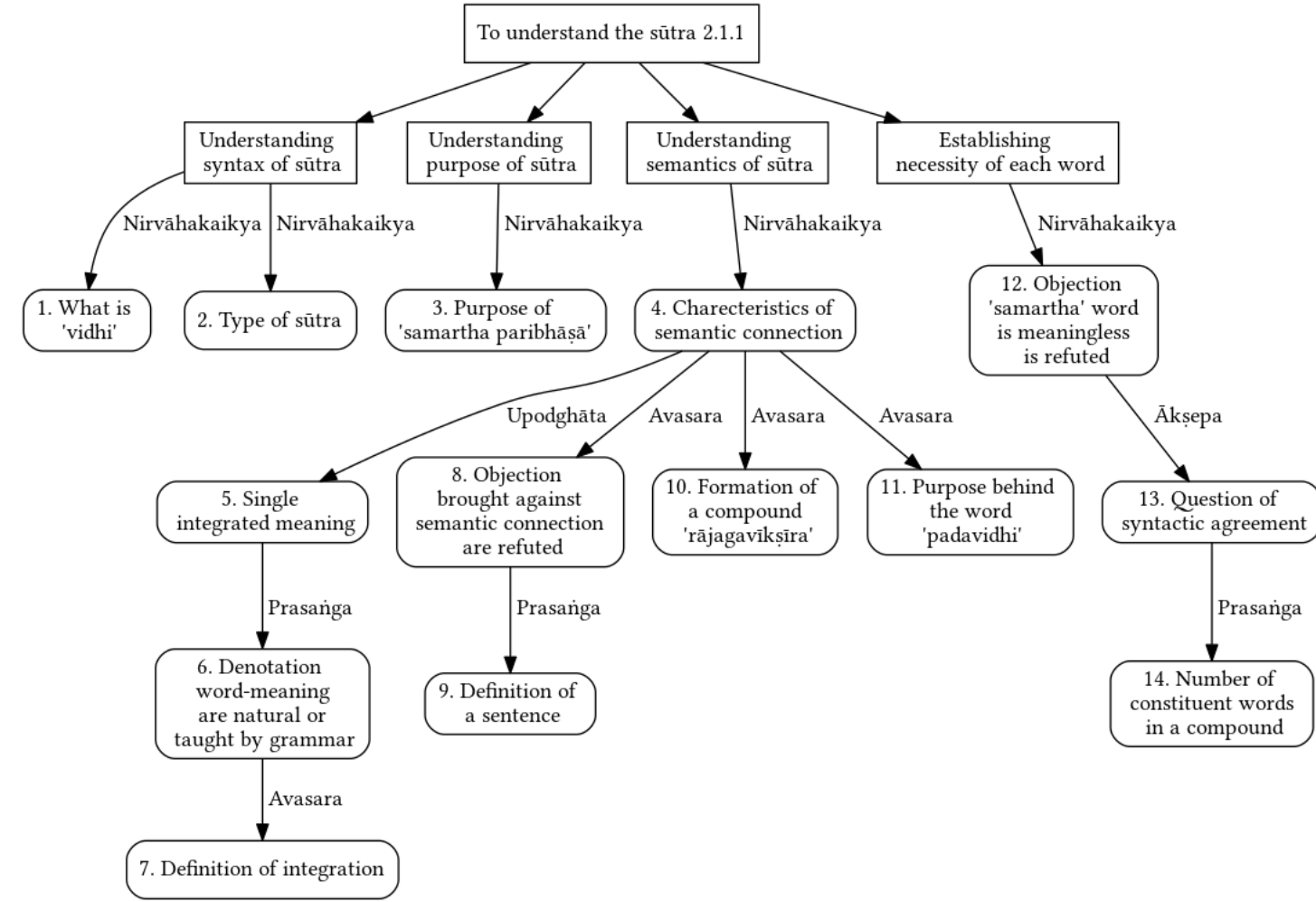


Figure 5.5: Topic level relations in a commentary on 'samarthaḥ padavidhiḥ'

There are 14 topics under the main heading of the sūtra *samarthaḥ padavidhiḥ* (Aṣṭā 2.1.1). These 14 topics are related to each other by a set of relations, which show the coherence of the discussion under the sūtra. These relations are topic level or *ahdikaraṇa saṅgati*-s. Tagging at this level involves semantic analysis of the text.

5.2.3 Comparison between Paribhāṣā and Saṁjñā Sūtra

A comparison made between the structure of *paribhāṣā* and *saṁjñā sūtra*. A common structure found in most of the *saṁjñā sūtras* while no such common structure found in *paribhāṣā sūtras*.

The common points of discussion found in *saṁjñā sūtras* are as follows -

- Sūtra svarupa sādhana or padakṛtyādhikaraṇa - This section explains the meaning of technical words and justifies the necessity of each word if there is any objection in the *vārttika* etc.
- Anīṣṭāpattivāraṇa - The definition is devoid of the error *ativyāpti* (applicability in places where it should not be applicable).
- Nyūnatāpūrtiyadhikaraṇa - The definition is devoid of the error *avyāpti* (non-applicability in places where it should be applicable).
- Special adhikaraṇas according to each sūtras.

In the case of *paribhāṣā sūtra*-s, structure of topic level discussions are not common across all sūtras. While the discussions on *sūtra prayojana* etc. are more or less common, there are sūtra specific discussions under each sūtra.

In this chapter we have reviewed topic level discourse analysis discussed in Sanskrit literature and found a set of 6 relations. We have shown how these relations help in understanding the structure of a text through one example from *Tarkasaṃgraha*. We have also undertaken a detailed study on the structure of *Mahābhāṣya*. To show the application of these relations and to understand the structure of various sūtras we have taken *Mahābhāṣya* as a case study choosing one *saṃjñā sūtra* and one *paribhāṣā sūtra* discussing about the overall structure of these sūtras. The *paribhāṣā sūtra* has been analysed in depth. However, we have analysed the topic level structure only without giving any theory for the representation. The analysis of the structure presented is just a module to show the structure of a text.

Chapter 6

An Automatic Tagger for Sub-topic Level Discourse Analysis

In this chapter we explain the discourse analysis within a sub-topic. As an example we take *Mahābhāṣya* and examine the sub-topic structure in it. Based on the clues available in various texts such as *Śṛṅgāra Prakāśa* (Dvivedi and Divedi, 2007) we have built an automatic tagger for tagging the relations between paragraphs. We have extended this tagger to handle one more text, a commentary on *Śābara bhāṣya*. The performance of the tagger has been evaluated in terms of precision and recall and a detailed evaluation report has also been prepared.

6.1 Mahābhāṣya’s Sub-topic Level Tag-set

Mahābhāṣya is the second important milestone in the Indian grammatical tradition. It is the earliest specimen of a commentary. It has been over and again commented

upon. The earliest commentary on *Mahābhāṣya* is *Bhartṛhari's Mahābhāṣyadīpikā*. After that *Pradīpa* and *Udyota* are the major commentaries written by two versatile scholars *Kaiyaṭa* and *Nāgeśa* respectively.

The original *Mahābhāṣya* does not have any markups. The first marked up version is published by Nirṇaya Sāgara Press, Bombay in 6 volumes in the early 1900s. This text is manually annotated at topic and sub-topic level. No text contains the description or explanation of the tags used, nor there is any prologue mentioning the purpose of this tagging. This is the case with any traditional Sanskrit texts centuries old.

The first task we took up is to provide a manual listing of the tags used, the semantics associated with these tags and at least one example from *Mahābhāṣya* illustrating the tag. Our earlier documentation (Das and Kulkarni, 2013) explains the primary tasks of developing sub-topic level tagging scheme, which are extracted here.

The annotated *Mahābhāṣya* has 10 major tags and several sub-tags under each major tag. While the major tags are the same across volumes, the sub-tags are different. But the major tags are the same in all the books. We give below a brief description of these 10 tags, with an examples from the actual tagged *Mahābhāṣya*. The example in most cases consists of a pair of Sanskrit sentences/paragraphs. The first one sets the context under which the next sentence or set of sentences is uttered. The label is attached to the second one. The English translations are extracted from Joshi (1968).

1. **Praśna (question)** - An independent question about some topic or an argument is marked with *praśna* tag. For example,

Skt: Atha vidhiśabdārthanirupaṇādhikaraṇam. (sama ā 1¹)

Eng: Now starts the section in which the meaning of the word *vidhi* is examined.

¹The number indicates the topic number in samarthāhnikā.

Skt: (**Praśnabhāṣyam**) Vidhiḥ iti kaḥ ayam śabdaḥ. (sama ā 1.1²)

Eng: What is this word *vidhi*?

2. **Uttara (answer)** - An answer to a question is tagged as *uttara*. For example,

Skt: (**Praśnabhāṣyam**) Vidhiḥ iti kaḥ ayam śabdaḥ. (sama ā 1.1)

Eng: What is this word *vidhi*?

Skt: (**Uttarabhāṣyam**) Vipūrvādghaṇaḥ karmasādhana ikāraḥ. Vidhīyate vidhir-iti. Kiṃ punarvidhīyate. Samāso vibhaktividhānam parāṅgavadbhāvaśca. (sama ā 1.2)

Eng: The letter *i* denoting the passive sense (is added) after (the root) *ghaṇ* preceded by the preverb *vi*. What is prescribed by Pāṇini's rules is *vidhi*: 'operation'. But what could that be which is prescribed? 'compounding', 'prescription of case-ending' and 'treatment as a part of the following word'.

3. **Ākṣepa (objection)** - An objection to an answer or resolution is marked as *ākṣepa*. For example,

Skt: (**Uttarabhāṣyam**) Vākye pṛthagarthāni. Rājñaḥ puruṣaḥ iti. Samāse punaḥ ekārthāni rājapuruṣaḥ iti. (sama ā 4.44)

Eng: In the compounded word-group words have separate meanings of their own, like *rājñaḥ puruṣaḥ*: king's man. But in a compound, words have a single meaning, like in *rājapuruṣaḥ*: king-man.

Skt: (**Ākṣepabhāṣyam**) Kimucyate pṛthagarthāni iti yāvatā rājñaḥ puruṣa ānīyatāmityukte rājapuruṣa ānīyate rājapuruṣa iti ca sa eva. (sama ā 4.45)

Eng: Why do you say 'words have separate meanings of their own'? Because when we say 'let the king's man be brought', the king-man is brought. And when

²In 1.1, the first part denotes to the topic number and the second part denotes to the sub-topic number.

we say 'let the king-man be brought', the same man is brought.

4. **Samādhāna (resolution)** - An answer to an objection is marked as *samādhāna*.

For example,

Skt: (Ākṣepabhāṣyam) Yadi sāpekṣamasamartham bhavati iti ucyate rājapuruṣo'bhirūpaḥ rājapuruṣo darśanīyaḥ atra vṛttirna prāpnoti. (sama ā 3.27)

Eng: If we accept the statement, 'what requires an outside word is treated as semantically unconnected' then the word-composition rājapuruṣa: king-man in the expressions rājapuruṣaḥ abhirūpaḥ: handsome king-man, rājapuruṣaḥ darśanīyaḥ: good-looking king-man would not result from the uncompounded word-groups abhirūpaḥ rājñāḥ puruṣaḥ and darśanīyaḥ rājñāḥ puruṣaḥ.

Skt: (Samādhānabhāṣyam) Na eṣaḥ doṣaḥ. Pradhānam atra sāpekṣam bhavati ca pradhānasya sāpekṣasya api samāsaḥ. (sama ā 3.28)

Eng: Nothing wrong here. Because it is here the main member which requires an outside word. And compounding does take place, even if the main member requires an outside word.

5. **Bādhaka (rejection)** - This marks the rejection of the arguments such as, objection, answer of an objection, refutation, criticism etc. For example,

Skt: (Samādhānabhāṣyam): Na eṣaḥ doṣaḥ. Samudāyāpekṣā atra ṣaṣṭhī sarvaṃ gurukulam apekṣate. (sama ā 3.30)

Eng: Nothing wrong here. Here the genitive qualifies the whole word gurukulam.

Skt: (Samādhānabādhakabhāṣyam) Yatra tarhi na samudāya apekṣā ṣaṣṭhī tatra vṛttiḥ na prāpnoti. (sama ā 3.31)

Eng: Then when a word in genitive does not qualify the whole, it should not result in a compound formation.

6. **Sādhaka (reaffirmation)** - This marks the reaffirmation of an argument which has been earlier rejected. For example,

Skt: (**Ākṣepabādhakabhāṣyam**) Nanu ca gamyate tatra sāmāthyam. Kumbhakāraḥ nagarakāraḥ iti. (sama ā 2.12)

Eng: But is it not so, that, when we say *kumbhakāraḥ*: 'pot-maker' or *nagarakāraḥ*: 'city-maker', we do apprehend semantic connection between pot and maker.

Skt: (**Ākṣepasādhakabhāṣyam**) Satyaṁ gamyate utpanne tu pratyaye. Sa eva tāvat samarthādutpādyah. (sama ā 2.13)

Eng: Yes, that is true. It is apprehended once a suffix has been added. But that same suffix must first be generated after the semantically connected word.

7. **Udāharaṇa (example)** - An example is marked with this tag. For example,

Skt: (**Subalopodāharaṇabhāṣyam**) Supaḥ alopah bhavati vākye. Rājñah puruṣaḥ iti. Samāse punaḥ na bhavati. Rājapuruṣa iti. (sama ā 5.49)

Eng: Non-disappearance of case-ending occurs in an uncompounded word-group, like *rājñah puruṣaḥ*: king's man. But in a compound it does not occur, as in *rājapuruṣaḥ*: king-man.

8. **Dūṣaṇa (criticism)** - It marks criticism. For example,

Skt: (**Vyākhyābhāṣyam**) Samānavākya iti prakṛtya nighātayuşmadasmadādeśā vaktavyāḥ. (sama ā 9.115)

Eng: Under the heading of 'within the same sentence' the accents and substitutions for *yuşmad* and *asmad* are to be stated.

Skt: (**Dūṣaṇavārttikam**) Yoge pratiṣedhaścādibhiḥ. (sama ā 9.115.12³)

Eng: When there is connection with and the prohibition should also be stated.

³In 9.115.12, the third part denotes the vārtika number.

9. **Vyākhyā (explanation)** - An explanation of either an objection, answer or alternative view is marked as *vyākhyā*. For example,

Skt: (**Samādhānavārttikam**) Pṛthagarthānāmekārthībhāvaḥ samarthavacanam.
(sama ā 4.41.1)

Eng: The word *samartha* means single integrated meaning of the separate meanings.

Skt: (**Vyākhyābhāṣyam**) Pṛthagarthānām padānāmekārthībhāvaḥ samarthamityucyate. (sama ā 4.42)

Eng: The single integrated meaning of the words which have separate meaning is called *samartha*.

10. **Vārttika (supplementary rules)** - This is relevant quotation in support of the previous objection. Sometimes it plays role of an objection, answer, criticism etc. on its own. For example,

Skt: (**Samādhānavārttikam**) Pṛthagarthānāmekārthībhāvaḥ samarthavacanam.
(sama ā 4.41.1)

Eng: The word *samartha* means single integrated meaning of the separate meanings.

Skt: (**Vyākhyābhāṣyam**) Pṛthagarthānām padānāmekārthībhāvaḥ samarthamityucyate. (sama ā 4.42)

Eng: The single integrated meaning of the words which have separate meaning is called *samartha*.

Tags	Frequency
Praśna (Question)	10
Pratipraśna (Counter question)	1
Pratipraśnottara (Answer to a counter question)	1
Uttara (Answer)	6
Ākṣepa (Objection)	47
Pratyākṣepa (Counter objection)	6
Pratyākṣepasamādhāna (Answer to a counter objection)	2
Samādhāna (Answer to an objection)	40
Vyākhyā (Explanation)	34
Udāharaṇa (Example)	8
Vārttika (Supplementary rules)	36

Table 6.1: Tags with their occurrences in *Samarthāhnikā*

Out of these 10 tags, 3 tags viz. *sādhaka* (reaffirmation), *bādhaka* (rejection) and *dūṣaṇa* (criticism) are found rare in the āhnikā-s we have worked on. The remaining 7 tags are frequent in all āhnikā-s. The four tags *praśna* (question), *uttara* (answer), *ākṣepa* (objection) and *samādhāna* (answer to an objection) have sub-tags viz. *pratipraśna* (a question to a question), *pratipraśnottara* (answer to a question to a question), *pratyākṣepa* (counter objection) and *pratyākṣepasamādhāna* (answer to a counter objection) which are also found frequent.

The distribution of 11 frequent tags (7 main tags and 4 sub-tags) in one book *Samarthāhnikā* among 85 books of *Mahābhāṣya* is shown in table 6.1.

6.2 Building an Automatic Tagger

A text is made up of various linguistic elements. In order to understand a text we need understanding of various levels of construction starting from sentence level elements like POS, morph, samāsa, kāraka, etc. to discourse level elements. World knowledge acquired by human plays an important role in understanding linguistic components at each level.

Automated processes make the task of text understanding easy while manual efforts are time consuming. A machine can help human to understand a text in shorter period, automating the processes of understanding at various levels. But as machine does not acquire of world knowledge, human efforts are to be taken to train the machine providing tagged information and/or rules to automatically tag information.

To understand a text at discourse level, we require four levels of analysis viz. sentence level, inter-sentence level, sub-topic level and topic level analyses. Syntactic and semantic information from lower level analysis as well as specific lexical cues help to tag a text at discourse level. An automatic tagger can be built to analyse these lexical cues to tag the text automatically.

Details on developmental tasks of the automatic tagger such as identification of the lexical cues, formulating a programmable logic and building a Finite State Automata are extracted from our earlier documentation (Das and Kulkarni, 2013) with modifications made after further testing and evaluation.

In the case of *Mahābhāṣya* the tags are general, which are found to be used in texts of other disciplines also. Sanskrit traditional texts discuss various clues to mark these tags. For example, Bhoja Rājā's *Śṛṅgāra Prakāśa* (Dvivedi and Divedi, 2007), *Śābdabodhamīmāṃsā* (Tatacarya, 2005) and *Avyaya Kośa* (Srivatsankacarya, 2004) provide such

clues for some tags. The clues for the tags *praśna* (question) and *ākṣepa* (objection), and their sub-tags viz. *pratipraśna* (counter question) and *pratyākṣepa* (counter objection) are in the form of possible lexical words.

- The list of words that classify a paragraph as a *praśna* (question) are *kim, kaḥ, kimartham, katara, kutaḥ, kva, kāni, katham, kayā, kena* etc.
- The list of words that classify a paragraph as a *ākṣepa* (objection) are *evam api, katham, kvacit, yadi, kasmāt na, nanu ca, yatra tarhi, kim punaḥ* etc.

The lexical cues mentioned here are also found valid in *Mahābhāṣya*. From the tagged texts of *Mahābhāṣya*, *Samarthāhnikā* is looked up for the lexical cues for other two tags viz. *pratipraśna* (counter question) and *pratyākṣepa* (counter objection). The lexical cues are,

- Pratipraśna: *kaḥ punaḥ, kaḥ ca, kim ca*
- Pratyākṣepa: *na vā, kasmāt na, kasya punaḥ, kaḥ vā, kva ca, kiñca*

6.2.1 Underlying Structure at Sub-topic Level

Tagged text of *Mahābhāṣya* follows a very well defined structure at the level of sub-topic. The structure is:

- An *uttara* (answer) tag should follow a *praśna* (question).
- The *pratipraśna* (counter question) follows a *praśna*.
- *Pratipraśnottara* (answer to a counter question) follows a *pratipraśna*.

- An *ākṣepa* (objection) follows an *uttara*, *pratyākṣepa*, *pratyākṣepa samādhāna* or *vyākhyā*.
- The *samādhāna* (answer to an objection) is for an *ākṣepa*.
- *Pratyākṣepa* (counter objection) is for a *ākṣepa*.
- The *pratyākṣepa samādhāna* (answer to the counter objection) will follow the *pratyākṣepa*.
- *Samādhāna* will be followed by an *ākṣepa* only.
- *Vārttika*-s are supplementary rules, which can occur at the very beginning or it can occur after one *praśna*, *pratipraśna* or *ākṣepa*.
- A *vyākhyā* (explanation) tag should follow a *vārttika*.

The semantics of tags discussed above can be represented as a finite state automata. Figure 6.1 illustrates the structure of the semantics of tags in the form of a finite state automata.

Mahābhāṣya has 85 āhnika-s. The digital version of the tagged text of complete *Mahābhāṣya* is not available. Only 9 āhnika-s out of 85 āhnika-s were available at the time of testing. *Samarthāhnika* is used for framing the rules and gathering cues.

The automata has been coded in Lex⁴ language to an executable program (See appendix B). It has been tested on *Samarthāhnika* and the other eight *āhnika*-s.

Tag generator program typically takes input, a WX-transliterated text in XML format with each paragraph marked within tag <p> </p>. The program outputs the same format with sub-topic level tags added within square brackets at the beginning of each

⁴[https://en.wikipedia.org/wiki/Lex_\(software\)](https://en.wikipedia.org/wiki/Lex_(software))

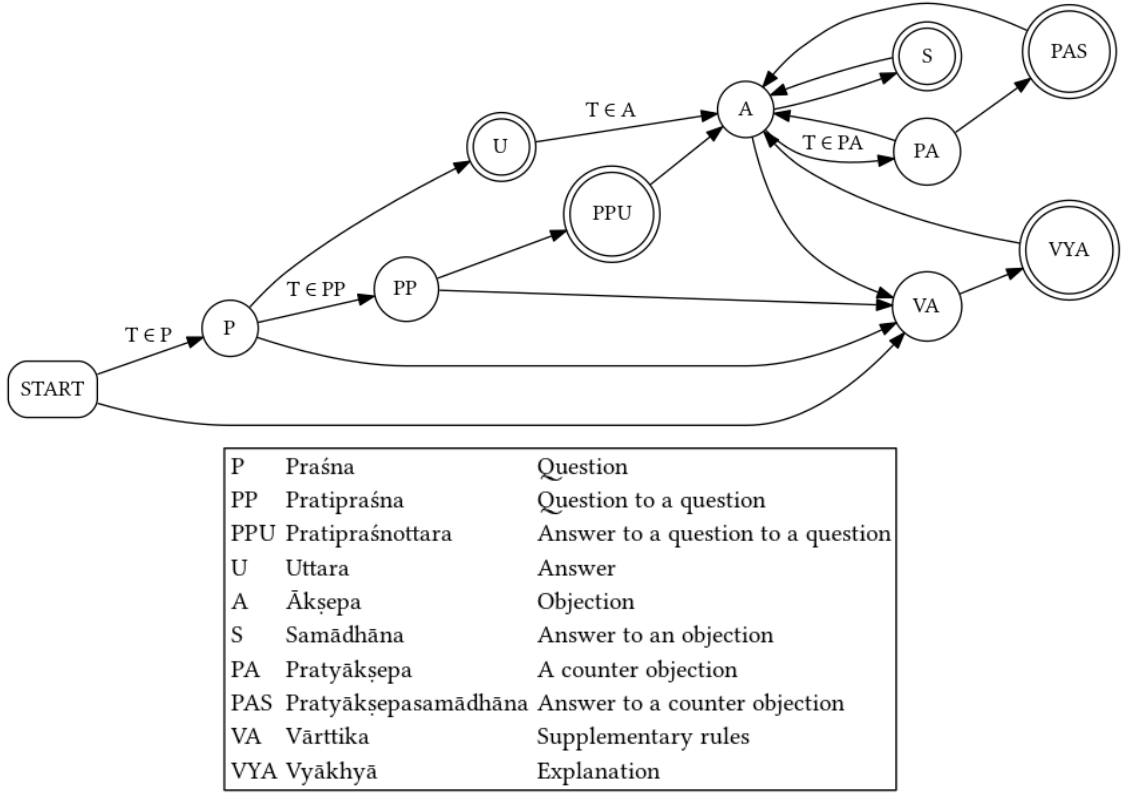


Figure 6.1: Finite State Automata of Tags

paragraph. The output is compared with the gold tagged data for evaluation. (See appendix C for samples of input, output and gold tagged files)

6.2.2 Evaluation

The performance of the automatic tagger is presented in terms of precision, recall and F-score measures. A confusion matrix of machine produced wrong tags are also given.

Precision and Recall

Precision and recall are the basic measures used in evaluating search strategies. Presenting the result in terms of precision and recall is the most useful and easy method

Confusion Matrix

Confusion matrix is also known as error matrix. This is a table layout which allows the visualisation of the performance of the algorithm. Using this we can know the number of places where the machine was failed to produce correct tags. Table 6.4 shows the confusion matrix.

Books (Āhnika-s)	Precision	Recall	F Score
Samarthāhnika	81.73%	87.98%	84.73%
Kārakāhnika	83.52%	86.51%	84.98%
Anabhihitāhnika	76.76%	65.27%	70.55%
Avyayibhāvatatpuruṣāhnika	78.04%	76.26%	77.13%
Paspaśāhnika	77.31%	79.31%	78.29%
Prātipadikārthaśeṣāhnika	82.73%	83.94%	83.33%
Tatpuruṣāhnika	77.55%	75.62%	76.57%
Karmadhārayāhnika	68.52%	62.71%	65.48%
Sthānivadbhāvāhnika	78.24%	84.62%	81.30%
Total	78.79%	78.36%	78.57%

Table 6.2: Performance in terms of precision recall: ‘9 Āhnikas’

Tags	Total Tags	Precision	Recall	F Score
Praśna (P)	175	63.77%	75.43%	69.11%
Pratipraśna (PP)	13	85.33%	53.85%	66.02%
Pratipraśnottara (PPU)	5	66.67%	80.00%	72.72%
Uttara (U)	136	61.21%	74.26%	67.10%
Ākṣepa (A)	303	64.02%	55.78%	59.61%
Pratyākṣepa (PA)	11	66.67%	36.36%	47.05%
Pratyākṣepasamādhāna (PAS)	4	50.00%	50.00%	50.00%
Samādhāna (S)	276	59.09%	51.81%	55.21%
Vārttika (VA)	379	100.00%	100.00%	100.00%
Vyākhyā (VYA)	371	97.63%	99.73%	98.66%

Table 6.3: Performance in terms of precision recall: ‘Each Tag’

The automatic tagger is tested on 9 Āhnikas of *Mahābhāṣya*. Out of 10 tags discussed the lexical cues found for the tags *bādhaka* (rejection), *sādhaka* (reaffirmation), *udāharaṇa* (example) and *dūṣaṇa* (criticism) are very less in number. So our tagger does not handle these tags.

P	U	PP	PPU	A	S	PA	PAS	VA	VYA	
132	1	-	-	29		-	-	-	2	P
-	101	-	-	-	21	-	-	-	-	U
1	1	7	-	2	2	-	-	-	-	PP
-	-	-	4	-	-	-	-	-	-	PPU
52	3	-	-	169	10	1	-	-	-	A
2	45	-	-	9	143	-	1	-	-	S
1	-	1	-	1	3	4	1	-	-	PA
-	1	-	-	-	-	-	2	-	-	PAS
-	-	-	-	-	-	-	-	379	-	VA
-	-	-	-	-	-	-	-	-	370	VYA

Table 6.4: Confusion matrix table

Joshi (1968) marks a fine-grained, in-depth categorisation of discourse relations among sub-topics. However automated tagging at the fine-grained level require highly complex semantic parser. We have generalise those relations into broader categories for computational and comparative tasks. The dictionary of fine-grained tags and their general tags is given in appendix B.

Table 6.2 shows the overall performance of the automatic tagger. In almost all *āhnikas* the precision is more than 75% except in *Karmadhārayāhnika*.

Table 6.3 shows the precision and recall for each tag. In this table we can notice a very low precision and recall of *praśna* (question), *uttara* (answer), *ākṣepa* (objection) and *samādhāna* (answer to an objection) tags. The main reasons behind this failure are described.

1. Many lexical cues are common for *praśna* and *ākṣepa* like *katham*, *kimartham* and *kasmāt* etc. Hence analysing a lexical cue machine fails to determine between *praśna* and *ākṣepa*. In most erratic cases machine produced *ākṣepabhāṣyam* where *praśnabhāṣyam* is the desired tag. There are also cases in the other way around.

Wrongly marked *praśna* or *ākṣepa* tags lead to incorrectly mark *uttara* or *samādhāna* which follows it. The same case happens between *pratipraśna* (counter question) and *pratyākṣepa* (counter objection) also.

2. Lack of semantic information is another reason for low precision and recall. In some cases, there are no lexical cues found but sub-topic tags can be marked analysing the semantic information.

For example, machine fails to produce the desired tag (*praśnabhāṣyam*) in sentence below as there is no lexical cue found for *praśna*.

(Praśnabhāṣyam) atha halacoḥ ādeśaḥ sthānivat bhavati utāho na.⁵

As mentioned before, the tagger currently looks only for lexical cues for analysis. Efforts need to be taken to feed semantic information to the tagger to tag these kinds of occurrences correctly.

In table 6.4, the shaded boxes represent correctly tagged occurrences. *Praśna* tag is matched in 132 occurrences. But machine produced *uttara* once, *vyākhyā* twice and *ākṣepa* in 28 occurrences, where *praśna* was desired. It shows that the gold data and the machine generated output matches in 132 occurrences and mismatches in 31 occurrences.

Likewise, the automatic tagger failed to produce *uttara* 21 times and *samādhāna* 57 times. As mentioned before, failure to correctly mark *praśna* and *ākṣepa* leads to failure marking *uttara* and *samādhāna* also.

⁵Mahābhāṣya: Sthānivadbhāvāhnikā, under the sūtra *acaḥ parasmīnpūrvavidhau* 1.1.57

6.3 How General Is the Tagger?

The language and style of *Mahābhāṣya* is very typical itself and we do not come across other texts that have the same style. We were curious to know whether the developed tagger is general enough to handle other texts. We chose one text - a commentary on *Mīmāṃsā Sūtra* to evaluate the applicability of the tagger.

6.3.1 Śābarabhāṣya

Śābarabhāṣya is a commentary on the *Mīmāṃsā Sūtra* of *Jaiminī* in 2nd century AD. It consists of 12 adhyāya-s (chapters) and 60 pāda-s (sections) and contains about 1000 sūtras. It provides rules for the interpretation of the *Veda*-s. Earlier commentaries on *Mīmāṃsā Sūtra* are lost. The oldest commentary available today is *Śābarabhāṣya* which is composed by *Śābarasvāmī* around 5th century. According to Bhattacharya and Sarkar (2004b, p. 1365) this is the only extant and authoritative commentary on full 12 chapters of the *Mīmāṃsā Sūtra*. It is the fundamental work, on which *Mīmāṃsā* philosophy was developed later by Kumārilabhaṭṭa, Prabhākara, Śālikanātha, Mūrārī, Pārthsārathī and many others.

A Hindi translation by Mimamsaka (1990) is used to study the discourse tags in *Śābarabhāṣya*. This translation is marked manually with only two tags viz. *ākṣepa* and *samādhāna*. The digitalized version of the tagged Sanskrit commentary is constructed from the tags in Hindi translation. Since the tagged text had only two tags, the automata has been modified to suit this structure removing the nodes corresponding to other tags. This led to modify the lexical cues for the tags as well. The cues for *ākṣepa* in *Śābarabhāṣya* included the clues from both *prāśna* as well as *ākṣepa* of *Mahābhāṣya*. In addition, some stylistic variation in the cues are also found. Though many of the

cues from *Mahābhāṣya* are insignificant in *Śābarabhāṣya*, it included one new phrase *na brūmaḥ* (do not say this), as a marker for *ākṣepa*.

Modifying the tagger accordingly, we tested it on *Aruṇādhikāra* (3rd chapter 1st section 6th adhikaraṇa's 12th sūtra of *Śābarabhāṣya*). Table 6.5 shows the performance of the tagger in terms of precision and recall.

Tags	Total Tags	Precision	Recall	F Score
Ākṣepa (A)	29	96.00%	82.76%	88.88%
Samādhāna (S)	29	96.00%	82.76%	88.88%

Table 6.5: Performance of tagger on *Aruṇādhikāra*

This text contains 61 sub-topics. Out of this 3 sub-topics were not analysed due to no lexical cues found in the gold data.

We have shown various sub-topic level discourse relations suggested in Sanskrit literature. In this chapter we have proposed a tagging scheme for sub-topic level discourse tagging for *Mahābhāṣya*. We have also shown how these tags and their lexical cues are general, by giving the source of these cues. After the detailed study of *Mahābhāṣya* we have presented the underlying structure of it at the sub-topic level and also represented this structure in the form of a finite state automaton. We have done thorough testing and evaluation, and presented the results. Testing the tagger on *Śābarabhāṣya* is also explained to show the tagger's usability on texts from different disciplines.

Chapter 7

Conclusion

As the principles for analysis are language independent, these insights should be applicable to other languages especially Indian languages. The implementation as Finite State Automata is language independent with the clue set as language dependent component.

It will be interesting to use this tagger further on various forums on internet. As lack of semantic information is the major reason behind the reduced performance of tagger, one can improve the performance of tagger by providing semantic information.

For the best use of *śābdabodha* theories, it is necessary to analyse other texts which might be containing more deep discourse structures viz. *nested dialogue structures* like in *Bhagvadgītā* and *Pañcatantra*.

Extending parser to handle discourse relations, especially the inter-sentential relations is an immediate task that can be taken up. For further studies in inter-sentential relations, researchers can work on the whole tagging scheme to tag the implicit relations providing senses for each tag.

The use of Finite State Automata described in chapter 6 for analysing *Bharatiya Vidvat Parishad*'s google group where discussions on various issues related to grammar and philosophy is abundant. However these discussions are not tagged properly. Hence if anybody wants to do any (sub)topic level search in future, the information on these groups will not be much accessible. Use of this tool on such data should help organising the information in this regard.

Appendix A

Transliteration Schemes

देवनागरी	IAST*	WX**	देवनागरी	IAST	WX
अ	a	a	ए	e	e
आ	ā	A	ऐ	ai	E
इ	i	i	ओ	o	o
ई	ī	I	औ	au	O
उ	u	u	अं	aṁ	aM
ऊ	ū	U	अः	aḥ	aH
ऋ	ṛ	q	अँ		az
ॠ	ṝ	Q	ऽ	'	Z
ऌ	ḷ	L			
ॡ	ḹ				

* International Alphabet for Sanskrit Transliteration

** WX Scheme

देवनागरी	IAST	WX	देवनागरी	IAST	WX
क	k	k	प	p	p
ख	kh	K	फ	ph	P
ग	g	g	ब	b	b
घ	gh	G	भ	bh	B
ङ	ṅ	f	म	m	m
च	c	c	य	y	y
छ	ch	C	र	r	r
ज	j	j	ल	l	l
झ	jh	J	व	v	v
ञ	ñ	F	श	ś	S
ट	ṭ	t	ष	ṣ	R
ठ	ṭh	T	स	s	s
ड	ḍ	d	ह	h	h
ढ	ḍh	D			
ण	ṇ	N			
त	t	w			
थ	th	W			
द	d	x			
ध	dh	X			
न	n	n			

Appendix B

Source Code: Lex Rules

Mahābhāṣya Tagger

```
praSna (kaH|ki[m|M]|kimarWa[m|M]|kawara|kuwaH|ucyawe[ ]ki[m|M]|kaH[ ]
      punaH|kva[ ]punaH|kAni[ ]punaH|kaWa[m|M]|kayA|kena|keRA[m|M]|ke[ ]|
      kA[ ]|kva|ki[m|M][ ]punaH|kAni|kasmAw)

prawipraSna (kaH[ ]punaH|ki[m|M][ ]ca|kaH[ ]ca)

AkRepa (evamapi|kvaciw|kaWa[m|M]|yaxi|kasmAw[ ]na|nanu[ ]ca|warhi[ ]
      kasmAw[ ]na|yawra[ ]warhi|waw[ ]warhi|ki[m|M][ ]ucyawe|kaWa[m|M][ ]
      punaH|na[ ]ca[ ]ewaw|na[ ]ca[ ]evam|weRA[m|M][ ]evam|yukwa[m|M][ ]
      punaH|yaxi[ ]eva|asmin[ ]pakRe|kaWa[m|M][ ]warhi|aWa[ ]kimarWa[m|M]
      |na[ ]warhi|yaxi[ ]warhi|wu[ ]na|kA[ ]punaH|warhi[ ]prApnowi|ki[m|
      M][ ]punaH[ ]kAraNam|asya[ ]warhi|yaH[ ]warhi|yaWA[ ]punaH|na[ ]hi[
      ]wasya|ki[m|M][ ]ca)

AkRepaS (ki[m|M][ ]ucyawe|weRA[m|M][ ]evam|aWa[ ]kimarWa[m|M]|ki[m|M][
      ]punaH[ ]kAraNam|asya[ ]warhi|yaH[ ]warhi|yaxi[ ]warhi|yaxi[ ]eva|
      na[ ]vA[ ]evam|kaWa[m|M]|kasmAw[ ]na|ki[m|M][ ]punaH[ ]awra|kaxA[ ]
      ca|yaWA[ ]eva[ ]warhi|kasmAw[ ]eva|kuwaH[ ]na[ ]Kalu|na[ ]ewaw[ ]
      aswi)

prawAkRepa (na[ ]vA|kasmAw[ ]na|kasya[ ]punaH|kasyAH[ ]punaH|kaH[ ]vA
      |kva[ ]ca|kiFca)

%x praSnaBARyam
%x uwwaraBARyam
%x prawipraSnaBARyam
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%x prawipraSnowwaraBARyam
%x AkRepaBARyam
%x samAXAnaBARyam
%x prawyAkRepaBARyam
%x prawyAkRepasamAXAnaBARyam
%x vArwwikam
%x vyAKyABARyam

%%
^\<p\>{praSna}[ \t]*[a-zA-Z \.\t]*\</p\> {printf("[praSnaBARyam] %s",yytext); BEGIN praSnaBARyam;}
^\<p\>[a-zA-Z ]+[ \.\t]+{praSna}[ \t]*[a-zA-Z \.\t]*\</p\> {
printf("[praSnaBARyam] %s",yytext); BEGIN praSnaBARyam;}

^\<p\>[a-zA-Z \.\t]+\.[0-9]+\.\</p\> {printf("[vArwwikam] %s",yytext);
}; BEGIN vArwwikam;}

<vArwwikam>\<p\>[a-zA-Z \.\t]*\</p\> {printf("[vyAKyABARyam] %s",
yytext); BEGIN vyAKyABARyam;}

<vyAKyABARyam>^\<p\>{praSna}[ \t]*[a-zA-Z \.\t]*\</p\> {printf("[
praSnaBARyam] %s",yytext); BEGIN praSnaBARyam;}
<vyAKyABARyam>\<p\>[a-zA-Z ]+[ \t]+{praSna}[ \t]*[a-zA-Z \.\t]*\</p\>
{printf("[praSnaBARyam] %s",yytext); BEGIN praSnaBARyam;}

<vyAKyABARyam>^\<p\>{AkRepaS}[ \t]*[a-zA-Z \.\t]*\</p\> {printf("[
AkRepaBARyam] %s",yytext); BEGIN AkRepaBARyam;}
<vyAKyABARyam>\<p\>[a-zA-Z ]+[ \t]+{AkRepaS}[ \t]*[a-zA-Z \.\t]*\</p\>
\> {printf("[AkRepaBARyam] %s",yytext); BEGIN AkRepaBARyam;}

<vyAKyABARyam>^\<p\>{AkRepa}[ \t]*[a-zA-Z \.\t]*\</p\> {printf("[
AkRepaBARyam] %s",yytext); BEGIN AkRepaBARyam;}
<vyAKyABARyam>\<p\>[a-zA-Z ]+[ \t]+{AkRepa}[ \t]*[a-zA-Z \.\t]*\</p\>
{printf("[AkRepaBARyam] %s",yytext); BEGIN AkRepaBARyam;}

<vyAKyABARyam>^\<p\>[a-zA-Z \.\t]+\.[0-9]+\.\</p\> {printf("[
vArwwikam] %s",yytext); BEGIN vArwwikam;}

<praSnaBARyam>^\<p\>{prawipraSna}[ \t]*[a-zA-Z \.\t]*\</p\> {
printf("[prawipraSnaBARyam] %s",yytext); BEGIN prawipraSnaBARyam;}
<praSnaBARyam>\<p\>[a-zA-Z ]+[ \t]+{prawipraSna}[ \t]*[a-zA-Z \.\t
]*\</p\> {printf("[prawipraSnaBARyam] %s",yytext); BEGIN
prawipraSnaBARyam;}

<praSnaBARyam>\<p\>[a-zA-Z \.\t]+\.[0-9]+\.\</p\> {printf("[
vArwwikam] %s",yytext); BEGIN vArwwikam;}

<prawipraSnaBARyam>\<p\>[a-zA-Z \.\t]*\</p\> {printf("[
prawipraSnowwaraBARyam] %s",yytext); BEGIN prawipraSnowwaraBARyam;}

<prawipraSnaBARyam>\<p\>[a-zA-Z \.\t]+\.[0-9]+\.\</p\> {printf("[
vArwwikam] %s",yytext); BEGIN vArwwikam;}

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<prawipraSnowwaraBARyam>^\<p\>{praSna}[ \t]*[a-zA-Z \.\t]*\</p\> {
    printf("[praSnaBARyam] %s",yytext); BEGIN praSnaBARyam;}
<prawipraSnowwaraBARyam>\<p\>[a-zA-Z ]+[ \t]+{praSna}[ \t]*[a-zA-Z \.\t]*\</p\> {printf("[praSnaBARyam] %s",yytext); BEGIN praSnaBARyam
; }

<prawipraSnowwaraBARyam>\<p\>[a-zA-Z \.\t]+\.[0-9]+\.\</p\> {printf
("[vArwwikam] %s",yytext); BEGIN vArwwikam;}

<prawipraSnowwaraBARyam>^\<p\>{AkRepa}[ \t]*[a-zA-Z \.\t]*\</p\> {
    printf("[AkRepaBARyam] %s",yytext); BEGIN AkRepaBARyam;}
<prawipraSnowwaraBARyam>\<p\>[a-zA-Z ]+[ \t]+{AkRepa}[ \t]*[a-zA-Z \.\t]*\</p\> {printf("[AkRepaBARyam] %s",yytext); BEGIN AkRepaBARyam
; }

<prawipraSnowwaraBARyam>^\<p\>{AkRepaS}[ \t]*[a-zA-Z \.\t]*\</p\> {
    printf("[AkRepaBARyam] %s",yytext); BEGIN AkRepaBARyam;}
<prawipraSnowwaraBARyam>\<p\>[a-zA-Z ]+[ \t]+{AkRepaS}[ \t]*[a-zA-Z \.\t]*\</p\> {printf("[AkRepaBARyam] %s",yytext); BEGIN
AkRepaBARyam;}

<praSnaBARyam>\<p\>[a-zA-Z \.\t]*\</p\> {printf("[uwwaraBARyam] %s
",yytext); BEGIN uwwaraBARyam;}

<uwwaraBARyam>^\<p\>{AkRepaS}[ \t]*[a-zA-Z \.\t]*\</p\> {printf("[
AkRepaBARyam] %s",yytext); BEGIN AkRepaBARyam;}
<uwwaraBARyam>\<p\>[a-zA-Z ]+[ \t]+{AkRepaS}[ \t]*[a-zA-Z \.\t]*\</p
\> {printf("[AkRepaBARyam] %s",yytext); BEGIN AkRepaBARyam;}

<uwwaraBARyam>^\<p\>{AkRepa}[ \t]*[a-zA-Z \.\t]*\</p\> {printf("[
AkRepaBARyam] %s",yytext); BEGIN AkRepaBARyam;}
<uwwaraBARyam>\<p\>[a-zA-Z ]+[ \t]+{AkRepa}[ \t]*[a-zA-Z \.\t]*\</p\>
{printf("[AkRepaBARyam] %s",yytext); BEGIN AkRepaBARyam;}

<AkRepaBARyam>^\<p\>{prawyAkRepa}[ \t]*[a-zA-Z \.\t]*\</p\> {
    printf("[prawyAkRepaBARyam] %s",yytext); BEGIN prawyAkRepaBARyam;}
<AkRepaBARyam>\<p\>[a-zA-Z ]+[ \t]+{prawyAkRepa}[ \t]*[a-zA-Z \.\t
]*\</p\> {printf("[prawyAkRepaBARyam] %s",yytext); BEGIN
prawyAkRepaBARyam;}

<uwwaraBARyam>^\<p\>{praSna}[ \t]*[a-zA-Z \.\t]*\</p\> {printf("[
praSnaBARyam] %s",yytext); BEGIN praSnaBARyam;}
<uwwaraBARyam>\<p\>[a-zA-Z ]+[ \t]+{praSna}[ \t]*[a-zA-Z \.\t]*\</p\>
{printf("[praSnaBARyam] %s",yytext); BEGIN praSnaBARyam;}

<uwwaraBARyam>\<p\>[a-zA-Z \.\t]+\.[0-9]+\.\</p\> {printf("[
vArwwikam] %s",yytext); BEGIN vArwwikam;}

<prawyAkRepaBARyam>^\<p\>{AkRepa}[ \t]*[a-zA-Z \.\t]*\</p\> {
    printf("[AkRepaBARyam] %s",yytext); BEGIN AkRepaBARyam;}
<prawyAkRepaBARyam>\<p\>[a-zA-Z ]+[ \t]+{AkRepa}[ \t]*[a-zA-Z \.\t

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]*\<\/p\> {printf("[AkRepaBARYam] %s",yytext); BEGIN AkRepaBARYam;}

<prawyAkRepaBARYam>\<p\>[a-zA-Z \.\t]+\.[0-9]+\.\<\/p\> {printf("[
vArwwikam] %s",yytext); BEGIN vArwwikam;}

<prawyAkRepaBARYam>\<p\>[a-zA-Z \.\t]*\<\/p\> {printf("[
prawyAkRepasamAXAnaBARYam] %s",yytext); BEGIN
prawyAkRepasamAXAnaBARYam;}

<prawyAkRepasamAXAnaBARYam>^\<p\>{AkRepa}[ \t]*[a-zA-Z \.\t]*\<\/p\>
{printf("[AkRepaBARYam] %s",yytext); BEGIN AkRepaBARYam;}
<prawyAkRepasamAXAnaBARYam>\<p\>[a-zA-Z ]+[ \t]+{AkRepa}[ \t]+[a-zA-Z
\.\t]*\<\/p\> {printf("[AkRepaBARYam] %s",yytext); BEGIN
AkRepaBARYam;}

<prawyAkRepasamAXAnaBARYam>^\<p\>{praSna}[ \t]*[a-zA-Z \.\t]*\<\/p\>
{printf("[praSnaBARYam] %s",yytext); BEGIN praSnaBARYam;}
<prawyAkRepasamAXAnaBARYam>\<p\>[a-zA-Z ]+[ \t]+{praSna}[ \t]*[a-zA-Z
\.\t]*\<\/p\> {printf("[praSnaBARYam] %s",yytext); BEGIN
praSnaBARYam;}

<prawyAkRepasamAXAnaBARYam>\<p\>[a-zA-Z \.\t]+\.[0-9]+\.\<\/p\> {
printf("[vArwwikam] %s",yytext); BEGIN vArwwikam;}

<AkRepaBARYam>\<p\>[a-zA-Z \.\t]*\<\/p\> {printf("[samAXAnaBARYam]
%s",yytext); BEGIN samAXAnaBARYam;}

<AkRepaBARYam>\<p\>[a-zA-Z \.\t]+\.[0-9]+\.\<\/p\> {printf("[
vArwwikam] %s",yytext); BEGIN vArwwikam;}

<samAXAnaBARYam>^\<p\>{AkRepaS}[ \t]*[a-zA-Z \.\t]*\<\/p\> {printf("[
AkRepaBARYam] %s",yytext); BEGIN AkRepaBARYam;}
<samAXAnaBARYam>\<p\>[a-zA-Z ]+[ \t]+{AkRepaS}[ \t]*[a-zA-Z \.\t]*\<\/
p\> {printf("[AkRepaBARYam] %s",yytext); BEGIN AkRepaBARYam;}

<samAXAnaBARYam>^\<p\>{AkRepa}[ \t]*[a-zA-Z \.\t]*\<\/p\> {printf("[
AkRepaBARYam] %s",yytext); BEGIN AkRepaBARYam;}
<samAXAnaBARYam>\<p\>[a-zA-Z ]+[ \t]+{AkRepa}[ \t]*[a-zA-Z \.\t]*\<\/p
\> {printf("[AkRepaBARYam] %s",yytext); BEGIN AkRepaBARYam;}

<samAXAnaBARYam>^\<p\>{praSna}[ \t]*[a-zA-Z \.\t]*\<\/p\> {printf("[
praSnaBARYam] %s",yytext); BEGIN praSnaBARYam;}
<samAXAnaBARYam>\<p\>[a-zA-Z ]+[ \t]+{praSna}[ \t]*[a-zA-Z \.\t]*\<\/p
\> {printf("[praSnaBARYam] %s",yytext); BEGIN praSnaBARYam;}

<samAXAnaBARYam>\<p\>[a-zA-Z \.\t]+\.[0-9]+\.\<\/p\> {printf("[
vArwwikam] %s",yytext); BEGIN vArwwikam;}
%%

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Śābarabhāṣya Tagger

```
AkRepa (kaWa[m|M]|ki[m|M]|kasmAw|nanu|aWa[ ]yaxi|na[ ]brUmaH|kA[ ]
punaH|yaxi[ ]punaH|kuwaH|evam[ ]warhi|yaxi[ ])

%x AkRepa
%x samAXAnam

%%
^\
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Generalised Tag Dictionary

Specific Relations	General Tags
vyapekRAvAxinaH_praSnaBARyam	praSnaBARyam
kAryaSabxikapraSnaBARyam	praSnaBARyam
AkRepasmAraNaBARyam	AkRepaBARyam
praWamAkRepaBARyam	AkRepaBARyam
xviwIyAkRepaBARyam	AkRepaBARyam
wqwIyAkRepaBARyam	AkRepaBARyam
AkRepAnwaraBARyam	AkRepaBARyam
AkRepASayaBARyam	AkRepaBARyam
AkRepASayAnwaraBARyam	AkRepaBARyam
sAmayikaviBakwyAkRepaBARyam	AkRepaBARyam
praWamAkRepasamAXAnaBARyam	samAXAnaBARyam
xviwIyAkRepasamAXAnaBARyam	samAXAnaBARyam
wqwIyAkRepasamAXAnaBARyam	samAXAnaBARyam
samAXAnAnwaraBARyam	samAXAnaBARyam
samAXAnaBARyapraWamaKaNdham	samAXAnaBARyam
samAXAnaBARyaxviwIyaKaNdham	samAXAnaBARyam
prawipraSnAnwarowwaraBARyam	uwwaraBARyam
AkRepASayAviRkAraBARyam	AkRepaBARyam
prawipraSnAnwaraBARyam	praSnaBARyam
vArwwikAvawaraNapraSnaBARyam	praSnaBARyam
ekaxeSinaH_praWamasamAXAaBARyam	uwwaraBARyam
vArwwikAvawAraBARyam	praSnaBARyam
vArwwikapraNayanAkRepaBARyam	AkRepaBARyam
praSnaxvAra_vArwwikAvawaraNaBARyam	praSnaBARyam

praWamAkRepasmAraNaBARyam	AkRepaBARyam
SlokavArwwikAvawaraNasUcakapraSnaBARyam	praSnaBARyam
vArwwikAnupapawwisAXakAkRepaBARyam	AkRepaBARyam
samAXAnavArwwikam	vArwwikam
ekArWIBAvakqwaviSeRasAXakaBARyavArwwikam	vArwwikam
ekArWIBAvakqwaviSeRAnwarasAXakaBARyavArwwikam	vArwwikam
arWABiXAnasya_svABAvikawvapakRe_lAGavaxarSakavArwwikam	vArwwikam
pakRAnwaravArwwikam	vArwwikam
xURaNaxarSakavArwwikam	vArwwikam
xURANanwaravArwwikam	vArwwikam
xviwIyaxURaNabAXakavArwwikam	vArwwikam
vAkyalakRaNavArwwikam	vArwwikam
vAkyalakRANanwaravArwwikam	vArwwikam
vAkyalakRANaprayoJanavArwwikam	vArwwikam
xURaNavArwwikam	vArwwikam
samAnavAkyAXikAraPalavArwwikam	vArwwikam
AkRepavArwwikam	vArwwikam
asAmarWyopapAxakavArwwikam	vArwwikam
AkRepasamAXAnAwixeSavArwwikam	vArwwikam
samAXAnAnwaravArwwikam	vArwwikam
praWamapakRexURaNavArwwikam	vArwwikam
xURaNasAXakavArwwikam	vArwwikam
xURaNoxAharaNavArwwikam	vArwwikam
samAXAnahewvanwaravArwwikam	vArwwikam
samAXAnasAXakavArwwikam	vArwwikam
xviwIyaxURaNabAXakavArwwikAnwaram	vArwwikam
vyAKyAnwarAya_nyAsAnwaram	vArwwikam
saFjFAnirxeSavArwwikam	vArwwikam
anyaWANupapawwivArwwikam	vArwwikam
anupapawwanwaravArwwikam	vArwwikam
AkRepAnwaravArwwikam	vArwwikam
anvarWasafjAnirAlaraNavArwwikam	vArwwikam
praXAnakarwqvyApAranirupaNavArwwikam	vArwwikam
aXikaraNasya_karwqwvanixarSakavArwwikam	vArwwikam
karaNasya_karwqwvanixarSakavArwwikam	vArwwikam
spaRtIkaraNaxviwIyaKaNdavArwwikam	vArwwikam
praXanakarwuH_vyApAroxAharaNanwaravArwwikam	vArwwikam
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apAxAnasaMpraxAnAxInAM_karwqwvAprasixXinixarSakavArwwikam	vArwwikam
anupapawwinirAkaraNavArwwikam	vArwwikam
nyUnawApUrwivArwwikam	vArwwikam
karmagrahaNanarWakyavArwwikam	vArwwikam
akArakawvapakRe_xURaNavArwwikam	vArwwikam
kArakawvapakRe_xURaNavArwwikam	vArwwikam
prawiReXavArwwikam	vArwwikam
samAXAnaSlokavArwwikam	vArwwikam
RaRTIviBakwiviXAyakaM_SlokavArwwikam	vArwwikam
RaRTIprayogakAraNaSlokavArwwikam	vArwwikam
vyawirekaSlokavArwwikam	vArwwikam
samuciwviBakwiviXAyakaSlokavArwwikam	vArwwikam
mawAnwaraparaSlokavArwwikam	vArwwikam
mawAnwaraxarSakaSlokavArwwikam	vArwwikam

samAXAnaSlokavArwwikam	vArwwikam
mawAnwaraSlokavArwwikam	vArwwikam
nyUnawApUrwwiSlokavArwwikam	vArwwikam
kalmasaFjFASlokavArwwikam	vArwwikam
praWamapakRe_AkRepavArwwikam	vArwwikam
upasaMKyAnAkRepavArwwikam	vArwwikam
xviwIyapakRAkRepavArwwikam	vArwwikam
upasaMKyAnavArwwikam	vArwwikam
akarmakawvAwixeSavArwwikam	vArwwikam
samAXAnAnwaravArwwikam	vArwwikam
samAXAnasAXakavArwwikam	vArwwikam
viRayapraswAvavArwwikam	vArwwikam
prayojanavArwwikam	vArwwikam
SabxArWasambanXaprawiRTiwaSAswranirUpakavArwwikapraWamaKaNdandam	vArwwikam
SabxArWasambanXANAM_lokavyavahArasixXawvabAXakavArwwikaxviwIyaKaNdandam	vArwwikam
SAswropayogaprakaWane_vArwwikawqwIyaKaNdandam	vArwwikam
xqRtAnwaxarSakavArwwikam	vArwwikam
AkRepabAXakavArwwikam	vArwwikam
aprayogasAXanavArwwikam	vArwwikam
aprayukwawvasAXakapakRANwaravArwwikam	vArwwikam
FjAnasya_aXarmajanakawvavArwwikam	vArwwikam
niyamaboXakavArwwikam	vArwwikam
prayogapakRe_xURaNavArwwikam	vArwwikam
FjAnapUrvakaprayogAByupagamasixXAnwavArwwikam	vArwwikam
sUwrapakRe_AkRepavArwwikam	vArwwikam
AkRepAnwaravArwwikam	vArwwikam
SabxapakRe_AkRepavArwwikam	vArwwikam
varNopaxeSaprayojanavArwwikam	vArwwikam
prayojanAnwaravArwwikam	vArwwikam
AkRepanirAkaraNavArwwikasaxqSavacanandam	vArwwikam
prawyAKyAnavArwwikam	vArwwikam
xURaNaparihAravArwwikam	vArwwikam
viBakwiniyamapakRe_samAXAnavArwwikam	vArwwikam
arWaniyampakRe_samAXAnavArwwikam	vArwwikam
vacanAnwarApawwivArwwikaxviwIyaKaNdandam	vArwwikam
AkRepaparihAravArwwikam	vArwwikam
awixeSavArwwikam	vArwwikam
xoRanivAraNavArwwikam	vArwwikam
kqxgrahaNanarWakyavArwwikam	vArwwikam
prayojananirAkaraNavArwwikam	vArwwikam
xURaNanirAkaraNavArwwikam	vArwwikam
anyaWAsixXivArwwikam	vArwwikam
xoRanirAkaraNavArwwikam	vArwwikam
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prawiprasavavArwwikam	vArwwikam
vikalpavArwwikam	vArwwikam
spaRtIkaraNaVarwwikam	vArwwikam
karwqgrahaNopapawwivArwwikam	vArwwikam
vacanAnwarApawwivArwwikapraWmaKaNdandam	vArwwikam
uxAharaNasAXakavArwwikam	vArwwikam
sUwrasArWakavArwwikam	vArwwikam

praWamAprayogavArwwikam	vArwwikam
parigaNanavArwwikam	vArwwikam
parigaNanaprayojanavArwwikam	vArwwikam
AkRepavArwwikam	vArwwikam
kAraNapraxarSakavArwwikam	vArwwikam
niravakASawvasAXakavArwwikam	vArwwikam
prawyAKyAnahewvanwaravArwwikam	vArwwikam
prawyAKyAnanirAkaraNaBARyam	vArwwikam
upasaMKyAnavArwwikAnwaram	vArwwikam
upasaMKyAnaSlokavArwwikam	vArwwikam
sUwravEyarWyavArwwikam	vArwwikam
praWamAnupapawwivArwwikam	vArwwikam
xviwIyapakRAByUpagamavArwwikam	vArwwikam
paryAyagrahaNavArwwikam	vArwwikam
awivyApwivArwwikam	vArwwikam
nyAsAnwaravArwwikam	vArwwikam
lAGavapraxarSkavArwwikam	vArwwikam
vikalpavAraNavArwwikam	vArwwikam
niyamavArwwikam	vArwwikam
awivyApwinivAraNavArwwikam	vArwwikam
prawiReXavArwwikam	vArwwikam
bahuvrIhivAxivArwwikam	vArwwikam
nyUnawApUrwanwaravArwwikam	vArwwikam
prayojanabAXakavArwwikam	vArwwikam
lakRyAnwarasAXakavArwwikam	vArwwikam
sUwrAnarWakyavArwwikam	vArwwikam
saxqSagrahaNaprawyAKyAnavArwwikam	vArwwikam
samAXAnanirAkaraNavArwwikam	vArwwikam
nyAsAnwareNa_samAXAnavArwwikam	vArwwikam
nipAwanavArwwikam	vArwwikam
AkRepasAXakavArwwikam	vArwwikam
prayojanasAXakavArwwikam	vArwwikam
paryuxAsavArwwikam	vArwwikam
praWamaKaNdavArwwikam	vArwwikam
niyamAnwaravArwwikam	vArwwikam
xviwIyaKaNdavArwwikam	vArwwikam
arWagrahaNavArwwikam	vArwwikam
anyaWAsixXivArakavArwwikam	vArwwikam
AnarWakyavArwwikam	vArwwikam
vArwwikam	vArwwikam
wawpuruRavAxivArwwikam	vArwwikam
nyUnawApUrwikAraNanwaravArwwikam	vArwwikam
viBakwiniyamaSlokavArwwikam	vArwwikam
vyavahAraniyamaSlokavArwwikam	vArwwikam
niyamaprakArAnwavArwwikam	vArwwikam
ekavacanaSlokavArwwikam	vArwwikam
sOnAgavArwwikam	vArwwikam
nyUnawApUrwwivArwwikam	vArwwikam
nyUnawApUrwwiprawyAKyAnavArwwikam	vArwwikam
vEyarWyApawwivArwwikam	vArwwikam
sixXAnwavArwwikam	vArwwikam
praWamapakRe_xURaNavArwwikam	vArwwikam

ukwavArwwikaprawyAKyAnavArwwikam	vArwwikam
samAXAnabAXakavArwwikam	vArwwikam
viprawiReXaprawyAKyAnavArwwikam	vArwwikam
viprawiReXavArwwikam	vArwwikam
niREXavArwwikam	vArwwikam
samAXAnAnwarabAXakavArwwikam	vArwwikam
uwwarapaxalopaviXAYakavArwwikam	vArwwikam
samAnAXikaraNapakRe_xURaNavArwwikam	vArwwikam
paraviprawiReXavArwwikam	vArwwikam
pUrvapaxAwiSaya_AwiSAyikavyavasWAvArwwikam	vArwwikam
bahUnAM_wawpuruRaviXAYakavArwwikam	vArwwikam
viXAnAnwaravArwwikam	vArwwikam
parimANiSaxasArWakyasAXakavArwwikam	vArwwikam
AwiSayikasya_balavawwvasAXakavArwwikam	vArwwikam
kvaciw_karmaXArayaprakqwikaawvarWYasAXakavArwwikam	vArwwikam
nyUnawApurwwyanwaravArwwikam	vArwwikam
bahuvrIheH_karmaXArayaprakqwikamawvarWIyApavAxawvasAXakavArwwi kam	vArwwikam
aByupagame_xoRavArwwikam	vArwwikam
ekaxeSinaH_AkRepaBARyam	AkRepaBARyam
ekaxeSinaH_samAXAnaBARyam	samAXAnaBARyam
samAXAnavArwwikapraWamaKaNdaH	vArwwikam
samAXAnavArwwikaxviwIyaKaNdaH	vArwwikam
wawpuruRAkRepaBARyam	AkRepaBARyam
watasWAKRepaBARyam	AkRepaBARyam
vArwwikAvawaraNapraSnaBARyam	praSnaBARyam
sixXAnwina_AkRepaBARyam	AkRepaBARyam
AnarWakyanirAkaraNavArwwikam	vArwwikam
praWamapakRAkRepaBARyam	AkRepaBARyam
praWamapakRAkRepasamAXAnaBARyam	samAXAnaBARyam
xviwIyapakRAkRepaBARyam	AkRepaBARyam
xviwIyapakRAkRepasamAXAnaBARyam	samAXAnaBARyam
praWamapakRe_AkRepaBARyam	AkRepaBARyam
xviwIyapakRe_AkRepaBARyam	AkRepaBARyam
ekaxeSisamAXAnaBARyam	samAXAnaBARyam
prawyAkRepeNa_samAXAnaBARyam	samAXAnaBARyam
pUrvapakRiNaH_samAXAnaBARyam	samAXAnaBARyam
viSiRtArWanirXaraNena_uwwaraBARyam	uwwaraBARyam
wqwIyAsamAse_xURaNavArwwikam	vArwwikam
xURaNabAXanAkRepaBARyam	AkRepaBARyam
mawvarWIyowpawwibAXakAkRepaBARyam	AkRepaBARyam
mawvarWIyowpawwisAXakasamAXAnaBARyam	samAXAnaBARyam
viprawiReXAsaMBavena_karmaXArayaprakqwikamawvarWIyowpawwyAkRep aBARyam	AkRepaBARyam
sixXAnwinaH_AkRepaBARyam	AkRepaBARyam
pUrvapakRinaH_praSnaBARyam	praSnaBARyam
samAXAnabAXakAkRepaBARyam	AkRepaBARyam
sixXAnwyAkRepaBARyam	AkRepaBARyam
sixXAnwAkRepasAXakaBARyam	samAXAnaBARyam
nyUnawApUrwwiprawyAKyAnavArwwikam	vArwwikam
samAsaniReXavArwwikam	vArwwikam
anyawarasyAMgrahaNajFapakavArwwikam	vArwwikam

vArwwikAvawaraNaprawipraSnaBARyam	prawipraSnaBARyam
sUwraprayoJanavArwwikam	vArwwikam
analviXovEyarWyavArwwikam	vArwwikam
viSeRAnawixeSavArwwikam	vArwwikam
upasaMKyAnaprawiReXavArwwikam	vArwwikam
anAxeSawvasAXakaBARaxvAjIyavArwwikam	vArwwikam
anAxeSawvasAXakAnwaraBARaxvAjIyavArwwikam	vArwwikam
samAXAnAnwaraBARyavArwwikam	vArwwikam
sUwrasvarUpAnwarasAXakaBARyavArwwikam	vArwwikam
sWAnivaxBAvaprawiReXavArwwikam	vArwwikam
prawiReXanirAkaraNavArwwikam	vArwwikam
asiXavacananirAkaraNavArwwikam	vArwwikam
uBayasAXakavArwwikam	vArwwikam
parihArasmArakavArwwikam	vArwwikam
BAvABAvAwixeSaSlokavArwwikam	vArwwikam
aniRtApawwivArwwikam	vArwwikam
pUrvavArwwikaprawyAKyAnavArwwikam	vArwwikam
BARaxvAjIyavArwwikopakramaBARyam	vArwwikam
sUwraprayojanaSlokavArwwikam	vArwwikam
SlokavArwwikapraWamaKaNdam	vArwwikam
SlokavArwwikaxviwIyaKaNdam	vArwwikam
SlokavArwwikawqwIyaKaNdam	vArwwikam
SlokavArwwikacawurWaKaNdam	vArwwikam
upasaMKyAnasAXakavArwwikAnwaram	vArwwikam
ekaxeSisamAXAnaBARyam	uwwaraBARyam

Appendix C

Sample I/O Files

Input File Sample

```
<?xml version="1.0" encoding="UTF-8"?>
<div>
<p>paspasAhnikaM</p>
1 (aWa SabxasvarUpanirNayAXikaraNam)
<p>aWa SabxAnuSAsanam.1.</p>
<p>aWa iwi ayaM SabxaH aXikArArWaH prayujyawe. SabxAnuSAsanam SASwram
aXikqwyA vexiwavyam.</p>
<p>keRAm SabxAnAm.</p>
<p>lOkikaNAm vExikaNAm ca. wawra lOkikaH wAvaw. gOH aSvaH puruRaH
haswI Sakuni mqgaH brAhmaNaH iwi. vExikaNAm Kalu api. SaM no xevIH
aBIRtaye. iRe wveje wvAM. agnimILe purohiwam. agna AyAhi vIwaya iwi
.</p>
<p>aWa gOH iwi awra kaH SabxaH.</p>
<p>kiM yaw waw sAsnAlAfgulakakuxaKuraviRANyarWarUpam saH SabxaH.</p>
<p>na iwi Aha. xravayM nAma waw.</p>
<p>yaw warhi waw ifgiwam nimiriwam saH SabxaH.</p>
<p>na iwi Aha. kriyA nAma sA.</p>
<p>yaw warhi waw SuklaH nIlAaH kqRNaH kapowaH iwi saH SabxaH.</p>
<p>na iwi Aha. guNaH nAma saH.</p>
<p>yaw warhi wax BinneRu aBinnam XinneRu acCinnam sAManyaBUwam saH
SabxaH.</p>
<p>na iwi Aha. AkqwiH nAma sA.</p>
<p>kaH warhi SabxaH.</p>
<p>yena uccAriwena sAsnAlAfgulakakuxaKuraviRANinAM saMprawyayaH Bavawi
saH SabxaH.</p>
```

<p>aWavA prawIwapaxArWakaH loke XvaniH SabxaH iwi ucyawe. waw yaWA.
 Sabxam kuru. mA Sabxam kARiH. SabxakAryayam mANavakam iwi. Xvanim
 kurvannevam ucyawe. wasmAx XvaniH SabxaH.</p>

2 (aWa vyAkaraNaSAswraprayoJanAXikaraNam)

<p>kAni punaH SabxAnuSAsanasya prayoJanAni.</p>

<p>rakRohAgamalaGvasaMxehAH prayoJanam.2.</p>

<p>rakRARWe vexAnAXyeyam vyAkaraNam. lopAgamavarNavikArFjFaH hi
 samyagvexAnparipAlayiRyawi.</p>

<p>UhaH Kalu api. na sarvEH lifgEH na ca sarvABiH viBakwiBiH vexaH
 manwrAH nigaxiwaH. we ca avaSyam yaFjyaxawwena yaWayaWam
 vipariNamayiwavyAH. wAnnAvEyAkaraNaH Saknowi yaWayaWam
 vipariNamayiwum. wasmAx aXyeyam vyAkaraNam.</p>

<p>AgamaH Kalu api. brAhmaNena niRkAraNo XarmaH RadafgaH vexaH aXyeyaH
 FjFeyaH iwi. praXAnam ca Ratsu afkeRu vyAkaraNam. praXane ca kqwaH
 yawnaH PalavAn Bavawi.</p>

<p>laGvarWe ca aXyeyam vyAkaraNam. brAhmaNena avaSyam SabxAH FjFeya
 iwi. na ca anwareNa vyAkaraNam laGunA upAyena SabxAH SakyAH FjFAwum
 .</p>

<p>asaMxehArWe ca aXyeyam vyAkaraNam. yaFjikAH paTanwi.
 sWUlapqRawImAgnivAruNImandvAhI ma laBewe iwi. wasyAM saMxehaH sWULA
 ca asO pqRawI ca sWUlapqRawI sWULAni pqRanwi yasyAH sa
 sWUlapqRawIwi. wAM nAvEyAkaraNaH svarawaH aXyavasyawi. yaxi
 pUrvapaxaprakqwisvarawvam wawaH bahuvrIhiH. aWa anwoxAwwawvaM wawaH
 wawpuruRaH iwi.</p>

<p>imAni ca BUyaH SabxAnuSAsanasya prayoJanAni. we asurAH. xuRtaH
 SabxaH. yaw aXIwam. yaH wu prayufkwe. avixvAMsaH. viBakwim kurvanwi
 . yaH vA imAm. cawvAri. uwa wvaH. sakwumiva. sArasvawIm. xaSamyAM
 puwrasya. suxevaH asi varuNaH iwi.</p>

<p>we asurAH. we asurAH helayaH helayaH iwi kurvanwaH parAbBUvuH.
 wasmAw brAhmaNena na mlecciwavE na apaBARiawavE. mleccAH ha vA eRaH
 yaw apaSabxaH. mleccAH mA BUmewyaXyeyaM vyAkaraNam. we asurAH.</p>

<p>xuRtaH SabxaH. xuRtaH SabxaH svarawaH varNawaH vA miWya prayukwaH
 na wam arWam Aha. saH vAg vajraH yajamAnam hinaswi yaWA inxraSawruH
 svarawaH aparAXAw. xuRtAFSAbxAnmA prayukRmahIwyaXyeyam vyAkaraNam.
 xuRtaH SabxaH.</p>

<p>yaw aXIwam. yaw aXIwam aviFjFAwam nigaxenEva Sabxyawe. anagnAviva
 SuRkEXo na wajjvalawi karhiciw. wasmAx anarWakam mA
 aXigIRmahIwyaXyeyaM vyAkaraNam. yaw aXIwam.</p>

<p>yaH wu prayufkwe. yaH wu prayufkwe kuSalaH viSeRe SabxAnyawAvax
 vyavahArakAle. saH ananwam Apnowi jayam parawra vAgyogavix xuRyawi
 ca apaSabxEH. kaH. vAgyogavixeva. kuwaH ewaw. yaH hi
 SabxAFjAnAwyapaSabxAnapsO jAnAwi. yaWEva hi SabxAFjFane XarmaH evam
 apaSabxAFjFane apaXarmaH. aWavA BUyaH anaXarmaH prApnowi. BUyAMsaH
 apaSabxAH alpIyAMsaH SabxAH. ekEkasya hi Sabxasya bahavaH
 apaBraMSAH. waw yaWA. goH iwi asya Sabxasya gAvI goNI gowa
 gopowalika iwi evam AxayaH apaBraMSAH. aWa yaH avAgyogaviw.
 aFjFAnam wasya SaraNam.</p>

<p>nAwyawAyAFjFAnam SaraNam Baviwum arhawi. yaH hyajAnanvE brAhmaNam
 hanyAwsurAM vA pibew saH api manye pawiwah syAw.</p>

<p>evam warhi saH ananwam Apnowi jayam parawra vAgyogavix xuRyawi ca
 apaSabxEH. kaH. avAgyogavixeva. aWa yaH vAgyogaviw. viFjFAnam wasya
 SaraNam.</p>

<p>kva punaH ixaM paTiwam.</p>

<p>BrAja nAma SlokaH.</p>

<p>kiM ca BoH SlokaH api pramANam kiM ca awaH yaxi pramANam ayam api SlokaH pramANam Baviwum arhawi. yaxuxumbaravarNanAM GatInAM maNdalaM mahaw. piwaM na gamayewsvarge kim wawkrawugawaM nayexiwi.</p>

<p>pramawwagIw eRaH wawraBawawo yaswvpramawwagIwaswawpramANam. yaH wu prayufkwe.</p>

<p>avixvAMsaH. avixvAMsaH prawyaBivAxe nAmno ye na pluwiM vixuH. kAmam weRu wu viproRya swrIRvivAyamaham vaxew. aBivAxe swrIvnmA BUmewyaXyeyaM vyAkaraNam. avixvAMsaH.</p>

<p>viBakwiM kurvanwi. yAFjikAH paTanwi. prayAhAH saviBakwikAH kArya iwi. na ca anwareNa vyAkaraNam prayAjAH saviBakwikAH SakyAH karwum. viBakwiM kurvanwi.</p>

<p>yo vA imAm. yo vA imAm paxaSaH svaraSaH akRaraSaH vAcaM vixaXawi saH ArwvijInaH. ArwvIjInAH syAmewyaXyeyaM vyAkaraNam. yo vA imAm.</p>

<p>cawvAri. cawvAri SqfgA wrayo asya pAxA xve SIrRe sapwa haswaso asya . wriXA baxXo vqRaBo roravIwi maho xevo marwyAZ A viveSa. cawvAri SqfgAni cawvAri paxajAwani nAmAKyAwopsarganipAwASca. wrayo asya pAxAswrayaH kAlA BUwaBaviRyaxvarwamAnAH. xve SIrRe xvO SabxAwmanO niwyaH kAryaH ca. sapwa haswAsO asya sapwa viBakwayaH. wriXA baxXaswriRu sWaneRu baxXa urasi kNte SirasIwi. vqRaBo varRaNAw. roravIwi Sabxam karowi. kuwa ewaw. rOwiH SabxakarmA. maho xevo mrwyA AviveSewi. mahAnxevaH SabxaH. marwyA maraNaXarmANo manuRyAH. wAnAviveSa. mahawA xevena naH sAmyaM yaWA syAXiwyaxyeyam vyAkaraNam .</p>

<p>apara Aha. cawvAri vAkparimiwa paxAni wAni vixurbrAhmaNA ye manIRiNaH. guhA wrINi nihiwa nefgayanwi wurIyaN vAco manuRyA vaxanwi. cawvAri vAkparimiwa paxAni. cawvAri paxajAwani nAmAKyAwopasarganipAwASca. wAni vixurbrAhmaNA ye manIRiNaH. manasa IRiNo manIRiNaH. guhA wrINi nihiwa nefgayanwi. guhAyAM wrINi nihiwani nefgayanwi. na ceRtanwe. na nimiranwiwyarWaH. wurIOyaM vAco manuRyA vaxanwi. wurIyam ha vA ewaxvAco yanmanuRyeRu varwawe. cawurWaniwyarWaH. cawvAri.</p>

<p>uwa wvaH. uwa wvaH paSyanna xaxarSa vAcamuwa wvaH SqNvanna SqNvowyenAm. uwo wvasmE wanvaM vi sasawre jAyeva pawya uSawI suvAsAH. api KalvekaH paSyannapi na paSyawi vAcam. api KalvekaH SqNvannApi na SqNowyenAm. avixvAMsamAhArXam. uwo wvasmE wanvaM visanne. wanuM vivqNuwe. jAyeva pawya uSawI suvAsAH. waxyaWA jAyA pawye kAmaymAna subvAsAH svamAwmaM vivqNuwa evaM vAgvAgvixe svamAwmaM vivqNuwe. vAf no vivqNuyAxAwmaMamiwyaXyeyaM vyAkaraNam. uwa wvaH.</p>

<p>sakwumiva. sakwumiva wiwauna punanwo yawra XIrA manasa vAcamakrawa. awra saKayaH saKyAni jAnawe BxrERAM lakRmIrnihiwAXi vAci. sakwuH sacawerxurXAvo Bavawi. kasawervA viparIwAxvikasiwo Bavawi. wiwau paripavanaM Bavawi wannavxvA. XIrA XyAnavnwo manasa praJfJAnena vAcamakrawa vAcakqRawa. awra saKayaH saKyAni jAnawe. awra saKayaH sanwaH saKyAni jAnawe. sAyujyAni jAnawe. kva. ya eRa xurgo mArga ekagamyo vAgviRayaH. ke punaswe. vEyAkaraNAH. kuwa ewaw. BaxrERAM lakRmIrnihiwAXi vAci. eRAM vAci BaxrA lakRmIrnihiwa Bavawi. lakRmIrlakRmaNaxBasanAwparivqDA Bavawi. sakwumiva.</p>

[xvAxaSapraawIkaBARyam] <p>sArasvawIma. yAFjFikAH paTanwi.
AhiwAgnirapaSabxAM prayujya prAyaSciwwIyaM sArasvawImiRtiaM
nirvapexiwi. prAyaSciwwIya mA BUmewyaXyeyaM vyAkaraNam. sArasvawIm.
</p>

<p>xaSamyAM puwrasya. yAFjFikAH paTanwi. xaSamyuuwarakAlaM puwrasya
jAwasya nAma vixaXyAxXoRavaxAxyanwarawnaHsWamavqxXaM
wripuruRANUkamanariprawiRTiwaM waxXi prawiRTiawamaM Bavawi.
xvayakRaraM cawukRaraM vA nAma kqwaM kuryAnna waxXiwamiwi. na
cAnwareNa vyAkaraNam kqwaswaxXiwa vA SakyA viFjAwum. xaSamyAM
puwrasya.</p>

<p>suxevo asi. suxevo asi varuNa sawyaxeVaH asi yasya we sapwa
sinXavaH sapwa viBakwayaH. anurakRanwi kAkuxam. kAkuxaM wAlu.
kAkurjihvA sASminnuxyawa iwi kAkuxam. sUrmyaM suRirAmiva. waxyaWA
SoBanAmUrmiM siRirAmAgniranwi praviSyA xahawyevam wava sapwa
sinXavaH sapwa viBakwayaH wAlvanurakRanwi. wenAsi sawyaxeVaH.
sawyaxeVaH syAmewyaXyeyaM vyAkaraNam. suxevo asi.</p>

<p>kiM punarixam vyAkaraNamevAXijigAMsamAneByaH prayojanamAnvAKyAyawe
na punaranyaxapi kiMciw omiwyukwvA vqwwAnwaSaH
SamiwyevamAxIFSabxAnpaTanwi.</p>

<p>purAkAlpa ewaxAsIw. saMskArowwarakAlaM brAhmaNa vyAkaraNam
smAXIyawe. weByaswawra sWanakaraNAnupraxAnaFjeByo vExikAH SabxA
upaxiSanwe. waxaxyawve na waWA. vexamaXIwya wvariwyA wvariwa
vakWaro Bavanwi. vexAnno vExikAH SabxAH sixXA lokAcca lOkikAH.
anarWakam vyAkaraNamiwi. weByaH evaM viprawipannabuxXiByaH
aXyewqByaH AcAryaM ixaM SASwramanvAcaRte. imAni prayojanAnyaxyeyaM
vyAkaraNamiwi.</p>

<p>ukwaH SabxaH. svarUpamapyukwam. prayojanAnyapyukwAni.</p>
3 (aWa SASwrarIwinirUpaNAXikaraNam)

<p>SabxAnuSAsanam ixAnIM karwavyam. waw kaWaM karwavyam. kiM
SabxopaxeSaH karwavya Ahosviw apaSabxopaxeSa Ahosviw uBayopaxeSa
iwi.</p>

<p>anyawaropaxeSena kqwaM syAw. waw yaWA. BakRyanyamena
aBakRyaprawiReXaH gamyawe.paFca paFcanaKA BakRyA iwyukwe gamyawa
ewaw awaH anye aBakRyA iwi. aBakRyaprawiReXena vA BakRyanyamaH.
waw yaWA. aBakRyo grAmyakukkutaH aBakRyaH grAmyaSUKaraH iwyukwe
gamyawa ewaxAraNyo BakRya iwi. evamihApi yaxi wAvacCabxopaxeSaH
kriyawe gOriwyewasminnupaxiRte gamyawa ewaw gAvyAxayaH apaSabxAH
iwi. aWa apaSabxAH upaxeSaH kriyawe gAvyApUpaxiRteRu gamyawa ewaw
gOH iwi eRaH SabxAH iwi.</p>

<p>kiM punaH awra jyAyaH.</p>

<p>laGuwvAcCabxopaxeSaH. laGIyAFSABxopaxeSaH garIyAnapaSbxopaxeSaH.
ekEkasya Sbxasya bahavaH apaBraMSAH. waw yaWA. goriwyasya Sabxasya
gAvIgoNIgowAgopowAlikAxayaH apaBraMSAH. iRtAnvAKyAnam Kalvapi
Bavawi.</p>

<p>aWEwasmifSABxopaxeSe sawi kiM SabxAnAM prawipawwO prawipaxapATaH
karwavyaH. gOraSvaH puruRo haswI Sakunirmqga brAhmaNa iwyevamAxAyaH
SabxAH paTiwavyAH.</p>

<p>na iwi Aha. anaByupAya eRaH SabxAnAM prawipawwO prawipaxapATaH.
evaM hi SrUyawe. bqhaspawirinxrAya xivyaM varRasahasraM
prawipaxokwAnAM SabxAnAM SabxapArAyaNaM pravoca nAnwam jagAma.
vqhsapwiH ca pravakwe inxraH ca aXyewa. xivyam varRasahasram
aXyayanakAlo na ca anwaM jagAma. kiM punaH axyawve. yaH sarvaWA

ciraM jIvawi sa varRaSawam jIvawi. cawurBiSca prakArErvixyopayukwA
 BavawyAgamakAlena svAXyAyakAlena pravacanakAlena vyavahArakAlenewi.
 wawra cAgamakAlenEvAyuH paryupayukwam syAw. wasmAxnByupAyaH
 SabxAnAM prawipawwO prawipaxapATaH.</p>
 <p>kaWam warhIme SabxAH prawipawwavyAH.</p>
 <p>kiMciw sAMAnyaviSeRavallakRaNaM pravarwya yenAlpena yawnena mahawo
 mahawaH SabxOXAnprawipaxyeran. kiM punaswaw. uwsargApavAxO.
 kaScixuwsargaH karwavyaH kaScixapavAxaH.</p>
 <p>kaWam jAwIyakaH punaH uwsargaH karwavyaH kaWamjAwIyakaH apavAxaH.</p>
 <p>sAMAnyena uwsargaH karwavyaH. waxyaWA. karmaNyaN. wasya
 viSeRaNapavAxaH. waxyaWA. Awa anupasarge kaH.</p>
 4 (aWa AkqwixravyapaxArWanirNayAXikaraNam)
 <p>kim punaH AkqwiH paxArWaH Ahosviw xrvyam.</p>
 <p>uBayam iwi Aha. kaWam FjAyawe. uBayAWA hi AcAryeNa sUwrANi paTiwAni
 . AkqwiM paxArWam mawvA jAwYAKyAyAmekasminbahuvacanamanyawarasyAm
 iwi ucyawe. xrvyam paxArWa mawvA sarUpANam iwi ekaSeRa AraByawe.</p>
 5 (SabxaniwyawvAniwyawvAvicArAXikaraNam)
 <p>kiM punaH niwyaH SabxaH Ahosviw kAryaH.</p>
 <p>saMgraha ewawprAXAnyena parIkRIwaM niwyaH vA syAwakAryo vA iwi.
 wawra ukwAH xoRAH prayojanAnyapyukwAni. wawra wu eRaH nirNayaH
 yaxyeva niwyaH aWapi kArya uBayAWapi lakRaNaM pravarwyam iwi.</p>
 6 (aWa vyAkaraNsya mUlanibanXananirNayAXikaraNam)
 <p>kaWam punaH ixam BagavawaH pANineH AcAryasya lakRaNaM pravqwm.</p>
 <p>sixXe SabxArWasamBanXe.3.</p>
 <p>sixXe Sabxe arWe samBanXe ca iwi.</p>
 <p>aWa sixXaSabxasya kaH paxArWaH.</p>
 <p>niwyaparyAyavAcI sixXaSabxaH. kaWam FjAyawe. yawkUtasWeRvavicAliRu
 BAveRu varwawe. waw yaWA sixXA xyOH sixXA pqWivI sixXamAkASam iwi.</p>
 <p>nanu ca BoH kAryeRu api varwawe. waw yaWA. sixXa oxanaH sixXaH
 sUpaH sixXA yavAgUriwi. yAvawA kAryeRu api varwawe wawra kuwaH
 ewanniwyaparyAyavAcino grahaNam na punaH kArye yaH sixXaSabxaH iwi.
 </p>
 <p>saMgraha wAvaw kAryaprawixvanxiBAvAn manyAmahe niwyaparyAyavAcinaH
 grahaNamiwi. ihApi waxeva.</p>
 <p>aWavA sanwi ekapaxAni api avaXArANani. waxyaWAbBakRo vAyuBakRa
 iwyapi eva BakRayawi vAyumeva BakRayawIwi gamyawe. evamihApi sixXa
 eva na sAXya iwi.</p>
 <p>aWavA pUrvapaxalopaH awra xraRtavyaH. awyanwasixXaH sixXa iwi.
 waxyaWA. xevaxawwo xawwaH sawyaBAmA BAmewi.</p>
 <p>aWavA vyAKyAnawo viSeRaprawipawwirna hi saMxehAxalakRaNamiwi
 niwyaparyAya vAcino grahaNamiwi vyAKyAsyAmaH.</p>
 <p>kiM punaH anena varNyena. kiM na mahawA kaNTena niwyaSabxaH evopowo
 yasminnupAxIyamAne asaMxehaH syAw.</p>
 <p>mafgalArWam. mAfgalika AcAryaH mahawaH SASwrOXasya mafgalArWe
 sixXaSabxamAxiwaH prayufkwe. mafgalAxIni hi SASwrANi praWanwe.
 vIrapuruRakANi ca BavanwyAyuRmawpuruRakANi cAXyewAraSca sixXArWA
 yaWAsyuriwi.</p>
 <p>ayaM Kalvapi niwyaSabxo na avaSyAM kUtasWeRvavicAliRu BAveRu
 varwawe. waxyaWA. niwyaprahasiwo niwyaprajalpiwa iwi. yAvawABIkRNye

api varwawe wawrApi anena eva arWaH syAx vyAKyAnawaH
viSeRaprawipawwirna hi saMxehAw alakRaNam iwi. paSyawi wvAcAryo
mafgalArWaScEva sixXaSabxaH AxiwaH prayukwo BaviRyawi SakRyAmi
cEnaM niwya paryAyavAcinam varNayiwum iwi. awaH sixXaSabxaH
evopAwwo na niwyaSabxaH.</p>
<p>7 (niwyawAsAXakapakRanirNayAXikaraNam)</p>
<p>aWa kiM punaH paxArWe mawveRa vighraH kriyawe sixXe Sabxe arWe
saMbanXe ca iwi.</p>
<p>Akqwim iwi Aha. kuwaH ewaw. AkqwiH hu niwyA xrawyamaniwyam.</p>
<p>aWa xraye paxArWe kaWam vighraH karwavyaH.</p>
<p>sixXe Sabxe arWe saMbanXe ca iwi. niwyaH hi
arWawawAmarWEraBisaMbanXaH.</p>
<p>aWavA xrayam eva paxArWa eRa vighro nyAyyaH sixXe Sabxe arWe
saMbanXe ca iwi. xrayam hi niwyamAkqwiraniwyA. kaWam FjAyawe. evaM
hi xqSyawe loke. BqwkayAcixAkqwyA yukawA puNdo Bavawi.
piNdAkqwimupamqxya GatikAH kriyanwe. GatikAkqwimupamqxya kuNdikAH
kriyanwe. waWA suvarNa kayAcixAkqwyA yukwam piNdo Bavawi.
piNdAkqwimupamqxya rucakAH kriyanwe. rucakAkqwimupamqxya katakAH
kriyanwe. punarAvqwwaH suvarNapiNdaH punaraparayAkqwyA yukwaH
KaxirAfgArasavarNe kuNdale BavawaH. AkqwiranyAcAnyA ca Bavawi
xrayam punaswaxeva. Akqwyupamarxena xrayamevAvaSiRyawe.</p>
<p>AkqwaVapi paxArWa eRa vighro nyAyyaH sixXe Sabxe arWe saMbanXe ca
iwi. nanu ca ukwam AkqwiH aniwyah iwi. naewaw aswi. niwyAkqwiH.
kaWam. na kvacix uparawewi kqwwA sarvawroparawA Bavawi
xrayAnwarasWA wUpalaByawe.</p>
<p>lokawaH.4.</p>
<p>yallope arWam arWam upAxAya SabxAnprayuFjawe nERAM nirvqwwO yawnaM
kurvanwi. ye punaH kAryA BAva nirvqwwO wAvawweRAM yawnaH kriyawe.
waxyaWA. Gatena kArye kariRyankumBakArakulaM gawvAha kuru Gatam
kAryamAnena kariRyAmiwi. na waxvacCabxAnprayokRyamANO
vEyAkaraNakulaM gawvAha kuru SabxAn prayokRya iwi.
wAvawyevArWamupAxAya SabxAn prayuFjawe.</p>
<p>yaxi warhi loka eRu pramANam kiM SASwreNa kriyawe.</p>
<p>lokawaH arWaprayukwe Sabxaprayoge SASwreNa XarmaniyamaH.5.</p>
<p>lokawaH arWaprayukwaH Saxaprayoge SASwreNa XarmaniyamaH kriyawe.
kimixAM XarmaniyamaH iwi. XarmAya niyamaH XaramaniyamaH XarmArWaH
vA niyamaH XarmaniyamaH XarmaprayojanaH vA niyamaH XarmaniyamaH.</p>
>
<p>yaWA lOkikavExikeRu.6.</p>
<p>priyawaxXiwa xAKRiNAwyA yaWA loke vexe cewi prayokwavyae yaWA
lOkikavExikeRu iwi prayujyawe. aWavA yukwa eva waxXiWArWAH. yaWA
lOkikeRu vExikeRu ca kqwAnweRu. loke wAvaxaBkRayo grAmyakukkutaH
aBakRyaH grAmya sUkaraH iwi ucyawe. BakRyaM ca nAma
kRuWprawIGAwarWamupAxIyawe. Sakyam ca anena SvamAMsAxIBirapi
kRuWprawihanwuma. wawra niyamaH kriyawa ixaM BkRyaM ixam aBakRyam
iwi. waWA KexAwwIrRu pravqwwirBavawi. samAnaSca Kexavigamo
gamyAyAM ca agamyAyAM ca. wawra niyamaH kriyawa iyaM gamya ayam
agamyaya iwi. vexe Kalvapi payovrawo brAhmaNaH yavAgUvrawo
rAjanyaH AmikRAvrawo vESyaH iwi ucyawe. vrawaM ca
nAmABYavahArArWamupAxIyawe. Sakyam ca anena SALimAMsAxInyApi
vrawayiwum. wawra niyamaH kriyawe. waWA bElvaH KAXiraH vA yUpaH
syAxiwyucyawe. Sakyam ca anena kiFcix eva kARTamucCriwyAnucCriwya

vA paSuranubnxXum. wawra niyamaH kriyawe. waWAgno
kapAlAnyaxiSriwyABimanwrayawe. BqGUNAmagfirasAM Xarmasya wapasa
wapyaxvamiwi. anwareNa api manwramagnirxahanakarma kapAlAni
saMwApayawi. wawra niyamaH kriyawa evaM kriyamANamaByuxayakAri
Bavawi iwi.</p>
<p>evam iha api samAnAyAmarWagawo Sabxena ca apaSabxena ca
XarmaniyamaH kriyawe. SabxenEvArWaH aBiXeyaH na apaSabxena iwyevaM
kriyamANamaByuxayakAri Bavawi iwi.</p>
8 (aWa aprayukwaSabxavicAraNAXikaraNam)
<p>aswyaprayukwaH. sanwi vE SabxA aprayukwaH. waxyaWA. URa wera cakra
pacewi. kimawo yawsanwyaprayukwaH. prayogaAxXi BavAFSAbxAnAM
sAXuwwamaXyavasyawi. ya ixAnImaprayukwa nAmI sAXavaH syuH.</p>
<p>ixam viprawiRiXXam yaxi ucyawe sanwi vE SabxA aprayukwa iwi. yaxi
sanwi nAprayukwaH aWAprayukwaH na sanwi. sanwi ca aprayukwaH ca iwi
viprawiRiXXam. prayuFjAna eva Kalu BavAnAha sanwi SabxA aprayukwa
iwi. kaScexAnImanyo BavajjAwIyakaH puruRaH SabxAnAM prayoge sAXuH
syAw.</p>
<p>na ewaw viprawiRiXXam. sanwi iwi wAvax brUmo yaxewAFSAswvavixah
SAswreNAnuvixaXawe. aprayukwa iwi brUmo yaloke aprayukwa iwi.
yaxpi ucyawe kaScexAnImanyo BavajjAwIyakaH puruRaH SabxAnAM prayoge
sAXuH syAw iwi. na brUmaH asmABiH aprayukwaH iwi. kiM warhi. loke
aprayukwaH iwi.</p>
<p>nanu ca BavAnapyaByanwaro loke.</p>
<p>aByanwaraH aham loke na wvham lokaH.</p>
<p>aswyaprayukwa iwi cennArWe SabxaprayogAw.7.</p>
<p>aswyaprayukwa iwi cew wanna. kiM kAraNam. arWe SabxAH prayujyanwe
sanwi cERAM SabxAnAmarWA yeRvarWeRu prayujyanwe.</p>
<p>aprayogaH prayogAnyawvAw.8.</p>
<p>aprayogaH KalveRAM SabxAnAM nyAyyaH. kuwaH. prayogAnyawvAw.
yaxeweRAM SabxAnAmarWe anyAFSAbxAnprayuFjawe. waxyaWA. URewyasya
SabxasyArWe kva yURamuRiWAH. werewyasyArWe kva yUyaM wIrNAH.
cakrewyasyArWe kiM yUyam kqwanwaH. pecewyawyasyArWe kva yUyaM
pakvavanwa iwi.</p>
<p>aprayukwe xIrGasawravaw.9.</p>
<p>yaxyapyaprayukwa avaSyam xIrGasawravallakRaNenAnuviXeyaH. waxyaWA.
xIrGasawraNi vArRaSawikAni vArRasahasrikAni ca na cAxyawve
kaScixapi vyavaharawi. kevalamqRisaMpraxAyo XarmaH iwi kqvwA
yAFjikaH SASwreNAnuvixaXawe.</p>
<p>sarve xeSAnware.11.</p>
<p>sarve Kalvapyewe SabxA xeSAnware prayujyawe.</p>
<p>na ca ewaw upalaByanwe.</p>
<p>upalabXO yawnah kriyawAm. mahAn hi Sabxasya prayogaviRayaH.
sapwaxvIpA vasumawI wrayo lokAScawvAro vexAH sAfgAH sarahasyA
bahuXA viBinnaH ekaSawamaXvaryuSAKAH sahasravarwma sAmavexaH
ekaviMSawiXA bAhvqcyam navaXA aWarvaNo vexaH vAkovAkyamiwihAsaH
purANaM vExyakamiwyewAvAFSAbxasya prayogaviRayaH. ewAvanwaM
Sabxasya prayogaviRayamananuniSamya sanwyaprayukwa iwi vacanam
kevalam sAhasamAwram.</p>
<p>ewasminnawimahawi Sabxasya prayogaviRaye we we SabxAH wawra wawra
niyawa viRayAH xqSyanwe. waxyaWA. Savawirgawikarma kambojeRveva
BARIwo Bavawi. vikAra enamAryA BARanwe Sava iwi. hammawih
surARtreRu. raMhawiH prAcyamaXyeRu. gamimeva wvAryAH prayuFjawe.

xAwirlavanArWe prAcyeRu xAwramuxIcyRu.</p>
 <p>ye cAPyewe BavawaH aprayukwA aBimawaH SabxAH eweRAmapi prayogo
 xqSyawe. kva. vexe. yaxvo revawI revawyaM waxURa. yanme naraH
 SruwyaM brahma cakra. yawrA naScakrA jarasaM wanUnAmiwi.</p>
 9 (aWa SabxaFjAnaprayogaXarmajanakawvavicArAXikaraNam)
 <p>kiM punaH Sabxasya FjAne XarmaH Ahosviw prayoge.</p>
 <p>kaH ca awra viSeRaH.</p>
 <p>FjAne Xarma iwi cewwaWAXarmAH.12.</p>
 <p>FjAne XarmaH iwi cew waWA XarmaH prApnowi. yaH hi
 SabxAFjAnAwyapaSabxAnpyaso jAnAwi. yaWEva SabxaFjAne XarmaH
 evamapaSabxaFjAne apaXarmaH.</p>
 <p>aWavA BUyAnaXarmaH prApnowi. BUyAMsaH apaSabxAH alpIyAMsaH SabxAH.
 ekEkasya Sabxasya bahavaH apaBraMSAH. waxyWA. gOriwyasya gAvI goNI
 gowa gopowalikewyevamAxayaH apaBraMSAH.</p>
 <p>AcAre niyamaH.13.</p>
 <p>AcAre punarQRirniyamam vexayawe. we asurAH helayaH helayaH iwi
 kurvanwaH parAvaBUviriwi.</p>
 <p>aswu warhi prayoge.</p>
 <p>prayoge sarvalokasya.14.</p>
 <p>yaxi prayoge XarmaH sarvo lokaH aByuxayane yujyawe.</p>
 <p>kaScexAnIm Bavawo mawsaro yaxi sarvaH lokaH aByuxayena yujyawe.</p>
 <p>na Kalu kaScinmawsaraH prayawnAnarWakyam wu Bavawi. PalavawA ca
 nAma prayawnena Baviwavyam. na ca prayawnaH PalAx vyawirecyaH.</p>
 <p>nanu ca ye kqwaprayawnAswe sAXiyaH SabxAnprayokRynwe wa eva sAXIyaH
 aByuxayena yokRyanwe.</p>
 <p>vyawirekaH api vE lakRyanwe. xqSyane hi kqwaprayawnAScApravINAH
 akqwaprayawnASca pravINAH. wawra PalavyawirekaH api syAw.</p>
 <p>evam warhi FjAna eva XarmaH na api prayogaH eva. kiM warhi.</p>
 <p>SAswrapUrvake prayoge aByuxayasawwulyaM vexaSabbxena.15.</p>
 <p>SAswrapUrvakaM yaH SabxAnprayufkwe saH aByuxayena yujyawe. waw
 wulyaM vexaSabbxena. vexaSabbxA api evam aBivaxanwi. yaH agniRtomena
 yajawe ya u cEnamevaM vexa. yaH agniM nAcikewaM cinuwe ya u
 cEnamevaM vexa.</p>
 <p>aparaH Aha. waw wulyaM vexaSabbxena iwi. yaWA vexaSabbxA niyamapUrvam
 aXIwAH Palavanwo Bavanwyevam yaH SAswrapUrvakam SabxAnprayufkwe
 saH aByuxayena yujyawa iwi.</p>
 <p>aWavA puaH wu FjAna eva XarmaH iwi.</p>
 <p>nanu ca ukwam FjAne XarmaH iwi cew waWA aXarmaH iwi.</p>
 <p>na eRaH xoRaH. SabxapramANakAH vayam. yaw SabxAH AhaH wax asmAkam
 pramANam. SabxAH ca SabxaFjAne XarmaH AhaH na apaSabxaFjAne aXarmam
 yaw ca punaH aSiRta aprawiRixXam na eva wax upAyaH Bavawi na
 aByuxayaH. waw yaWA. hikkiwahasiwakaNdUyiwAni nEva xoRAya Bavanwi
 nApyaByuxayAya.</p>
 <p>aWavA aByupAyaH eva apaSabxaFjAnaM SabxaFjAne. yaH apaSabxAn jAnAwi
 SabxAn api asO jAnAwi. waxevam FjAne XarmaH iwi bruvawaH arWAw
 Apannam Bavawi apaSabxaFjAnapUrvake SabxaFjAne XarmaH iwi.</p>
 <p>aWavA kUpaKAnakavaxewaxBaviRyawi. waxyWA kUpaKAXanakaH kUpaM
 Kananyaxyapi mqxA pAMsuBiScAvakIrNo Bavawi saH apsu saMjAwAsu waw
 eva waM guNamAsAxayawi yena saH ca xoRo nirhaNyawe. BUyasa
 cABYuxayena yogo BavawyevamihApi yaxypyaSabxaFjAne aXarmaH waWApi
 yaswvasO SabxaFjAne armaswena saH ca xoRo nirGAniRyawe. BUyasa
 cABYuxayena yogo BaviRyawi.</p>

<p>yaxapyucyawe AcAre niyamaH iwi yAFje karmaNi saH niyamaH. evaM hi SrUyawe. yarvANaswarvANo nAmarRayo baBUvaH prawyakRaXarmANaH parAparaFjA vixiwavexiwavyA aXigawayAWawaWyAH. we wawraBavanwaH yaxvA naswaxvA na iwi prayokwavye yarvANaswarvANa iwi prayuFjawe. yAFje punaH karmaNi nAmaBARanwe. wEH punarusurEryAFje karmaNyapaBARiwamawaswe parABUwAH.</p>

10 (aWa vyAkaraNapaxArWanirNayAXikaraNam)

<p>aWa vyAkaraNamiwyasya Sabxasya kaH paxArWaH. sUwram.</p>

<p>sUwre vyAkaraNe RaRTyarWaH anupapannaH.16.</p>

<p>sUwre vyAkaraNe RaRTyarWaH na upapaxyawe vyAkaraNasya sUwramiwi. kiM hi waxanyawsUwrAx vyAkaraNaM yasyAxaH sUwraM syAw.</p>

<p>SabxAnAM cAprawipawwiH prApnowi vyAkaraNacCabxAnprawipaxyAmaha iwi. na hi sUwrawa eva SabxAnprawipaxyanwe kiM warih vyAKyAnawaSca.17.</p>

<p>nanu ca waxeva sUwraM vigqhIwaM vyAKyAna Bavawi.</p>

<p>na kevalAni carcApaxAni vyAKyAnaM vqxXiH Aw Ejiwi. kiM warhi. uxAharaNam prawyuxAharaNam vAkyAXyAhAra iwyewawsamuxiwaM vyAKyAnam Bavawi.</p>

<p>evaM warhi SabxaH.</p>

<p>Sabxe lyudarWaH.18.</p>

<p>yaxi Sabxo vyAKaraNam ludarWaH na upapaxyawe. vyAkriyawe anena iwi vyAkaraNam. na hi Sabxena kiMcix vyAkriyawe. kena warhi. sUwreNa.</p>

<p>Bave.19.</p>

<p>Bave ca waxXiwaH na upapaxyawe. vyAkaraNe BavaH yogaH vEyAkaraNaH iwi. na hi Sabxe BavaH yogaH. kiM warhi. sUwre.</p>

<p>prokwAxayaSca waxXiWAH.20.</p>

<p>prokwAxayaSca waxXiWA na upapaxyawe. pANininA prokwaM pANinIyam. ApiSalam. kASakqwsnamiwi. na hi pANininA SabxAH prokWAH. kim warhi. sUwram.</p>

<p>kimarWam ixam uBayam ucyawe Bave prokwAxayaH ca waxXiWA iwi. na prokwAxayaH ca waxXiWAH iwi eva Bave api waxXiwaH ca uxiwaH syAw.</p>

<p>puraswAw ixam AcAryeNa xqRtam Bave waxXiwa iwi wawpaTiwam. wawa uwwarakAlam ixaM xqRtam prokwAxayaH ca waxXiWA iwi waxapi paTiwam. na ca ixAnIm AcAryAH sUwraNi kqwwA nivarwayanwi.</p>

<p>ayaM wAvaxaxoRo yaxucyawe Sabxe lyudarWa iwi. nAvaSyam karaNAXikaraNayoH eva lyu viXIyawe. kiM warhi. anyeRu api kArakeRu kqwyalyuto bahulam iwi. waxyaWA. praskanxanam prapanamiwi.</p>

<p>aWavA SabxEH api SabxAH vyAkriyanwe. waxyaWA. goH iwyukwe sarve saMxehA nivarwanwe na aSvaH na gaxarBaH iwi.</p>

<p>ayaM warhi xoRaH Bave prokwAxayaH ca waxXiWA iwi.</p>

<p>evaM warhi.</p>

<p>lakRyalakRaNe vyAKaraNam.21.</p>

<p>lakRyaM ca lakRaNaM ca ewaw samuxiwaM Bavawi. kiM punaH lakRyaM lakRaNam ca. Sabxo lakRyaH sUwram lakRaNam.</p>

<p>evamapi ayam xoRaH samuxAye vyAKaraNaSabxaH pravqwwaH avayave na upapaxyawe. sUwraNi cApyaXIyAnaH iRyawe vEyAkaraNa iwi.</p>

<p>na eRaH xoRaH. samuxAyeRu hi SabxAH pravqwwaH avayaveRu api varwanwe. waxyaWA. pUrve paFcAlAH. uwware paFcAlAH. wElam Bukwam. GqwaM Bukwam. SuklaH nIlaH kqRNAH iwi. evam ayam samuxAye vyAkaraNaSabxaH pravqwwaH avayave api varwawe.</p>

<p>aWavA punaH aswu sUwram.</p>
 <p>nanu ca ukwam sUwre vyAkaraNe RaRTyarWaH anupapannaH iwi.</p>
 <p>na eRaH xoRaH. vyapaxeSivaxBAvena BaviRyawi.</p>
 <p>yaxapi ucyawe SabxAprawipawwiH iwi. na hi sUwrawa eva
 SabxAnprawipaxyanwe. kiM warhi vyAKyAbawaH ca iwi.
 parihqwamewawwaxeve sUwram vigqhIwam vyAKyAnam Bavawi iwi.</p>
 <p>nanu ca ukwam na kevalAni carcApaxAni vyAKyAnam vqxXiH Aw Ejiwi.
 kiM warhi uxAharaNam prawyuxAharaNam vAkyAXyAhAra iwi ewaw
 samuxuwam vyAKyAnam Bavawi iwi.</p>
 <p>avijAnawa ewaxevam Bavawi. sUwrawa eva hi SabxAnprawipaxyanwe.
 AwaSca sUwrawa eva yaH hyuwsUwram kaWayennAxo gqhyewa.</p>
 11 (aWa SivasUwrasya varNopaxeSAXikaraNam)
 <p>aWa kimarWaH varNAnAmupaxeSaH.</p>
 <p>vqwwisamavAyArWa upaxeSaH.22.</p>
 <p>vqwwisamavAyArWo varNAnAmupaxeSaH karwavyaH. kimixam
 vqwwisamavAyArWa iwi. vqwwaye samavAyo vqwwisamavAyaH. vqwwyarWo vA
 samavAyo vqwwisamavAyaH. vqwwiprayojanaH vA samavAyaH
 vqwwisamavAyaH. ka punaH vqwwisamavAyaH. vqwwiprayojano vA samavAyo
 vqwwisamavAyaH. ka punarvqwwiH. SASwrapravqwwiH. aWa kaH samavAyaH
 . varNAnAmAnupUrvyeNa saMniveSaH. aWa kaH upaxeSaH. uccAraNam.
 kuwaH ewaw. xiSiruccAraNakriyaH. uccArya hi varNAnAhopaxiRtA ime
 varNA iwi.</p>
 <p>anubanXakaraNArWaSca.23.</p>
 <p>anubanXakaraNArWaSca varNAnAmupaxeSaH karwavyaH.
 anubanXAnAsafkRyAmIwi. na hyanupaxiSya varNAnanubanXAH SakyA
 Asafkwum. saH eRaH varNAnAmupaxeSo
 vqwwisamavAyAraScAnubanXakaraNArWASca.
 vqwwisamavAyaScAnubanXakaraNam ca prawyAhArArWam. prawyAhAro
 vqwwyarWaH.</p>
 <p>iRtabuxXyrWaSca. iRtabuxXyarWaSca varNAnAmupaxeSaH.
 iRtAnvarNAnBowsya iwi. na hyanupaxiSya varNAniRtA varNAH SakyA
 viFjAwum.</p>
 <p>iRtabuxXyarWaScewi
 cexuxAwwAnuxAwwasvariAnunAsikaxIrGapluwAnAnapyupaxeSaH.24.</p>
 <p>iRtabuxXyarWaScewi
 cexuxAwwAnuxAwwasvariAnunAsikaxIrGapluwAnAmapyupaxeSaH karwavyaH.
 evaMguNA api hi varNA iRyanwe.</p>
 <p>AkqwyupaxeSAwsixXam. AkqwyupaxeSAwsixXamewaw. avarNAkqwirupaxiRtA
 sarvamavarNAkulam grahIRyawi. waWevarNAkqwiH. waWovarNAkqwiH.</p>
 <p>AkqwyupaxeSAwsixXamiwi cewsaMvqwAxInAm prawiReXaH.25.</p>
 <p>AkqwyupaxeSAwsixXamiwi cewsaMvqwAInAM prawiReXo vakwavyaH. ke punaH
 samvqwAxayaH. samvqwaH kalo XmAwa eNIkqwaH ambUkqwaH arXakaH
 graswaH niraswaH pragIwa upagIwaH KviNNo romaSa iwi. aparaH Aha.
 graswam niraswamavilambiwam nirhawamambUkqwaM XMAwamaWo vikampiwam.
 saMxaRtameNIpqwamarXakam xruwam vikIrNamewAH svaraxoRaBAvanA iwi.
 awaH anye vyaFjanaxoRAH.</p>
 <p>na eRaH xoRaH. gargAxibivAxipATAwsaMvqwAxInAm nivqwwirBaviRyawi.</p>
 <p>aswyanyax gargAxibixAxipATe prayojanam. kim. samuxAyAnAm sAXuwvam
 yaWA syAXiwi.</p>
 <p>evaM warhi aRtAxaSaXA BinnAm nivqwwakalAxikAmavarNasya prawyApawwiM
 vakRYAmi.</p>

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<p>SA warhi vakwavyA.</p>
<p>lifgArWA wu prawyApawwiH.26.</p>
<p>lifgArWA SA warhi BaviRyawi.</p>
<p>waw warhi vakwavyam.</p>
<p>yaxyapyewaxucyawe aWavEwarhyaneKamanubanXaSawm noccAryamiwsaFjA ca
    na vakwavyA lopaSca na vakwavyaH. yaxanubanXEH kriyawe wawkalAxiBiH
    kariRyawe.</p>
<p>sixXyawyevamapANinIyam wu Bavawi.</p>
yaWAnyAsamevAswu.</p>
<p>nanu ca ukwam Akqwi upaxeSAw sixXam iwi cew saMvqwAxInAM prawiReXa
    iwi.</p>
<p>parihqwamewax gargAxibixAxipATAwsaMvqwAxInAM nivqwwirBaviRyawi.</p>
<p>nanu ca anyax gargAxivixAxipATe prayojanam ukwam. kim. samuxAyAnAm
    sAXuwvaM yaWA syAw iwi.</p>
<p>evam warhi uBayam anena kriyawe pATaH ca eva viSeRyawe kalAxayaH ca
    nivarwyanwe. kaWam punaH ekena yawnena uBayam laByam. laByam iwi
    Aha. kaWam. xvigawA api hewavaH Bavanwi. waxyaWA. AmrASca sikwAH
    piwaraH ca prINiwa iwi. waWA vAkyAni api xviRTAni Bavanwi. SvewaH
    XAvawi. alambusAnAM yAwewi.</p>
<p>aWavexaM wAvaxayaM prRtavyaH. kva ime saMvqwAxayaH SrUyeranniwi.
    AgameRu. AgamaH SuxXAH paTyanwe. vikAreRu warhi. vikArAH SuxXAH
    paTyanwe. prawyayeRu warhi. prawyayAH SuxXAH paTyanwe. XAWuRu warhi
    . XAwavaH api SuxXAH paTyanwe. prAwipaxikERu warhi. prAwipaxikAni
    api SuxXAni paTyanwe. yAni warhi agraHaNAni prAwipaxikAni. eweRAM
    api svaravarNAnupUrvIFjAnArWam upaxeSaH karwavyaH. SaSaH RaRa iwi
    mA Buw. paLaSaH paLaRa iwi mA Buw. maFcakaH maFjaka iwi mA Buw.
    AgamaSca vikArASca prawyayAH saha XAWuBiH. uccAryanwe wawasweRu
    neme prApwAH kalAxayaH. iwi upAXyAyajEyatapuwrakEyatakqwe
    mahABARYapraxIpe praWamasyAXyAyasya praWame pAxe praWmamAhnikaM.
    iwi SrIBagavawpawaFjaliviraciwe vyAkaraNamahABARye
    praWmasyAXyAyasya praWame pAxe praWmamAhnikaM.</p>
</div>

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Output Sample

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<?xml version="1.0" encoding="UTF-8"?>
<div>
<p>paspasAhnikaM</p>
1 (aWa SabxasvarUpanirNayAXikaraNam)
[vArwwikaM] <p>aWa SabxAnuSAsanam.1.</p>
[vYAKyABARyam] <p>aWa iwi ayaM SabxaH aXikArArWaH prayujyawe.
    SabxAnuSAsanam SASwram aXikqwa vexiwavyam.</p>
[praSnaBARyam] <p>keRAm SabxAnAm.</p>
[uwwaraBARyam] <p>lOkikAnAm vExikAnAm ca. wawra lOkikAH wAvaw. gOH
    aSvaH puruRaH haswI Sakuni mqgaH brAhmaNaH iwi. vExikAnAm Kalu api.
    SaM no xevIH aBIRtaye. iRe wveje wvAM. agniMILe purohiwam. agna
    AyAhi vIwaya iwi.</p>
[praSnaBARyam] <p>aWa gOH iwi awra kaH SabxaH.</p>
[uwwaraBARyam] <p>kiM yaw waw sAsnAlAfgulakakuxaKuraviRANyarWarUpam
    saH SabxaH.</p>
<p>na iwi Aha. xravayM nAma waw.</p>

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<p>yaw warhi waw ifgiwam nimiriwam saH SabxaH.</p>
 <p>na iwi Aha. kriyA nAma sA.</p>
 <p>yaw warhi waw SuklaH nIlaH kqRNAH kapowaH iwi saH SabxaH.</p>
 <p>na iwi Aha. guNaH nAma saH.</p>
 <p>yaw warhi wax BinneRu aBinnam XinneRu acCinnam sAmAnyABUwam saH SabxaH.</p>
 <p>na iwi Aha. AkqwiH nAma sA.</p>
 [praSnaBARYam] <p>kaH warhi SabxaH.</p>
 [uwwaraBARYam] <p>yena uccAriwena sAsnAlAfgulakakuxaKuraviRANinAM saMprawayaH Bavawi saH SabxaH.</p>
 <p>aWavA prawIwapaxArWakaH loke XvaniH SabxaH iwi ucyawe. waw yaWA. Sabxam kuru. mA Sabxam kARRIH. SabxakAryayam mANavakam iwi. Xvanim kurvannevam ucyawe. wasmAx XvaniH SabxaH.</p>
 2 (aWa vyAkaraNaSAswraprayoJanAXikaraNam)
 [praSnaBARYam] <p>kAni punaH SabxAnuSAsanasya prayoJanAni.</p>
 [vArwwikam] <p>rakRohAgamalaGvasaMxehAH prayoJanam.2.</p>
 [vyAKyABARYam] <p>rakRARWe vexAnAXyeyam vyAkaraNam. lopAgamavarNavikArFjFaH hi samyagvexAnparipAlayiRyawi.</p>
 <p>UhaH Kalu api. na sarvEH lifgEH na ca sarvABiH viBakwiBiH vexaH manwraH nigaxiwaH. we ca avaSyam yaFjyaxawwena yaWAyaWam vipariNamayiwavyAH. wAnnAvEyAkaraNaH Saknowi yaWAyaWam vipariNamayiwum. wasmAx aXyeyam vyAkaraNam.</p>
 <p>AgamaH Kalu api. brAhmaNena niRkAraNo XarmaH RadafgaH vexaH aXyeyah FjFeyaH iwi. praXAnam ca Ratsu afkeRu vyAkaraNam. praXane ca kqwaH yawnaH PalavAn Bavawi.</p>
 <p>laGvarWe ca aXyeyam vyAkaraNam. brAhmaNena avaSyam SabxAH FjFeyaH iwi. na ca anwareNa vyAkaraNam laGunA upAyena SabxAH SakyAH FjFAwum.</p>
 <p>asaMxehArWe ca aXyeyam vyAkaraNam. yaFjikAH paTanwi. sWUlapqRawImAgnivAruNImandvAhI ma laBewe iwi. wasyAM saMxehaH sWULA ca asO pqRawI ca sWUlapqRawI sWULAni pqRanwi yasyAH sa sWUlapqRawIwi. wAM nAvEyAkaraNaH svarawaH aXyavasyawi. yaxi pUrvapaxaprakqwisvarawvam wawaH bahuvrIhiH. aWa anwoxAwwawvaM wawaH wawpuruRaH iwi.</p>
 <p>imAni ca BUyaH SabxAnuSAsanasya prayoJanAni. we asurAH. xuRtaH SabxaH. yaw aXIwam. yaH wu prayufkwe. avixvAMsaH. viBakwim kurvanwi. yaH vA imAm. cawvAri. uwa wvaH. sakwumiva. sARasvawIm. xaSamyAM puwrasya. suxevaH asi varuNaH iwi.</p>
 <p>we asurAH. we asurAH helayaH helayaH iwi kurvanwaH parAbBUvuH. wasmAw brAhmaNena na mleCCiawE na apaBARiawE. mleCCaH ha vA eRaH yaw apaSabxaH. mleCCAH mA BUmewyaXyeyam vyAkaraNam. we asurAH.</p>
 <p>xuRtaH SabxaH. xuRtaH SabxaH svarawaH varNawaH vA miWyA prayukwaH na wam arWam Aha. saH vAg vajraH yajamAnam hinaswi yaWA inxraSawruH svarawaH aparAXaw. xuRtaFSabxAnma prayukRmahIwyaXyeyam vyAkaraNam. xuRtaH SabxaH.</p>
 <p>yaw aXIwam. yaw aXIwam aviFjFAwam nigaxenEva Sabxyawe. anagnAviva SuRkEXo na wajjvalawi karhiciw. wasmAx anarWakam mA aXigIRmahIwyaXyeyam vyAkaraNam. yaw aXIwam.</p>
 <p>yaH wu prayufkwe. yaH wu prayufkwe kuSalaH viSeRe SabxAnyawAvax vyavahArakAle. saH ananwam Apnowi jayam parawra vAgyogavix xuRyawi ca apaSabxEH. kaH. vAgyogavixeva. kuwaH ewaw. yaH hi SabxAFjAnAwyapaSabxAnapsO jAnAwi. yaWEva hi SabxAFjFane XarmaH evam

apaSabxaFjFane apaXarmaH. aWavA BUyaH anaXarmaH prApnowi. BUyAMsaH
apaSabxAH alpIyAMsaH SabxAH. ekEkasya hi Sabxasya bahavaH
apaBraMSAH. waw yaWA. gOH iwi asya Sabxasya gAvI goNI gowa
gopowalika iwi evam AxayaH apaBraMSAH. aWa yaH avAgyogaviw.
aFjFAnam wasya SaraNam.</p>
<p>nAwyawAyAFjFAnam SaraNam Baviwum arhawi. yaH hyajAnanvE brAhmaNam
hanyAwsurAM vA pibew saH api manye pawiwah syAw.</p>
<p>evam warhi saH ananwam Apnowi jayam parawra vAgyogavix xuRyawi ca
apaSabxEH. kaH. avAgyogavixeva. aWa yaH vAgyogaviw. viFjFAnam wasya
SaraNam.</p>
[praSnaBARYam] <p>kva punaH ixaM paTiwam.</p>
[uwwaraBARYam] <p>BrAjA nAma SlokaH.</p>
[AkRepaBARYam] <p>kiM ca BoH SlokaH api pramANam kiM ca awaH yaxi
pramANam ayam api SlokaH pramANam Baviwum arhawi.
yaxuxumbaravarNanAM GatInAM maNdalaM mahaw. piwAM na gamayewsvarge
kim wawkrawugawam nayexiwi.</p>
[samAXAnaBARYam] <p>pramawwagIw eRaH wawraBawawo
yaswvaprAmawwagIwaswawpramANam. yaH wu prayufkwe.</p>
<p>avixvAMsaH. avixvAMsaH prawyaBivAxe nAmno ye na pluwim vixuH. kAmam
weRu wu viproRya swrIRvivAyamaham vaxew. aBivAxe swrIvnmA
BUmewyaXyeyam vyAkaraNam. avixvAMsaH.</p>
<p>viBakwiM kurvanwi. yAFjikAH paTanwi. prayAhAH saviBakwikAH kArya
iwi. na ca anwareNa vyAkaraNam prayAjAH saviBakwikAH SakyAH karwum.
viBakwiM kurvanwi.</p>
<p>yo vA imAm. yo vA imAm paxaSaH svaraSaH akRaraSaH vAcaM vixaXawi
saH ArwvIjInaH. ArwvIjInAH syAmewyaXyeyam vyAkaraNam. yo vA imAm.</p>
<p>cawvAri. cawvAri SqfgA wrayo asya pAxA xve SIrRe sapwa haswaso asya
. wriXA baxXo vqRaBo roravIwi maho xevo marwyAZ A viveSa. cawvAri
SqfgAni cawvAri paxajAwani nAmAKyAwopsarganipAwASca. wrayo asya
pAxAswrayaH kAlA BUwaBaviRyaxvarwamAnAH. xve SIrRe xvO SabxAwmanO
niwyaH kAryaH ca. sapwa haswasO asya sapwa viBakwayaH. wriXA
baxXaswriRu sWaneRu baxXa urasi kNte SirasIwi. vqRaBo varRaNAw.
roravIwi Sabxam karowi. kuwa ewaw. rOwiH Sabxakarma. maho xevo
mrwyA AviveSewi. mahAnxevaH SabxaH. marwyA maraNaXarmANo manuRyAH.
wAnAviveSa. mahawA xevena naH sAmyaM yaWA syAxiwyaXyeyam vyAkaraNam
.</p>
<p>apara Aha. cawvAri vAkparimiwa paxAni wAni vixurbrAhmaNA ye
manIRiNaH. guhA wrINi nihiwa nefgayanwi wurIyaN vAco manuRyA
vaxanwi. cawvAri vAkparimiwa paxAni. cawvAri paxajAwani
nAmAKyAwopasarganipAwASca. wAni vixurbrAhmaNA ye manIRiNaH. manasa
IRiNo manIRiNaH. guhA wrINi nihiwa nefgayanwi. guhAyAM wrINi
nihiwani nefgayanwi. na ceRtanwe. na nimiranwiwyarWaH. wurIOyaM
vAco manuRyA vaxanwi. wurIyam ha vA ewaxvAco yanmanuRyeRu varwawe.
cawurWaniwyarWaH. cawvAri.</p>
<p>uwa wvaH. uwa wvaH paSyanna xaxarSa vAcamuwa wvaH SqNvanna
SqNvowyenAm. uwo wvasME wanvaM vi sasawre jAyeva pawya uSawI
suvAsAH. api KalvekaH paSyannapi na paSyawi vAcam. api KalvekaH
SqNvannApi na SqNowyenAm. avixvAMsamAhArXam. uwo wvasME wanvaM
visanne. wanuM vivqNuwe. jAyeva pawya uSawI suvAsAH. waxyaWA jAyA
pawye kAmaymAna subvAsAH svamAwmaM vivqNuwa evaM vAgvAgvixe
svamAwmaM vivqNuwe. vAf no vivqNuyAxAwmaMamiwyaXyeyam vyAkaraNam.

uwa wvaH.</p>
 <p>sakwumiva. sakwumiva wiwauna punanwo yawra XIrA manasa vAcamakrawa.
 awra saKayaH saKyAni jAnawe BxrERAM lakRmIrnihiwAXi vAci. sakwuH
 sacawerxurXAvo Bavawi. kasawervA viparIwAxvikasiwo Bavawi. wiwau
 paripavanaM Bavawi wannavxvA. XIrA XyAnavnwo manasa praJfJAnena
 vAcamakrawa vAcakqRawA. awra saKayaH saKyAni jAnawe. awra saKayaH
 sanwaH saKyAni jAnawe. sAyuJyAni jAnawe. kva. ya eRa xurgo mArga
 ekagamyo vAgviRayaH. ke punaswe. vEyAkaraNAH. kuwa ewaw. BaxrERAM
 lakRmIrnihiwAXi vAci. eRAM vAci BaxrA lakRmIrnihiwA Bavawi.
 lakRmIrlakRmaNAXBasanAwparivqDA Bavawi. sakwumiva.</p>
 [xvAxaSapraawIkaBARyam] <p>sArasvawIma. yAFjFikAH paTanwi.
 AhiwAgnirapaSabxAM prayujya prAyaSciwwIyaM sArasvawImiRtiaM
 nirvapexiwi. prAyaSciwwIya mA BUmewyaXyeyaM vyAkaraNam. sArasvawIm.
 </p>
 <p>xaSamyAM puwrasya. yAFjFikAH paTanwi. xaSamyuuwarakAlaM puwrasya
 jAwasya nAma vixaXyAxXoRavaxAXyanwarawnaHsWamavqxXaM
 wripuruRANUkamanariprawiRTiwaM waxXi prawiRTiawamaM Bavawi.
 xvayakRaraM cawukRaraM vA nAma kqwaM kuryAnna waxXiwamiwi. na
 cAnwareNa vyAkaraNam kqwaswaxXiwa vA SakyA viFjAwum. xaSamyAM
 puwrasya.</p>
 <p>suxevo asi. suxevo asi varuNa sawyaxeveH asi yasya we sapwa
 sinXavaH sapwa viBakwayaH. anurakRanwi kAkuxam. kAkuxaM wAlu.
 kAkurjihvA sASminnuxyawa iwi kAkuxam. sUrmyaM suRirAmiva. waxyaWA
 SoBanAmUrmiM siRirAmAgniranwi praviSya xahawyevam wawa sapwa
 sinXavaH sapwa viBakwayaH wAlvanurakRanwi. wenAsi sawyaxeveH.
 sawyaxeveH syAmewyaXyeyaM vyAkaraNam. suxevo asi.</p>
 [praSnaBARyam] <p>kiM punarixam vyAkaraNamevAXijigAMsamAneByaH
 prayojanamAnvAKyAyawe na punaranyaxapi kiMciw omiwyukwvA
 vqwwAnwaSaH SamiwyevamAxIFSabxAnpaTanwi.</p>
 [uwwaraBARyam] <p>purAkAlpa ewaxAsIw. saMskArowwarakAlaM brahmaNA
 vyAkaraNaM smAXIyawe. weByaswawra sWAnakaraNAnupraxAnaFjeByo
 vExikAH SabxA upaxiSanwe. waxaxyawve na waWA. vexamaXIwya wvariwyA
 wvariWA vakwAro Bavanwi. vexAnno vExikAH SabxAH sixXA lokAcCa
 lOkikAH. anarWakam vyAkaraNamiwi. weByaH evaM viprawipannabuxXiByaH
 aXyewqByaH AcAryaM ixaM SASwramanvAcaRte. imAni prayojanAnyaxyeyaM
 vyAkaraNamiwi.</p>
 <p>ukwaH SabxaH. svarUpamapyukwam. prayojanAnyapyukwAni.</p>
 3 (aWa SASwrrarIwinirUpaNAXikaraNam)
 <p>SabxAnuSAsanam ixAnIM karwavyam. waw kaWaM karwavyam. kiM
 SabxopaxeSaH karwavya Ahosviw apaSabxopaxeSa Ahosviw uBayopaxeSa
 iwi.</p>
 <p>anyawaropaxeSena kqwaM syAw. waw yaWA. BakRyanyamena
 aBakRyaprawiReXaH gamyawe.paFca paFcanaKA BakRyA iwyukwe gamyawa
 ewaw awaH anye aBakRyA iwi. aBakRyaprawiReXena vA BakRyanyamaH.
 waw yaWA. aBakRyo grAmyakukkutaH aBakRyaH grAmyaSUKaraH iwyukwe
 gamyawa ewaxAraNyo BakRya iwi. evamihApi yaxi wAvacCabxopaxeSaH
 kriyawe gOriwyewasminnupaxiRte gamyawa ewaw gAvyAxayaH apaSabxAH
 iwi. aWa apaSabxaH upaxeSaH kriyawe gAvyApUpaxiRteRu gamyawa ewaw
 goH iwi eRaH SabxaH iwi.</p>
 [AkRepaBARyam] <p>kiM punaH awra jyAyaH.</p>
 [samAXAnaBARyam] <p>laGuwvAcCabxopaxeSaH. laGIyAFSABxopaxeSaH
 garIyAnapaSbxopaxeSaH. ekEkasya Sbxasya bahavaH apaBraMSAH. waw

yaWA. goriwyasya Sabxasya gAvIgoNigowAgopowAlikAxayaH apaBraMSAH.
iRtAnvAKyAnam Kalvapi Bavawi.</p>

[praSnaBARyam] <p>aWEwasmiFSabxopaxeSe sawi kiM SabxAnAM prawipawwO
prawipaxapATaH karwavyaH. gOraSvaH puruRo haswI Sakunirmqga
brAhmaNa iwyevamAxayaH SabxAH paTiwavyAH.</p>

[uwwaraBARyam] <p>na iwi Aha. anaByupAya eRah SabxAnAM prawipawwO
prawipaxapATaH. evaM hi SrUyawe. bqhaspawirinxrAya xivyaM
varRasahasraM prawipaxokwAnAM SabxAnAM SabxapArAyaNaM pravoca
nAnwam jagAma. vqhsapwiH ca pravakwe inxraH ca aXyewA. xivyam
varRasahasram aXyayanakAlo na ca anwaM jagAma. kiM punaH axyawve.
yaH sarvaWA ciraM jIvawi sa varRaSawam jIvawi. cawurBiSca
prakArErvixyopayukwA BavawyAgamakAlena svAXyAyakAlena
pravacanakAlena vyavahArakAlenewi. wawra cAgamakAlenEvAyuH
paryupayukwam syAw. wasmAxnByupAyaH SabxAnAM prawipawwO
prawipaxapATaH.</p>

[AkRepaBARyam] <p>kaWam warhIme SabxAH prawipawwavyAH.</p>

[samAXAnaBARyam] <p>kiMciw sAmAnyaviSeRavallakRaNaM pravarwya
yenAlpena yawnena mahawo mahawaH SabxOXAnprawipaxyeran. kiM
punasaw. uwsargApavAxO. kaScixuwsargaH karwavyaH kaScixapavAxaH.</p>

[AkRepaBARyam] <p>kaWam jAwIyakaH punaH uwsargaH karwavyaH
kaWamjAwIyakaH apavAxaH.</p>

[samAXAnaBARyam] <p>sAmAnyena uwsargaH karwavyaH. waxyaWA. karmaNyaN.
wasya viSeRaNaPavAxaH. waxyaWA. Awa anupasarge kaH.</p>

4 (aWa AkqwixravyapaxArWanirNayAXikaraNam)

[praSnaBARyam] <p>kim punaH AkqwiH paxArWaH Ahosviw xrvyam.</p>

[uwwaraBARyam] <p>uBayam iwi Aha. kaWam FjAyawe. uBayaWA hi AcAryeNa
sUwrAni paTiwAni. AkqwiM paxArWaM mawvA
jAwYAKyAyAmekasminbahuvacanamanyawarasyAm iwi ucyawe. xrvyam
paxArWa mawvA sarUpANam iwi ekaSeRa AraByawe.</p>

5 (SabxaniwyawvAniwyawvAvicArAXikaraNam)

[praSnaBARyam] <p>kiM punaH niwyaH SabxaH Ahosviw kAryaH.</p>

[uwwaraBARyam] <p>saMgraha ewawprAXAnyena parIkRIwaM niwyaH vA
syAwakAryo vA iwi. wawra ukwAH xoRAH prayoJanAnyapyukwAni. wawra wu
eRah nirNayaH yaxyeva niwyaH aWApi kArya uBayaWApi lakRaNaM
pravarwyam iwi.</p>

6 (aWa vyAkaraNsya mUlanibanXananirNayAXikaraNam)

[AkRepaBARyam] <p>kaWam punaH ixam BagavawaH pANineH AcAryasya
lakRaNaM pravqwam.</p>

[vArwwikam] <p>sixXe SabxArWasaMbanXe.3.</p>

[vyAKyABARyam] <p>sixXe Sabxe arWe saMbanXe ca iwi.</p>

[praSnaBARyam] <p>aWa sixXaSabxasya kaH paxArWaH.</p>

[uwwaraBARyam] <p>niwyaparyAyavAcI sixXaSabxaH. kaWam FjAyawe.
yawkUtasWeRvavicAliRu BAveRu varwawe. waw yaWA sixXA xyOH sixXA
pqWivI sixXamAkASam iwi.</p>

[AkRepaBARyam] <p>nanu ca BoH kAryeRu api varwawe. waw yaWA. sixXA
oxanaH sixXaH sUpaH sixXA yavAgUriwi. yAvawA kAryeRu api varwawe
wawra kuwaH ewanniwyaparyAyavAcino grahaNam na punaH kArye yaH
sixXaSabxaH iwi.</p>

[samAXAnaBARyam] <p>saMgrahe wAvaw kAryaprawixvanxiBAvAn manyAmahe
niwyaparyAyavAcinaH grahaNamiwi. ihApi waxeva.</p>

<p>aWavA sanwi eKapaxAni api avaXArANani. waxyaWAbBakRo vAyuBakRa

iwyapi eva BakRayawi vAyumeva BakRayawi gamyawe. evamihApi sixXa
eva na sAXya iwi.</p>
<p>aWavA pUrvapaxalopaH awra xraRtavyaH. aWyanwasixXaH sixXa iwi.
waxyaWA. xevaxawwo xawwaH sawyaBAmA BAmewi.</p>
<p>aWaA vyAKyAnawo viSeRaprawipawwirna hi saMxehAxalakRaNamiwi
niwyaparyAya vAcino grahaNamiwi vyAKyAsyAmaH.</p>
[praSnaBARyam] <p>kiM punaH anena varNyena. kiM na mahawA kaNTena
niwyaSabxaH evopowo yasminnupAxIyamAne asaMxehaH syAw.</p>
[uwwaraBARyam] <p>mafGalArWam. mAfGalika AcAryaH mahawA SASwrOXasya
mafGalArWe sixXaSabxamAxiwaH prayufkwe. mafGalAxIni hi SASwrANi
praWanwe. vIrapuruRakANi ca BavanwyAyuRmawpuruRakANi cAXyewAraSca
sixXArWA yaWAsyuriwi.</p>
<p>ayaM Kalvapi niwyaSabxo na avaSyam kUtasWeRvavicAliRu BAveRu
varwawe. waxyaWA. niwyaprahasiwo niwyaprajalpiwa iwi. yAvawABIkRNye
api varwawe wawrApi anena eva arWaH syAx vyAKyAnawaH
viSeRaprawipawwirna hi saMxehAw alakRaNam iwi. paSyawi wvAcAryo
mafGalArWaScEva sixXaSabxaH AxiwaH prayukwo BaviRyawi SakRyAmi
cEnaM niwya paryAyavAcinam varNayiwum iwi. awaH sixXaSabxaH
evopAwwo na niwyaSabxaH.</p>
7 (niwyawAsAXakapakRanirNayAXikaraNam)
[praSnaBARyam] <p>aWa kiM punaH paxArWe mawveRa vighraH kriyawe sixXe
Sabxe arWe saMbanXe ca iwi.</p>
[uwwaraBARyam] <p>Akqwim iwi Aha. kuwaH ewaw. AkqwiH hu niwya
xrawyamaniwyam.</p>
[AkRepaBARyam] <p>aWa xraye paxArWe kaWam vighraH karwavyaH.</p>
[samAXAnaBARyam] <p>sixXe Sabxe arWe saMbanXe ca iwi. niwyaH hi
arWawawAmarWEraBisaMbanXaH.</p>
<p>aWavA xrawyam eva paxArWa eRa vighro nyAyyaH sixXe Sabxe arWe
saMbanXe ca iwi. xrawyam hi niwyamAkqwiraniwyA. kaWam FjAyawe. evaM
hi xqSyawe loke. BqwkayAcixAkqwyA yukawA puNdo Bavawi.
piNdAkqwimupamqxya GatikAH kriyanwe. GatikAkqwimupamqxya kuNdikAH
kriyanwe. waWA suvarNa kayAcixAkqwyA yukwam piNdo Bavawi.
piNdAkqwimupamqxya rucakAH kriyanwe. rucakAkqwimupamqxya katakAH
kriyanwe. punarAvqwwaH suvarNapiNdaH punaraparayAkqwyA yukwaH
KaxirAfgArasavarNe kuNdale BavawaH. AkqwiranyAcAnyA ca Bavawi
xrawyam punaswaxeva. Akqwyupamarxena xrawyamevAvaSiRyawe.</p>
<p>AkqwaVapi paxArWa eRa vighro nyAyyaH sixXe Sabxe arWe saMbanXe ca
iwi. nanu ca ukwam AkqwiH aniwyah iwi. na ewaw aswi. niwyAkqwiH.
kaWam. na kvacix uparawewi kqwwA sarvawroparawA Bavawi
xrawyAnwarasWA wUpalaByawe.</p>
[vArwwikam] <p>lokawaH.4.</p>
[vyAKyABARyam] <p>yalloke arWam arWam upAxAya SabxAnprayuFjawe nERAM
nirvqwwO yawnaM kurvanwi. ye punaH kAryA BAva nirvqwwO wAvawweRAM
yawnaH kriyawe. waxyaWA. Gatena kArye kariRyankumBakArakulaM
gawvAha kuru Gatam kAryamAnena kariRyAmiwi. na
waxvacCabxAnprayokRyamANO vEyAkaraNakulaM gawvAha kuru SabxAn
prayokRya iwi. wAvawyevArWamupAxAya SabxAn prayuFjawe.</p>
[praSnaBARyam] <p>yaxi warhi loka eRu pramANam kiM SASwreNa kriyawe.</p>
[vArwwikam] <p>lokawaH arWaprayukwe Sabxaprayoge SASwreNa XarmaniyamaH
.5.</p>
[vyAKyABARyam] <p>lokawaH arWaprayukwaH Saxaprayoge SASwreNa

XarmaniyamaH kriyawe. kimixaM XarmaniyamaH iwi. XarmAya niyamaH XaramaniyamaH XarmArWaH vA niyamaH XarmaniyamaH XarmaprayojanaH vA niyamaH XarmaniyamaH.</p>

[vArwwikam] <p>yaWA lOkikavExikeRu.6.</p>

[vyAKyABARyam] <p>priyawaxXiWA xAkRiNAwyA yaWA loke vexe cewi prayokwavyae yaWA lOkikavExikeRu iwi prayujyawe. aWavA yukwa eva waxXiWArWAH. yaWA lOkikeRu vExikeRu ca kqwAnweRu. loke wAvaxaBkRayo grAmyakukkutaH aBakRyaH grAmya sUKaraH iwi ucyawe. BakRyaM ca nAma kRuwprawIGAwArWamupAxIyawe. Sakyam ca anena SvamAMsAxIBirapi kRuwprawihanwuma. wawra niyamaH kriyawa ixaM BkRyaM ixam aBakRyam iwi. waWA KexAwsrIRu pravqwwirBavawi. samAnaSca Kexavigamo gamyAyAM ca agamyAyAM ca. wawra niyamaH kriyawa iyaM gamya ayam agamyaya iwi. vexe Kalvapi payovrawo brAhmaNaH yavAgUvrawo rAjanyaH AmikRAvrawo vESyaH iwi ucyawe. vrawaM ca nAmABYavahArArWamupAxIyawe. Sakyam ca anena SALimAMsAxInyApi vrawayiwum. wawra niyamaH kriyawe. waWA bElvaH KAXiraH vA yUpaH syAXiwyucyawe. Sakyam ca anena kiFcix eva kARTamucCriwyAnucCriwya vA paSuranubnxXum. wawra niyamaH kriyawe. waWAgnO kapAlAnyaxiSriwyABimanwrayawe. BqgUNAmafgirasAM Xarmasya wapasa wapyaxvamiwi. anwareNa api manwramagnirxahanakarma kapAlAni saMwApayawi. wawra niyamaH kriyawa evaM kriyamANamaByuxayakAri Bavawi iwi.</p>

<p>evam iha api samAnAyAmarWagawO Sabxena ca apaSabxena ca XarmaniyamaH kriyawe. SabxenEvArWaH aBiXeyaH na apaSabxena iwyevaM kriyamANamaByuxayakAri Bavawi iwi.</p>

8 (aWa aprayukwaSabxavicAraNAXikaraNam)

<p>aswyaprayukwaH. sanwi vE SabxA aprayukwaH. waxyaWA. URa wera cakra pacewi. kimawo yawsanwyaprayukwaH. prayogaAxXi BavAFSAbxAnAM sAXuwvamaXyavasyawi. ya ixAnImaprayukwa nAmI sAXavaH syuH.</p>

[AkRepaBARyam] <p>ixam viprawiRixXaM yaxi ucyawe sanwi vE SabxA aprayukwa iwi. yaxi sanwi nAprayukwaH aWAprayukwaH na sanwi. sanwi ca aprayukwaH ca iwi viprawiRixXaM. prayuFjAna eva Kalu BavAnAha sanwi SabxA aprayukwa iwi. kaScexAnImanyo BavajjAwIyakaH puruRaH SabxAnAM prayoge sAXuH syAw.</p>

[samAXAnaBARyam] <p>na ewaw viprawiRixXaM. sanwi iwi wAvax brUmo yaxewAFSAswvaxaH SASwreNANuvixaXawe. aprayukwa iwi brUmo yallope aprayukwa iwi. yaxpi ucyawe kaScexAnImanyo BavajjAwIyakaH puruRaH SabxAnAM prayoge sAXuH syAw iwi. na brUmaH asmABiH aprayukwaH iwi. kiM warhi. loke aprayukwaH iwi.</p>

[AkRepaBARyam] <p>nanu ca BavAnapyaByanwaro loke.</p>

[samAXAnaBARyam] <p>aByanwaraH aham loke na wvham lokaH.</p>

[vArwwikam] <p>aswyaprayukwa iwi cennArWe SabxaprayogAw.7.</p>

[vyAKyABARyam] <p>aswyaprayukwa iwi cew wanna. kiM kAraNam. arWe SabxAH prayujyanwe sanwi cERAM SabxAnAmarWA yeRvarWeRu prayujyanwe.</p>

[vArwwikam] <p>aprayogaH prayogAnyawvAw.8.</p>

[vyAKyABARyam] <p>aprayogaH KalveRAM SabxAnAM nyAyyaH. kuwaH. prayogAnyawvAw. yaxeweRAM SabxAnAmarWe anyAFSAbxAnprayuFjawe. waxyaWA. URewyasya SabxasyArWe kva yURamuRiWAH. werewyasyArWe kva yUyaM wIrNAH. cakrewyasyArWe kiM yUyam kqwavanwaH. pecewyawyasyArWe kva yUyaM pakvavanwa iwi.</p>

[vArwwikam] <p>aprayukwe xIrGasawravaw.9.</p>

[vyAKyABARyam] <p>yaxyapyaprayukwA avaSyam
xIrGasawravallakRaNenAnuviXeyAH. waxyWA. xIrGasawrANi
vArRaSawikAni vArRasahasrikANi ca na cAxyawve kaScixapi vyavaharawi
. kevalamQRisaMpraxAyo XarmaH iwi kqwvA yAFjikAH SASwreNANuvixaXawe
.</p>

[vArwwikam] <p>sarve xeSAnware.11.</p>

[vyAKyABARyam] <p>sarve Kalvapyewe SabxA xeSAnware prayujyawe.</p>

[AkRepaBARyam] <p>na ca ewaw upalaByanwe.</p>

[samAXAnaBARyam] <p>upalabXO yawnaH kriyawAm. mahAn hi Sabxasya
prayogaviRayaH. sapwaxvIpA vasumawI wrayo lokAScawvAro vexAH sAfgAH
sarahasyA bahuXA viBinnAH ekaSawamaXvaryuSAKAH sahasravarwma
sAmavexaH ekaviMSawiXA bAhvqcyaM navaXA aWarvaNo vexaH
vAkovAkyamiwihAsaH purANaM vExyakamiwyewAvAFSAbxasya prayogaviRayaH
. ewAvanwaM Sabxasya prayogaviRayamananuniSamya sanwyaprayukwA iwi
vacanam kevalam sAhasamAwram.</p>

<p>ewasminnawimahawi Sabxasya prayogaviRaye we we SabxAH wawra wawra
niyawa viRayAH xqSyanwe. waxyWA. SavawirgawikarmA kambojeRveva
BARIwo Bavawi. vikAra enamAryA BARanwe Sava iwi. hammawiH
surARtreRu. raMhawiH prAcyamaXyeRu. gamimeva wvAryAH prayuFjawe.
xAwirlavanArWe prAcyerU xAwramuxIcyerU.</p>

<p>ye cAPyewe BavawaH aprayukwA aBimawAH SabxAH eweRAmapi prayogo
xqSyawe. kva. vexe. yaxvo revawI revawyaM waxURa. yanme naraH
SruwyaM brahma cakra. yawra naScakra jarasaM wanUnAmiwi.</p>

9 (aWa SabxaFjAnaprayogaXarmajanakawvavicArAXikaraNam)

[praSnaBARyam] <p>kiM punaH Sabxasya FjAne XarmaH Ahosviw prayoge.</p>

[prawipraSnaBARyam] <p>kaH ca awra viSeRaH.</p>

[vArwwikam] <p>FjAne Xarma iwi cewwaWAXarmAH.12.</p>

[vyAKyABARyam] <p>FjAne XarmaH iwi cew waWA XarmaH prApnowi. yaH hi
SabxAFjAnAwyapaSabxAnpyaso jAnAwi. yaWEva SabxaFjAne XarmaH
evamapaSabxaFjAne apaXarmaH.</p>

<p>aWavA BUyAnaXarmAH prApnowi. BUyAMsaH apaSabxAH alpIyAMsaH SabxAH.
ekEkasya Sabxasya bahavaH apaBraMSAH. waxyWA. gOriwyasya gAvI goNI
gowA gopowalikewyevamAxayaH apaBraMSAH.</p>

[vArwwikam] <p>AcAre niyamaH.13.</p>

[vyAKyABARyam] <p>AcAre punarQRirniyamam vexayawe. we asurAH helayaH
helayaH iwi kurvanwaH parAvaBUviriwi.</p>

<p>aswu warhi prayoge.</p>

[vArwwikam] <p>prayoge sarvalokasya.14.</p>

[vyAKyABARyam] <p>yaxi prayoge XarmaH sarvo lokaH aByuxayane yujyawe.</p>

[AkRepaBARyam] <p>kaScexAnIm Bavawo mawsaro yaxi sarvaH lokaH
aByuxayena yujyawe.</p>

[samAXAnaBARyam] <p>na Kalu kaScinmawsaraH prayawnAnarWakyam wu Bavawi
. PalavawA ca nAma prayawnena Baviwavyam. na ca prayawnaH PalAx
vyawirecyah.</p>

[AkRepaBARyam] <p>nanu ca ye kqwaprayawnAswe sAXIyaH SabxAnprayokRynwe
wa eva sAXIyaH aByuxayena yokRyanwe.</p>

[samAXAnaBARyam] <p>vyawirekaH api vE lakRyanwe. xqSyanwe hi
kqwaprayawnAScApravINAH akqwaprayawnASca pravINAH. wawra
PalavyawirekaH api syAw.</p>

<p>evam warhi FjAna eva XarmaH na api prayogaH eva. kiM warhi.</p>

[vArwwikam] <p>SAswraPurvake prayoge aByuxayasawwulyaM vexaSabxena

.15.</p>
[vyAKyABARyam] <p>SAswrapUrvakaM yaH SabxAnprayufkwe saH aByuxayena
yujyawe. waw wulyaM vexaSabxena. vexaSabxA api evam aBivaxanwi. yaH
agniRtomena yajawe ya u cEnamevaM vexa. yaH agniM nAcikewaM cinuwe
ya u cEnamevaM vexa.</p>
<p>aparaH Aha. waw wulyaM vexaSabxena iwi. yaWA vexaSabxA niyamaPurvam
aXIWAH Palavanwo Bavanwyevam yaH SAswrapUrvakam SabxAnprayufkwe
saH aByuxayena yujyawa iwi.</p>
<p>aWavA puaH wu FjAna eva XarmaH iwi.</p>
[AkRepaBARyam] <p>nanu ca ukwam FjAne XarmaH iwi cew waWA aXarmaH iwi.
</p>
[samAXAnaBARyam] <p>na eRaH xoRaH. SabxapramANakAH vayam. yaw SabxaH
AhaH wax asmAkam pramANam. SabxaH ca SabxaFjAne XarmaH AhaH na
apaSabxaFjAne aXarmam yaw ca punaH aSiRta aprawiRixXam na eva wax
upAyaH Bavawi na aByuxayaH. waw yaWA. hikkiwahasiwakaNdUyiwAni nEva
xoRAya Bavanwi nApyaByuxayAya.</p>
<p>aWavA aByupAyaH eva apaSabxaFjAnaM SabxaFjAne. yaH apaSabxAn jAnAwi
SabxAn api asO jAnAwi. waxevam FjAne XarmaH iwi bruvawaH arWAw
Apannam Bavawi apaSabxaFjAnapUrvake SabxaFjAne XarmaH iwi.</p>
<p>aWavA kUpaKAnakavaxewaxBaviRyawi. waxyaWA kUpaKAXanakaH kUpaM
Kananyaxyapi mqxA pAMsuBiScAvakIrNo Bavawi saH apsu saMjAwAsu waw
eva waM guNamAsAxayawi yena saH ca xoRo nirhaNyawe. BUyasa
cABYuxayena yogo BavawyevamihApi yaxypyaSabxaFjAne aXarmaH waWApi
yaswvasO SabxaFjAne armaswena saH ca xoRo nirGAniRyawe. BUyasa
cABYuxayena yogo BaviRyawi.</p>
<p>yaxapyucyawe AcAre niyamaH iwi yaFje karmaNi saH niyamaH. evaM hi
SrUyawe. yarvANaswarvANo nAmarRayo baBUvaH prawyakRaXarmANaH
parAparaFjA vixiwavexiwavyA aXigawayAWAwaWyAH. we wawraBavanwaH
yaxvA naswaxvA na iwi prayokwavye yarvANaswarvANa iwi prayuFjawe.
yaFje punaH karmaNi nAmaBARanwe. wEH punarusurEryAFje
karmaNyapaBARiwamawaswe parABUWAH.</p>
10 (aWa vyAkaraNapaxArWanirNayAXikaraNam)
[praSnaBARyam] <p>aWa vyAkaraNamiwyasya Sabxasya kaH paxArWaH. sUwram.
</p>
[vArwwikam] <p>sUwre vyAkaraNe RaRTyarWaH anupapannaH.16.</p>
[vyAKyABARyam] <p>sUwre vyAkaraNe RaRTyarWaH na upapaxyawe
vyAkaraNasya sUwramiwi. kiM hi waxanyawsUwrAx vyAkaraNaM yasyAxaH
sUwraM syAw.</p>
[vArwwikam] <p>SabxAnAM cAprawipawwiH prApnowi
vyAkaraNACabxAnprawipaxyAmaha iwi. na hi sUwrawa eva
SabxAnprawipaxyanwe kiM warih vyAKyAnawaSca.17.</p>
[vyAKyABARyam] <p>nanu ca waxeva sUwraM vigqhIwaM vyAKyAna Bavawi.</p>
[praSnaBARyam] <p>na kevalAni carcApaxAni vyAKyAnaM vxXih Aw Ejiwi.
kiM warhi. uxAharaNam prawyuxAharaNam vAkyAXyAhAra iwyewawsamuxiwaM
vyAKyAnam Bavawi.</p>
[uwwaraBARyam] <p>evaM warhi SabxaH.</p>
[vArwwikam] <p>Sabxe lyudarWaH.18.</p>
[vyAKyABARyam] <p>yaxi Sabxo vyAkaraNam ludarWaH na upapaxyawe.
vyAkriyawe anena iwi vyAkaraNam. na hi Sabxena kiMcix vyAkriyawe.
kena warhi. sUwreNa.</p>
[vArwwikam] <p>Bave.19.</p>
[vyAKyABARyam] <p>Bave ca waxXiwaH na upapaxyawe. vyAkaraNe BavaH

yogaH vEyAkaraNaH iwi. na hi Sabxe BavaH yogaH. kiM warhi. sUwre.</p>
<p>
[vArwwikam] <p>prokwaXayaSca waxXiwaH.20.</p>
[vyAKyABARyam] <p>prokwaXayaSca waxXiwa na upapaxyawe. pANininA
prokwaM pANinIyam. ApiSalam. kASakqwsnamiwi. na hi pANininA SabxAH
prokwaH. kim warhi. sUwram.</p>
[praSnaBARyam] <p>kimarWam ixam uBayam ucyawe Bave prokwaXayaH ca
waxXiwa iwi. na prokwaXayaH ca waxXiwaH iwi eva Bave api waxXiwaH
ca uxiwaH syAw.</p>
[uwwaraBARyam] <p>puraswAw ixam AcAryeNa xqRtam Bave waxXiwa iwi
wawpaTiwam. wawa uwwarakAlam ixaM xqRtam prokwaXayaH ca waxXiwa iwi
waxapi paTiwam. na ca ixAnIm AcAryAH sUwrANi kqwvA nivarwayanwi.</p>
<p>
<p>ayaM wAvaxaxoRo yaxucyawe Sabxe lyudarWa iwi. nAvaSyam
karaNAXikaraNayoH eva lyu viXIyawe. kiM warhi. anyeRu api kArakeRu
kqwyalyuto bahulam iwi. waxyaWA. praskanxanam prapanamiwi.</p>
<p>aWavA SabxEH api SabxAH vyAkriyanwe. waxyaWA. goH iwyukwe sarve
saMxehA nivarwanwe na aSvaH na gaxarBaH iwi.
<p>ayaM warhi xoRaH Bave prokwaXayaH ca waxXiwa iwi.</p>
<p>evaM warhi.</p>
[vArwwikam] <p>lakRyalakRaNe vyAKaraNam.21.</p>
[vyAKyABARyam] <p>lakRyaM ca lakRaNaM ca ewaw samuxiwaM Bavawi. kiM
punaH lakRyaM lakRaNaM ca. Sabxo lakRyaHsUwram lakRaNaM.</p>
[AkRepaBARyam] <p>evamapi ayam xoRaH samuxAye vyAKaraNaSabxaH
pravqwwaH avayave na upapaxyawe. sUwrANi cApyaXIyAnaH iRyawe
vEyAkaraNa iwi.</p>
[samAXAnaBARyam] <p>na eRaH xoRaH. samuxAyeRu hi SabxAH pravqwwaH
avayaveRu api varwanwe. waxyaWA. pUrve paFcAlAH. uwware paFcAlAH.
wElam Bukwam. GqwaM Bukwam. SuklaH nIlAH kqRNaH iwi. evam ayam
samuxAye vyAkaraNaSabxaH pravqwwaH avayave api varwawe.</p>
<p>aWavA punaH aswu sUwram.</p>
[AkRepaBARyam] <p>nanu ca ukwam sUwre vyAkaraNe RaRTyarWaH anupapannaH
iwi.</p>
[samAXAnaBARyam] <p>na eRaH xoRaH. vyapaxeSivaxBAvena BaviRyawi.</p>
<p>yaxapi ucyawe SabxAprawipawwiH iwi. na hi sUwrawa eva
SabxAnprawipaxyanwe. kiM warhi vyAKyAbawaH ca iwi.
parihqwamewawwaxeva sUwram vigqHwam vyAKyAnam Bavawi iwi.</p>
[AkRepaBARyam] <p>nanu ca ukwam na kevalAni carcApaxAni vyAKyAnam
vqxXiH Aw Ejiwi. kiM warhi uxAharaNam prawyuxAharaNam vAkyAXyAhAra
iwi ewaw samuxuwam vyAKyAnam Bavawi iwi.</p>
[samAXAnaBARyam] <p>avijAnawa ewaxevam Bavawi. sUwrawa eva hi
SabxAnprawipaxyanwe. AwaSca sUwrawa eva yaH hyuwsUwram kaWayennAxo
gqhyewa.</p>
11 (aWa SivasUwrasya varNopaxeSAXikaraNam)
[praSnaBARyam] <p>aWa kimarWaH varNANAmupaxeSaH.</p>
[vArwwikam] <p>vqwwisamavAyArWa upaxeSaH.22.</p>
[vyAKyABARyam] <p>vqwwisamavAyArWo varNANAmupaxeSaH karwavyaH. kimixam
vqwwisamavAyArWa iwi. vqwwaye samavAyo vqwwisamavAyaH. vqwwyarWo
vA samavAyo vqwwisamavAyaH. vqwwiprayojanaH vA samavAyaH
vqwwisamavAyaH. ka punaH vqwwisamavAyaH. vqwwiprayojano vA samavAyo
vqwwisamavAyaH. ka punarvqwwiH. SASwrapravqwwiH. aWa kaH samavAyaH
. varNANAmAnupUrvyeNa saMniveSaH. aWa kaH upaxeSaH. uccAraNam.

kuwaH ewaw. xiSiruccAraNakriyaH. uccArya hi varNANahopaxiRtA ime
varNA iwi.</p>
[vArwwikam] <p>anubanXakaraNArWaSca.23.</p>
[vyAKyABARyam] <p>anubanXakaraNArWaSca varNANAmupaxeSaH karwavyaH.
anubanXAnAsafkRyAmIwi. na hyanupaxiSya varNANanubanXAH SakyA
Asafkwum. saH eRaH varNANAmupaxeSo
vqwwisamavAyAraScAnubanXakaraNArWASca.
vqwwisamavAyaScAnubanXakaraNam ca prawyAhArArWam. prawyAhAro
vqwwyarWaH.</p>
<p>iRtabuxXyrWaSca. iRtabuxXyarWaSca varNANAmupaxeSaH.
iRtAnvarNANBowsya iwi. na hyanupaxiSya varNANiRtA varNAH SakyA
viFjAwum.</p>
[vArwwikam] <p>iRtabuxXyarWaScewi
cexuxAwwAnuxAwwasvariAnunAsikaxIrGapluwAnAnapyupaxeSaH.24.</p>
[vyAKyABARyam] <p>iRtabuxXyarWaScewi
cexuxAwwAnuxAwwasvariAnunAsikaxIrGapluwAnAmapyupaxeSaH karwavyaH.
evaMguNA api hi varNA iRyanwe.</p>
<p>AkqwyupaxeSAwsixXam. AkqwyupaxeSAwsixXamewaw. avarNAkqwirupaxiRtA
sarvamavarNakulam grahIRyawI. waWevarNAkqwiH. waWovarNAkqwiH.</p>
[vArwwikam] <p>AkqwyupaxeSAwsixXamiwi cewsaMvqWAxInAM prawiReXaH.25.</p>
[vyAKyABARyam] <p>AkqwyupaxeSAwsixXamiwi cewsaMvqWAInAM prawiReXo
vakwavyaH. ke punaH samvqWAxayaH. samvqWAH kalo XmAwa eNIkqWAH
ambUkqWAH arXakaH grasWAH nirasWAH pragIwa upagIWAH KviNNo romaSa
iwi. aparaH Aha. graswam niraswamavilambiwam nirhawamambUkqWAH
XmAwaMaWo vikampiwam. saMxARtameNIpqwamarXakam xruwam vikIrNameWAH
svaraxoRaBAvaNA iwi. aWaH anye vyaFjanaxoRAH.</p>
<p>na eRaH xoRaH. gargAxibivAxipATAwsaMvqWAxInAM nivqwwirBaviRyawI.</p>
<p>aswyanyax gargAxibixAxipATe prayojanam. kim. samuxAyAnAM sAXuwvam
yaWA syAxiwi.</p>
<p>evaM warhi aRtAxaSaXA BinnAM nivqwwakalAxikAmavarNasya prawyApawwiM
vakRYAmi.</p>
<p>sA warhi vakwavyA.</p>
[vArwwikam] <p>lifgArWA wu prawyApawwiH.26.</p>
[vyAKyABARyam] <p>lifgArWA sA warhi BaviRyawI.</p>
[AkRepaBARyam] <p>waw warhi vakwavyam.</p>
[samAXAnaBARyam] <p>yaxyapyewaxucyawe aWavEwarhyaneKamanubanXaSawm
noccAryamiwsaFjA ca na vakwavyA lopaSca na vakwavyaH. yaxanubanXEH
kriyawe wawkalAxiBiH kariRyawe.</p>
<p>sixXyawyevamapANinIyam wu Bavawi.</p>
yaWAnyAsamevAswu.</p>
[AkRepaBARyam] <p>nanu ca ukwam Akqwi upaxeSAw sixXam iwi cew
saMvqWAxInAM prawiReXa iwi.</p>
[samAXAnaBARyam] <p>parihqWamewax gargAxibixAxipATAwsaMvqWAxInAM
nivqwwirBaviRyawI.</p>
[AkRepaBARyam] <p>nanu ca anyax gargAxivixAxipATe prayojanam ukwam.
kim. samuxAyAnAM sAXuwvaM yaWA syAw iwi.</p>
[samAXAnaBARyam] <p>evam warhi uBayam anena kriyawe pATaH ca eva
viSeRyawe kalAxayaH ca nivarwyanwe. kaWam punaH ekena yawnena
uBayam laByam. laByam iwi Aha. kaWam. xvigawA api hewavaH Bavanwi.
waxyaWA. AmrASca sikWAH piwaraH ca prINiWA iwi. waWA vAKyAni api

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xviRTAni Bavanwi. SvewaH XAvawi. alambusAnAM yAwewi.</p>
<p>aWavexaM wAvaxayaM prRtavyaH. kva ime saMvqWAxayaH SrUyeranniwi.
AgameRu. AgamaH SuxXAH paTyanwe. vikAreRu warhi. vikArAH SuxXAH
paTyanwe. prawyayeRu warhi. prawyayAH SuxXAH paTyanwe. XAwuRu warhi
. XAwavaH api SuxXAH paTyanwe. prAwipaxikERu warhi. prAwipaxikAni
api SuxXAni paTyanwe. yAni warhi agraHaNAni prAwipaxikAni. eweRAM
api svaravarNAnupUrvIFjAnArWam upaxeSaH karwavyaH. SaSaH RaRa iwi
mA Buw. palASaH palARa iwi mA Buw. maFcakaH maFjaka iwi mA Buw.
AgamASca vikArASca prawyayAH saha XAwuBiH. uccAryanwe wawasweRu
neme prApwAH kalAxayaH. iwi upAXyAyajEyatapuwraKEyatakqwe
mahABARYapraxIpe praWamasyAXyAyasya praWame pAxe praWmamAhnikaM.
iwi SrIBagavawpawaFjaliviraciwe vyAkaraNamahABARye
praWmasyAXyAyasya praWame pAxe praWmamAhnikaM.</p>
</div>

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Gold Data Sample

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<?xml version="1.0" encoding="UTF-8"?>
<div>
<p>paspasAhnikaM</p>
1 (aWa SabxasvarUpanirNayAXikaraNam)
[viRayapraswAvavArwwikaM] <p>aWa SabxAnuSAsanam.1.</p>
[vyAKyABARYam] <p>aWa iwi ayaM SabxaH aXikArArWaH prayujyawe.
SabxAnuSAsanam SASwram aXikqwa vexiwavyam.</p>
[praSnaBARYam] <p>keRAM SabxAnAm.</p>
[uwwaraBARYam] <p>lOkikaNAm vExikaNAm ca. wawra lOkikaH wAvaw. gOH
aSvaH puruRaH haswI Sakuni mqgaH brAhmaNaH iwi. vExikaNAm Kalu api.
SaM no xevIH aBIRtaye. iRe wweje wvAM. agniMILe purohiwam. agna
AyAhi vIwaya iwi.</p>
[praSnaBARYam] <p>aWa gOH iwi awra kaH SabxaH.</p>
[ekaxeSinaH_praWamasamAXAaBARYam] <p>kiM yaw waw
sAsnAlAfgulakakuxaKuraviRANyarWarUpam saH SabxaH.</p>
[praWamasamAXAnanirAkaraNaBARYam] <p>na iwi Aha. xravayM nAma waw.</p>
[ekaxeSinaH_xviwIyasamAXAnaBARYam] <p>yaw warhi waw ifgiwam nimiRiwaM
saH SabxaH.</p>
[xviwIyasamAXAnanirAkaraNaBARYam] <p>na iwi Aha. kriyA nAma sA.</p>
[ekaxeSinaH_wqwIyasamAXAnaBARYam] <p>yaw warhi waw SuklaH nIlaH kqRNAH
kapowaH iwi saH SabxaH.</p>
[wqwIyasamAXAnanirAkaraNaBARYam] <p>na iwi Aha. guNaH nAma saH.</p>
[ekaxeSinaH_cawurWasamAXAnaBARYam] <p>yaw warhi wax BinneRu aBinnam
XinneRu acCinnam sAManyaBUwam saH SabxaH.</p>
[cawurWasamAXAnanirAkaraNaBARYam] <p>na iwi Aha. AkqwiH nAma sA.</p>
[praSnaBARYam] <p>kaH warhi SabxaH.</p>
[uwwaraBARYam] <p>yena uccAriwena sAsnAlAfgulakakuxaKuraviRANinAM
saMprawyayaH Bavawi saH SabxaH.</p>
[samAXAnAnwaraBARYam] <p>aWavA prawIwapaxArWakaH loke XvaniH SabxaH
iwi ucyawe. waw yaWA. Sabxam kuru. mA Sabxam kARRIH. SabxakAryayam
maNavakam iwi. Xvanim kurvannevam ucyawe. wasmAx XvaniH SabxaH.</p>
2 (aWa vyAkaraNaSASwraprayoJanAXikaraNam)
[vArwwikAvawAraBARYam] <p>kAni punaH SabxAnuSAsanasya prayoJanAni.</p>
[prayoJanavArwwikaM] <p>rakRohAgamalaGvasaMxehAH prayoJanam.2.</p>

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[rakRASabxArWanirupaNaBARyam] <p>rakRARWe vexAnAXyeyam vyAkaraNam.
lopAgamavarNavikArFjFaH hi samyagvexAnparipAlayiRyawi.</p>

[UhapaxArWanirupaNaBARyam] <p>UhaH Kalu api. na sarvEH lifgEH na ca
sarvABiH viBakwiBiH vexaH manwrAH nigaxiwAH. we ca avaSyam
yaFjyaxawwena yaWayaWam vipariNamayiwavyAH. wAnnAvEyAkaraNaH
Saknowi yaWayaWam vipariNamayiwum. wasmAx aXyeyam vyAkaraNam.</p>

[AgamapaxArWanirupaNaBARyam] <p>AgamaH Kalu api. brAhmaNena niRkAraNo
XarmaH RadafgaH vexaH aXyeyaH FjFeyaH iwi. praXANam ca Ratsu afkeRu
vyAkaraNam. praXane ca kqwaH yawnaH PalavAn Bavawi.</p>

[laGupaxArWanirupaNaBARyam] <p>laGvarWe ca aXyeyam vyAkaraNam.
brAhmaNena avaSyam SabxAH FjFeyA iwi. na ca anwareNa vyAkaraNam
laGunA upAyena SabxAH SakyAH FjFAwum.</p>

[asanxehapaxArWanirupaNaBARyam] <p>asaMxehArWe ca aXyeyam vyAkaraNam.
yAFjikAH paTanwi. sWUlapqRawImAgnivAruNImandvAhI ma laBewe iwi.
wasyAM saMxehaH sWULa ca asO pqRawI ca sWUlapqRawI sWULani pqRanwi
yasyAH sa sWUlapqRawIwi. wAM nAvEyAkaraNaH svarawaH aXyavasyawi.
yaxi pUrvapaxaprakqwisvarawvam wawaH bahuvrIhiH. aWa anwoxAwwawvam
wawaH wawpuruRaH iwi.</p>

[prayojanAnwaraBARyam] <p>imAni ca BUyaH SabxAnuSasanasya prayojanAni.
we asurAH. xuRtaH SabxaH. yaw aXIwam. yaH wu prayufkwe. avixvAMsaH
. viBakwim kurvanwi. yaH vA imAm. cawvAri. uwa wvaH. sakwumiva.
sArasvawIm. xaSamyAM puwrasya. suxevaH asi varuNaH iwi.</p>

[praWamaprawIkaBARyam] <p>we asurAH. we asurAH helayaH helayaH iwi
kurvanwaH parAbBUvuH. wasmAw brAhmaNena na mlecciwavE na
apaBARiwavE. mleccCaH ha vA eRaH yaw apaSabxaH. mleccAH mA
BUmewyaXyeyaM vyAkaraNam. we asurAH.</p>

[xviwIyaprawIkaBARyam] <p>xuRtaH SabxaH. xuRtaH SabxaH svarawaH
varNawaH vA miWyA prayukwaH na wam arWam Aha. saH vAg vajraH
yajamAnam hinaswi yaWA inxraSawruH svarawaH aparAXAw.
xuRtAFSAbxAnmA prayukRmahIwyaXyeyam vyAkaraNam. xuRtaH SabxaH.</p>

[wqwIyaprawIkaBARyam] <p>yaw aXIwam. yaw aXIwam aviFjFAwam nigaxenEva
Sabxyawe. anagnAviva SuRkEXo na wajjvalawi karhiciw. wasmAx
anarWakam mA aXigIRmahIwyaXyeyaM vyAkaraNam. yaw aXIwam.</p>

[cawurWaprawIkaBARyam] <p>yaH wu prayufkwe. yaH wu prayufkwe kuSalaH
viSeRe SabxAnyawAvax vyavahArakAle. saH ananwam Apnowi jayam
parawra vAgyogavix xuRyawi ca apaSabxEH. kaH. vAgyogavixeva. kuwaH
ewaw. yaH hi SabxAFjAnAwyapaSabxAnapsO jAnAwi. yaWEva hi
SabxaFjFane XarmaH evam apaSabxaFjFane apaXarmaH. aWavA BUyaH
anaXarmaH prApnowi. BUyAMsaH apaSabxAH alpIyAMsaH SabxAH. ekEkasya
hi Sabxasya bahavaH apaBraMSAH. waw yaWA. goH iwi asya Sabxasya
gAvI goNI gowa gopowalika iwi evam AxayaH apaBraMSAH. aWa yaH
avAgyogaviw. aFjFANam wasya SaraNam.</p>

[samAXAnabAXakaBARyam] <p>nAwyawAyAFjFANam SaraNam Baviwum arhawi.
yaH hyajAnanvE brAhmaNam hanyAwsurAM vA pibew saH api manye pawiwah
syAw.</p>

[sixXAnwaBARyam] <p>evam warhi saH ananwam Apnowi jayam parawra
vAgyogavix xuRyawi ca apaSabxEH. kaH. avAgyogavixeva. aWa yaH
vAgyogaviw. viFjFANam wasya SaraNam.</p>

[praSnaBARyam] <p>kva punaH ixaM paTiwam.</p>

[uwwaraBARyam] <p>BrAjA nAma SlokaH.</p>

[AkRepaBARyam] <p>kiM ca BoH SlokaH api pramANam kiM ca awaH yaxi
pramANam ayam api SlokaH pramANam Baviwum arhawi.

yaxuxumbaravarNAnAM GatInAM maNdalaM mahaw. pIwaM na gamayewsvarge
kim wawkrawugawaM nayexiwi.</p>

[samAXAnaBARYam] <p>pramawwagIw eRaH wawraBawawo
yaswvpramawwagIwaswawpramANam. yaH wu prayufkwe.</p>

[paFcamaprawIkaBARYam] <p>avixvAMsaH. avixvAMsaH prawyaBivAxe nAmno ye
na pluwiM vixuH. kAmam weRu wu viproRya swrIRvivAyamaham vaxew.
aBivAxe swrIvnmA BUmewyaXyeyaM vyAkaraNam. avixvAMsaH.</p>

[RaRTaprawIkaBARYam] <p>viBakwiM kurvanwi. yAFjikAH paTanwi. prayAhAH
saviBakwikAH kAryA iwi. na ca anwareNa vyAkaraNam prayAjAH
saviBakwikAH SakyAH karwum. viBakwiM kurvanwi.</p>

[sapwamaprawIkaBARYam] <p>yo vA imAm. yo vA imAm paxaSaH svaraSaH
akRaraSaH vAcaM vixaXAwI saH ArwvIjInaH. ArwvIjInAH syAmewyaXyeyaM
vyAkaraNam. yo vA imAm.</p>

[aRtamaprawIkaBARYam] <p>cawvAri. cawvAri SqfgA wrayo asya pAXa xve
SIRRe sapwa haswaso asya. wriXA baxXo vqRaBo roravIwi maho xevo
marwyAZ A viveSa. cawvAri SqfgANi cawvAri paxajAwAni
nAmAKyAwopsarganipAwASca. wrayo asya pAXaswrayaH kAla
BUwaBaviRyaxvarwamAnAH. xve SIRRe xvO SabxAWmanO niwyaH kAryaH ca.
sapwa haswAsO asya sapwa viBakwayaH. wriXA baxXaswriRu sWaneRu
baxXa urasi kNte SirasIwi. vqRaBo varRaNAw. roravIwi Sabxam karowi.
kuwa ewaw. rOwiH Sabxakarma. maho xevo mrwyA AviveSewi. mahAnxevaH
SabxaH. marwyA maraNaXarmANO manuRyAH. wAnAviveSa. mahawA xevena
naH sAmyaM yaWA syAxiwyaXyeyam vyAkaraNam.</p>

[navamaprawIkaBARYam] <p>apara Aha. cawvAri vAkparimiwa paxAni wAni
vixurbrAhmaNA ye manIRiNaH. guhA wrINi nihiwA nefgayanwi wurIyaN
vAco manuRyA vaxanwi. cawvAri vAkparimiwa paxAni. cawvAri
paxajAwAni nAmAKyAwopasarganipAwASca. wAni vixurbrAhmaNA ye
manIRiNaH. manasa IRiNo manIRiNaH. guhA wrINi nihiwA nefgayanwi.
guhAyAM wrINi nihiwAni nefgayanwi. na ceRtanwe. na nimiranwiwyarWaH
. wurIOyaM vAco manuRyA vaxanwi. wurIyam ha vA ewaxvAco
yanmanuRyeRu varwawe. cawurWaniwyarWaH. cawvAri.</p>

[xaSamaprawIkaBARYam] <p>uwa wvaH. uwa wvaH paSyanna xaxarSa vAcamuwa
wvaH SqNvanna SqNvowyenAm. uwo wvasmE wanvaM vi sasawre jAyeva
pawya uSawI suvAsAH. api KalvekaH paSyannapi na paSyawi vAcam. api
KalvekaH SqNvannApi na SqNowyenAm. avixvAMsamAhArXam. uwo wvasmE
wanvaM visanne. wanuM vivqNuwe. jAyeva pawya uSawI suvAsAH. waxyaWA
jAyA pawye kAmaymAna subvAsAH svamAwmaM vivqNuwa evaM vAgvAgvixe
svamAwmaM vivqNuwe. vAf no vivqNuyAxAwmaMamiwyaXyeyaM vyAkaraNam
. uwa wvaH.</p>

[ekAXaSaprawIkaBARYam] <p>sakwumiva. sakwumiva wiwauna punanwo yawra
XIRa manasa vAcamakrawa. awra saKayaH saKyAni jAnawe BxrERAM
lakRmIrnihiwAXi vAci. sakwuH sacawerxurXAvo Bavawi. kasawervA
viparIwAxvikasiwo Bavawi. wiwau paripavanaM Bavawi wannavxvA. XIRa
XyAnavnwo manasa praJfJAnena vAcamakrawa vAcakqRawa. awra saKayaH
saKyAni jAnawe. awra saKayaH sanwaH saKyAni jAnawe. sAyujyAni
jAnawe. kva. ya eRa xurgo mArga ekagamyo vAgviRayaH. ke punaswe.
vEyAkaraNAH. kuwa ewaw. BaxrERAM lakRmIrnihiwAXi vAci. eRAM vAci
Baxra lakRmIrnihiwA Bavawi. lakRmIrlakRmaNAXBasanAwparivqDA Bavawi.
sakwumiva.</p>

[xvAXaSapraawIkaBARYam] <p>sArasvawIma. yAFjFikAH paTanwi.
AhiwAgnirapaSabxaM prayujya prAyaSciwwIyaM sArasvawImiRtiaM
nirvapexiwi. prAyaSciwwIyaM BUmewyaXyeyaM vyAkaraNam. sArasvawIm.

</p>

[wrayoxaSaprawIkaBARyam] <p>xaSamyAM puwrasya. yAFjFikAH paTanwi.
xaSamyuwwarakAlaM puwrasya jAwasya nAma
vixaXyAxXoRavaxAxyanwarawnaHsWamavqxXaM
wripuruRANUkamanariprawiRTiwaM waxXi prawiRTiwawamaM Bavawi.
xvayakRaraM cawukRaraM vA nAma kqwaM kuryAnna waxXiwamiwi. na
cAnwareNa vyAkaraNam kqwaswaxXiWA vA SakyA viFjAwum. xaSamyAM
puwrasya.</p>

[cawurxaSaprawIkaBARyam] <p>suxevo asi. suxevo asi varuNa sawyaxeVaH
asi yasya we sapwa sinXavaH sapwa viBakwayaH. anurakRanwi kAkuxam.
kAkuxaM wAlu. kAkurjihvA sASminnuxyawa iwi kAkuxam. sUrmyaM
suRirAmiva. waxyaWA SoBanAmUrmiM siRirAmAgniranwi praviSyA
xahawyeVam wava sapwa sinXavaH sapwa viBakwayaH wAlvanurakRanwi.
wenAsi sawyaxeVaH. sawyaxeVah syAmewyaXyeyaM vyAkaraNam. suxevo asi
</p>

[praSnaBARyam] <p>kiM punarixam vyAkaraNamevAXijigAMsamAneByaH
prayojanamAnvAKyAyawe na punaranyaxapi kiMciw omiwyukwvA
vqwwAnwaSaH SamiwyevamAxIFSabxAnpaTanwi.</p>

[uwwaraBARyam] <p>purAkAlpa ewaxAsIw. saMskArowwarakAlaM brahmaNA
vyAkaraNaM smAXIyawe. weByaswawra sWAnakaraNAnupraxAnaFjeByo
vExikAH SabxA upaxiSanwe. waxaxyawve na waWA. vexamaXIwya wvariwyA
wvariWA vakwAro Bavanwi. vexAnno vExikAH SabxAH sixXA lokAcCa
lOkikAH. anarWakam vyAkaraNamiwi. weByaHevaM viprawipannabuxXiByaH
aXyewqByaH AcAryaM ixaM SASwramanvAcaRte. imAni prayojanAnyaxyeyaM
vyAkaraNamiwi.</p>

[anubanXacawRtayopasaMhAraBARyam] <p>ukwaH SabxaH. svarUpamapyukwam.
prayojanAnyapyukwAni.</p>

3 (aWa SASwrarIwinirUpaNAXikaraNam)

[praSnaBARyam] <p>SabxAnuSAsanam ixAnIM karwavyam. waw kaWaM karwavyam
. kiM SabxopaxeSaH karwavya Ahosviw apaSabxopaxeSa Ahosviw
uBayopaxeSa iwi.</p>

[uwwaraBARyam] <p>anyawaropaxeSena kqwaM syAw. waw yaWA.
BakRyaniyamena aBakRyaprawiReXaH gamyawe.paFca paFcanaKA BakRyA
iwyukwe gamyawa ewaw awaH anye aBakRyA iwi. aBakRyaprawiReXena vA
BakRyaniyamaH. waw yaWA. aBakRyo grAmyakukkutaH aBakRyaH
grAmyaSUKaraH iwyukwe gamyawa ewaxAraNyo BakRya iwi. evamihApi yaxi
wAvacCabxopaxeSaH kriyawe gOriwyewasminnupaxiRte gamyawa ewaw
gAvyAxayaH apaSabxAH iwi. aWa apaSabxaH upaxeSaH kriyawe
gAvyApUpaxiRteRu gamyawa ewaw gOH iwi eRaH SabxaH iwi.</p>

[praSnaBARyam] <p>kiM punaH awra jyAyaH.</p>

[uwwaraBARyam] <p>laGuwvAcCabxopaxeSaH. laGIyAFSABxopaxeSaH
garIyAnapaSbxopaxeSaH. ekEkasya Sbxasya bahavaH apaBraMSAH. waw
yaWA. goriwyasya Sabxasya gAvIgoNIgowAgopowAlikAxayaH apaBraMSAH.
iRtAnvAKyAnam Kalvapi Bavawi.</p>

[AkRepaBARyam] <p>aWEwasmiFSABxopaxeSe sawi kiM SabxAnAM prawipawwO
prawipaxapATaH karwavyaH. gOraSvaH puruRo haswI Sakunirmqga
brahmaNA iwyevamAxAyaH SabxAH paTiwavyAH.</p>

[samAXAnaBARyam] <p>na iwi Aha. anaByupAya eRah SabxAnAM prawipawwO
prawipaxapATaH. evaM hi SrUyawe. bqhaspawirinxrAya xivyaM
varRasahasraM prawipaxokwAnAM SabxAnAM SabxapArAyaNaM pravoca
nAnwam jagAma. vqhsapwiH ca pravakwe inxraH ca aXyewa. xivyam
varRasahasram aXyayanakAlo na ca anwaM jagAma. kiM punaH axyawve.

yaH sarvaWA ciraM jIvawi sa varRaSawam jIvawi. cawurBiSca
 prakArErvixyopayukwA BavawyAgamakAlena svAXyAyakAlena
 pravacanakAlena vyavahArakAlenewi. wawra cAgamakAlenEvAyuH
 paryupayukwam syAw. wasmAxnByupAyaH SabxAnAM prawipawwO
 prawipaxapATaH.</p>
 [praSnaBARyam] <p>kaWam warhIme SabxAH prawipawwavyAH.</p>
 [uwwaraBARyam] <p>kiMciw sAmAnyaviSeRavallakRaNaM pravarwya yenAlpena
 yawnena mahawo mahawaH SabxOXAnprawipaxyeran. kiM punaswaw.
 uwsargApavAxO. kaScixuwsargaH karwavyaH kaScixapavAxaH.</p>
 [praSnaBARyam] <p>kaWam jAwIyakaH punaH uwsargaH karwavyaH
 kaWamjAwIyakaH apavAxaH.</p>
 [uwwaraBARyam] <p>sAmAnyena uwsargaH karwavyaH. waxyaWA. karmaNyaN.
 wasya viSeRaNapavAxaH. waxyaWA. Awa anupasarge kaH.</p>
 4 (aWa AkqwixravyapaxArWanirNayAXikaraNam)
 [praSnaBARyam] <p>kim punaH AkqwiH paxArWaH Ahosviw xrvyam.</p>
 [uwwaraBARyam] <p>uBayam iwi Aha. kaWam FjAyawe. uBayaWA hi AcAryeNa
 sUwrANi paTiwAni. AkqwiM paxArWaM mawvA
 jAwYAKyAyAmekasminbahuvacanamanyawarasyAm iwi ucyawe. xrvyam
 paxArWa mawvA sarUpANam iwi ekaSeRa AraByawe.</p>
 5 (SabxaniwyawvAniwyawvAvicArAXikaraNam)
 [praSnaBARyam] <p>kiM punaH niwyaH SabxaH Ahosviw kAryaH.</p>
 [uwwaraBARyam] <p>saMgraha ewawprAXAnyena parIkRIwaM niwyaH vA
 syAwakAryo vA iwi. wawra ukwAH xoRAH prayojanAnyapyukwAni. wawra wu
 eRaH nirNayaH yaxyeva niwyaH aWApi kArya uBayaWApi lakRaNaM
 pravarwyam iwi.</p>
 6 (aWa vyAkaraNsya mUlanibanXananirNayAXikaraNam)
 [vArwwikAvawaraNaBARyam] <p>kaWam punaH ixam BagavawaH pANineH
 AcAryasya lakRaNaM pravqwm.</p>
 [SabxArWasambanXaprawiRTiwaSAswranirUpakavArwwikapraWamaKaNdandam] <p>
 sixXe SabxArWasamBanXe.3.</p>
 [vyAKyABARyam] <p>sixXe Sabxe arWe samBanXe ca iwi.</p>
 [praSnaBARyam] <p>aWa sixXaSabxasya kaH paxArWaH.</p>
 [uwwaraBARyam] <p>niwyaparyAyavAcI sixXaSabxaH. kaWam FjAyawe.
 yawkUtasWeRvavicAliRu BAveRu varwawe. waw yaWA sixXA xyOH sixXA
 pqWivI sixXamAkASam iwi.</p>
 [AkRepaBARyam] <p>nanu ca BoH kAryeRu api varwawe. waw yaWA. sixXa
 oxanaH sixXaH sUpaH sixXA yavAgUriwi. yAvawA kAryeRu api varwawe
 wawra kuwaH ewanniwyaparyAyavAcino grahaNam na punaH kArye yaH
 sixXaSabxaH iwi.</p>
 [samAXAnaBARyam] <p>saMgraha wAvaw kAryaprawixvanxiBAvAn manyAmahe
 niwyaparyAyavAcinaH grahaNamiwi. ihApi waxeva.</p>
 [samAXAnAnwaraBARyam] <p>aWavA sanwi ekapaxAni api avaXArANi.
 waxyaWABakRo vAyuBakRa iwyapi eva BakRayawi vAyumeva BakRayawIwi
 gamyawe. evamihApi sixXa eva na sAXya iwi.</p>
 [samAXAnAnwaraBARyam] <p>aWavA pUrvapaxalopaH awra xraRtavyaH.
 ayanwasixXaH sixXa iwi. waxyaWA. xevaxawwo xawwaH sawyaBAmA BAMewi
 .</p>
 [samAXAnAnwaraBARyam] <p>aWavA vyAKyAnawo viSeRaprawipawwirna hi
 saMxehAxalakRaNamiwi niwyaparyAya vAcino grahaNamiwi vyAKyAsyAmaH.<
 /p>
 [AkRepaBARyam] <p>kiM punaH anena varNyena. kiM na mahawa kaNTena
 niwyaSabxaH evopowo yasminnupAxIyamAne asaMxehaH syAw.</p>

[samAXAnaBARyam] <p>mafgalArWam. mAfgalika AcAryaH mahawaH SASwrOXasya
mafgalArWe sixXaSabxamAxiwaH prayufkwe. mafgalAxiNi hi SASwrANi
praWanwe. vIrapuruRakANi ca BavanwyAyuRmawpuruRakANi cAXyewAraSca
sixXArWA yaWAsyuriwi.</p>

[samAXAnaSeRaBARyam] <p>ayaM Kalvapi niwyaSabxo na avaSyam
kUtasWeRvavicAliRu BAveRu varwawe. waxyaWA. niwyaprahasiwo
niwyaprajalpiwa iwi. yAvawABIkRnye api varwawe wawrApi anena eva
arWaH syAx vyAKyAnawaH viSeRaprawipawwirna hi saMxehAw alakRaNam
iwi. paSyawi wvAcAryo mafgalArWaScEva sixXaSabxaH AxiwaH prayukwo
BaviRyawi SakRyAmi cEnaM niwya paryAyavAcinam varNayiwum iwi. awaH
sixXaSabxaH evopAwwa na niwyaSabxaH.</p>

7 (niwyawAsAXakapakRanirNayAXikaraNam)

[praSnaBARyam] <p>aWa kiM punaH paxArWe mawveRa vighraH kriyawe sixXe
Sabxe arWe saMbanXe ca iwi.</p>

[uwwaraBARyam] <p>Akqwim iwi Aha. kuwaH ewaw. AkqwiH hu niwya
xrawyamaniwyam.</p>

[praSnaBARyam] <p>aWa xraye paxArWe kaWam vighraH karwavyaH.</p>

[uwwaraBARyam] <p>sixXe Sabxe arWe saMbanXe ca iwi. niwyaH hi
arWawawAmarWEraBisaMbanXaH.</p>

[xrayapaxArWAByupagamaBARyam] <p>aWavA xrayam eva paxArWa eRa
vighra nyAyyaH sixXe Sabxe arWe saMbanXe ca iwi. xrayam hi
niwyamAkqwiraniwyA. kaWam FjAyawe. evaM hi xqSyawe loke.
BqwkayAcixAkqwyA yukawa puNdo Bavawi. piNdAkqwimupamqxya GatikAH
kriyanwe. GatikAkqwimupamqxya kuNdikaH kriyanwe. waWA suvarNa
kayAcixAkqwyA yukwam piNdo Bavawi. piNdAkqwimupamqxya rucakAH
kriyanwe. rucakAkqwimupamqxya katakAH kriyanwe. punarAvqwwaH
suvarNapiNdaH punaraparayAkqwyA yukwaH KaxirAfgArasavarNe kuNdale
BavawaH. AkqwiranyAcAnyA ca Bavawi xrayam punaswaxeva.
Akqwyupamarxena xrayamevAvaSiRyawe.</p>

[AkqwipaxArWAByupagamaBARyam] <p>AkqwaVapi paxArWa eRa vighra nyAyyaH
sixXe Sabxe arWe saMbanXe ca iwi. nanu ca ukwam AkqwiH aniwyah iwi
. na ewaw aswi. niwyAkqwiH. kaWam. na kvacix uparawewi kqwwA
sarvawroparawA Bavawi xrayanwarasWA wUpalaByawe.</p>

[SabxArWasambanXAnAM_lokavyavahArasixXawvabAXakavArwwikaxviwIyaKaNdandam]
<p>lokawaH.4.</p>

[vyAKyABARyam] <p>yalloke arWam arWam upAxAya SabxAnprayuFjawe nERAM
nirvqwwO yawnaM kurvanwi. ye punaH kAryA BAva nirvqwwO wAvawweRAM
yawnaH kriyawe. waxyaWA. Gatena kArye kariRyankumBakArakulaM
gawvAha kuru Gatam kAryamAnena kariRyAmiwi. na
waxvacCabxAnprayokRyamANO vEyAkaraNakulaM gawvAha kuru SabxAn
prayokRya iwi. wAvawyevArWamupAxAya SabxAn prayuFjawe.</p>

[vArwwikAvawaraNaBARyam] <p>yaxi warhi loka eRu pramanam kiM SASwreNa
kriyawe.</p>

[SASwropayogaprakaWane_vArwwikawqwIyaKaNdandam] <p>lokawaH arWaprayukwe
Sabxaprayoge SASwreNa XarmaniyamaH.5.</p>

[vyAKyABARyam] <p>lokawaH arWaprayukwaH Saxaprayoge SASwreNa
XarmaniyamaH kriyawe. kimixaM XarmaniyamaH iwi. XarmAya niyamaH
XarmaniyamaH XarmArWaH vA niyamaH XarmaniyamaH XarmaprayojanaH vA
niyamaH XarmaniyamaH.</p>

[xqRtAnwaxarSakavArwwikam] <p>yaWA lokikavExikeRu.6.</p>

[vyAKyABARyam] <p>priyawaxXiwa xAkRiNAwyA yaWA loke vexe cewi
prayokwavyae yaWA lokikavExikeRu iwi prayujyawe. aWavA yukwa eva

waxXiwArWAH. yaWA lOkikeRu vExikeRu ca kqwAnweRu. loke wAvaxaBkRayo grAmyakukkutaH aBakRyaH grAmya sUkaraH iwi ucyawe. BakRyaM ca nAma kRuwwprawiGAWArWamupAxIyawe. Sakyam ca anena SvamAMsAxIBirapi kRuwwprawihanwuma. wawra niyamaH kriyawa ixaM BkRyaM ixam aBakRyam iwi. waWA KexAwsrIRu pravqwwirBavawi. samAnaSca Kexavigamo gamyAyAM ca agamyAyAM ca. wawra niyamaH kriyawa iyaM gamya ayam agamyaya iwi. vexe Kalvapi payovrawo brAhmaNaH yavAgUvrawo rAjanyaH AmikRAvrawo vESyaH iwi ucyawe. vrawaM ca nAmABYavahArArWamupAxIyawe. Sakyam ca anena SALimAMsAxInyApi vrawayiwum. wawra niyamaH kriyawe. waWA bElvaH KAXiraH vA yUpaH syAXiwyucyawe. Sakyam ca anena kiFcix eva kARTamucCriwyAnucCriwya vA paSuranubnxXum. wawra niyamaH kriyawe. waWAgNO kapAlAnyaxiSriwyABimanwrayawe. BqgUNAmafgirasAM Xarmasya wapasa wapyaxvamiwi. anwareNa api manwramagnirxahanakarma kapAlAni saMwApayawi. wawra niyamaH kriyawa evaM kriyamANamaByuxayakAri Bavawi iwi.</p>

[uapasaMhAraBARYam] <p>evam iha api samAnAyAmarWagawO Sabxena ca apaSabxena ca XarmaniyamaH kriyawe. SabxenEvArWaH aBiXeyaH na apaSabxena iwyevaM kriyamANamaByuxayakAri Bavawi iwi.</p>

8 (aWa aprayukwaSabxavicAraNAXikaraNam)

[vArwwikAvawaraNaBARYam] <p>aswyaprayukwaH. sanwi vE SabxA aprayukwaH. waxyaWA. URa wera cakra pacewi. kimawo yawsanwyaprayukwaH. prayogaAxXi BavAFSabxAnAM sAXuwwamaXyavasyawi. ya ixAnImaprayukwa nAmI sAXavaH syuH.</p>

[AkRepaBARYam] <p>ixam viprawiRixXaM yaxi ucyawe sanwi vE SabxA aprayukwa iwi. yaxi sanwi nAprayukwaH aWAprayukwaH na sanwi. sanwi ca aprayukwaH ca iwi viprawiRixXaM. prayuFjAna eva Kalu BavAnAha sanwi SabxA aprayukwa iwi. kaScexAnImanyo BavajjAwIyakaH puruRaH SabxAnAM prayoge sAXuH syAw.</p>

[samAXAnaBARYam] <p>na ewaw viprawiRixXaM. sanwi iwi wAvax brUmo yaxewAFSAswvaxaH SASwreNANuvixaXawe. aprayukwa iwi brUmo yaloke aprayukwa iwi. yaxpi ucyawe kaScexAnImanyo BavajjAwIyakaH puruRaH SabxAnAM prayoge sAXuH syAw iwi. na brUmaH asmABiH aprayukwaH iwi. kiM warhi. loke aprayukwaH iwi.</p>

[AkRepasAXakaBARYam] <p>nanu ca BavAnapyaByanwaro loke.</p>

[AkRepabAXakaBARYam] <p>aByanwaraH aham loke na wvham lokaH.</p>

[AkRepabAXakavArwwikam] <p>aswyaprayukwa iwi cennArWe SabxaprayogAw.7.</p>

[vyAKyABARYam] <p>aswyaprayukwa iwi cew wanna. kiM kAraNam. arWe SabxAH prayujyanwe sanwi cERAM SabxAnAmarWA yeRvarWeRu prayujyanwe.</p>

[aprayogasAXanavArwwikam] <p>aprayogaH prayogAnyawvAw.8.</p>

[vyAKyABARYam] <p>aprayogaH KalveRAM SabxAnAM nyAyyaH. kuwaH. prayogAnyawvAw. yaxeweRAM SabxAnAmarWe anyAFSabxAnprayuFjawe. waxyaWA. URewyasya SabxasyArWe kva yURamuRiwaH. werewyasyArWe kva yUyaM wIrNAH. cakrewyasyArWe kiM yUyam kqwavanwaH. pecewyawyasyArWe kva yUyaM pakvavanwa iwi.</p>

[xqRtAnwaxarSakavArwwikam] <p>aprayukwe xIRGasawravaw.9.</p>

[vyAKyABARYam] <p>yaxyapyaprayukwa avaSyam xIRGasawravallakRaNenAnuviXeyAH. waxyaWA. xIRGasawrANi vArRaSawikAni vArRasahasrikAni ca na cAXyawve kaScixapi vyavaharawi . kevalamqRisaMpraxAyo XarmaH iwi kqvwA yAFjikAH SASwreNANuvixaXawe

.

[aprayukwawvasAXakapakRAnwaravArwwikam] <p>sarve xeSAnware.11.</p>

[vyAKyABARyam] <p>sarve Kalvapyewe SabxA xeSAnware prayujyawe.</p>

[AkRepaBARyam] <p>na ca ewaw upalaByanwe.</p>

[samAXAnaBARyam] <p>upalabXO yawnaH kriyawAm. mahAn hi Sabxasya prayogaviRayaH. sapwaxvIpA vasumawI wrayo lokAScawvAro vexAH sAfgAH sarahasyA bahuXA viBinnAH ekaSawamaXvaryuSAKAH sahasravarwMA sAmavexaH ekaviMSawiXA bAhvqcyaM navaXA aWarvaNo vexaH vAkovAkyamiwihAsaH purANaM vExyakamiwyewAvAFSAbxasya prayogaviRayaH . ewAvanwaM Sabxasya prayogaviRayamananuniSamya sanwyaprayukwA iwi vacanam kevalam sAhasamAwram.</p>

[SabxAnAm_xeSAnwaraprayogaxarSakaBARyam] <p>ewasminnawimahawi Sabxasya prayogaviRaye we we SabxAH wawra wawra niyawa viRayAH xqSyanwe. waxyaWA. Savawirgawikarma kambojeRveva BARIwo Bavawi. vikAra enamAryA BARanwe Sava iwi. hammawiH surARtreRu. raMhawiH prAcyamaXyeRu. gamimeva wvAryAH prayuFjawe. xAwirlavanArWe prAcyeRu xAwramuxIcyRu.</p>

[sixXAnwaBARyam] <p>ye cApyewe BavawaH aprayukwA aBimawaH SabxAH eweRAMapi prayogo xqSyawe. kva. vexe. yaxvo revawI revawyaM waxURa. yanme naraH SruwyaM brahma cakra. yawrA naScakrA jarasaM wanUnAmiwi.</p>

9 (aWa SabxFjAnaprayogaXarmajanakawvavicArAXikaraNam)

[praSnaBARyam] <p>kiM punaH Sabxasya FjAne XarmaH Ahosviw prayoge.</p>

[prawipraSnaBARyam] <p>kaH ca awra viSeRaH.</p>

[FjAnasya_aXarmajanakawvavArwwikam] <p>FjAne Xarma iwi cewwaWAXarmaH .12.</p>

[vyAKyABARyam] <p>FjAne XarmaH iwi cew waWA XarmaH prApnowi. yaH hi SabxAFjAnAwyapaSabxAnpyaso jAnAwi. yaWEva SabxFjAne XarmaH evamapaSabxFjAne apaXarmaH.</p>

[aXarmAXikyaxarSanaBARyam] <p>aWavA BUyAnaXarmaH prApnowi. BUyAMsaH apaSabxAH alpIyAMsaH SabxAH. ekEkasya Sabxasya bahavaH apaBraMSAH. waxyWA. gOriwyasya gAvI goNI gowa gopowalikewyevamAxayaH apaBraMSAH .</p>

[niyamaboXakavArwwikam] <p>AcAre niyamaH.13.</p>

[vyAKyABARyam] <p>AcAre punarQRirniyamam vexayawe. we asurAH helayaH helayaH iwi kurvanwaH parAvaBUviriwi.</p>

[prayogapakRAfgIkAraBARyam] <p>aswu warhi prayoge.</p>

[prayogapakRe_xURaNavArwwikam] <p>prayoge sarvalokasya.14.</p>

[vyAKyABARyam] <p>yaxi prayoge XarmaH sarvo lokaH aByuxayane yujyawe.</p>

[AkRepaBARyam] <p>kaScexAnIm Bavawo mawsaro yaxi sarvaH lokaH aByuxayena yujyawe.</p>

[samAXAnaBARyam] <p>na Kalu kaScinmawsaraH prayawnAnarWakyam wu Bavawi . PalavawA ca nAma prayawnena Baviwavyam. na ca prayawnaH PalAx vyawirecyaH.</p>

[AkRepaBARyam] <p>nanu ca ye kqwaprayawnAswe sAXIyaH SabxAnprayokRynwe wa eva sAXIyaH aByuxayena yokRyanwe.</p>

[samAXAnaBARyam] <p>vyawirekaH api vE lakRyanwe. xqSyanwe hi kqwaprayawnAScApravINAH akqwaprayawnASca pravINAH. wawra PalavyawirekaH api syAw.</p>

[pakRAnwaraxarSakavArwwikAvawaraNaBARyam] <p>evam warhi FjAna eva XarmaH na api prayogaH eva. kiM warhi.</p>

[FjAnapUrvakaprayogAByupagamasixXAnwavArwwikam] <p>SAswrapUrvake prayoge aByuxayaswawwulyaM vexaSabxena.15.</p>

[vyAKyABARyam] <p>SAswrapUrvakaM yaH SabxAnprayufkwe saH aByuxayena yujyawe. waw wulyaM vexaSabxena. vexaSabxA api evam aBivaxanwi. yaH agniRtomena yajawe ya u cEnamevaM vexa. yaH agniM nAcikewaM cinuwe ya u cEnamevaM vexa.</p>

[vyAKyAnwaraBARyam] <p>aparaH Aha. waw wulyaM vexaSabxena iwi. yaWA vexaSabxA niyamaUrvam aXIwAH Palavanwo Bavanwyevam yaH SAswrapUrvakam SabxAnprayufkwe saH aByuxayena yujyawa iwi.</p>

[praWamapakRasAXakaBARyam] <p>aWavA puaH wu FjAna eva XarmaH iwi.</p>

[AkRepasmAraNaBARyam] <p>nanu ca ukwam FjAne XarmaH iwi cew waWA aXarmaH iwi.</p>

[AkRepanirAkaraNaBARyam] <p>na eRaH xoRaH. SabxapramANakAH vayam. yaw Sabxah AhaH wax asmAkam pramANam. Sabxah ca SabxajAne XarmaH AhaH na apaSabxajAne aXarmam yaw ca punaH aSiRta aprawiRixXam na eva wax upAyaH Bavawi na aByuxayaH. waw yaWA. hikkiwahasiwakandUyiwAni nEva xoRAya Bavanwi nApyaByuxayAya.</p>

[samAXAnAnwaraBARyam] <p>aWavA aByupAyaH eva apaSabxajAneM SabxajAne . yaH apaSabxAn jAnAwi SabxAn api asO jAnAwi. waxevam FjAne XarmaH iwi bruvawaH arWaw Apannam Bavawi apaSabxajAnapUrvake SabxajAne XarmaH iwi.</p>

[samAXAnAnwarasAXakaBARyam] <p>aWavA kUpaKAnakavaxewaxBaviRyawi. waxyaWA kUpaKaxanakaH kUpaM Kananyaxyapi mqa pAMsuBiScAvakIrNo Bavawi saH apsu saMjAwAsu waw eva waM guNamAsAxayawi yena saH ca xoRo nirhaNyawe. BUyasa cAByuxayena yogo BavawyevamihApi yaxyapyaSabxajAne aXarmaH waWapi yaswvasO SabxajAne armaswena saH ca xoRo nirGaniRyawe. BUyasa cAByuxayena yogo BaviRyawi.</p>

[xviwIyapakRaxURaNaNirAsaBARyam] <p>yaxapyucyawe AcAre niyamaH iwi yAFje karmaNi saH niyamaH. evaM hi SrUyawe. yarvANaswarvANo nAmarRayo baBUvaH prawyakRaXarmANaH parAparaFJA vixiwavexiwavya aXigawayAWawaWyAH. we wawraBavanwaH yaxva naswaxva na iwi prayokwavye yarvANaswarvANa iwi prayufjawe. yAFje punaH karmaNi nAmaBARanwe. wEH punarusurEryAFje karmaNyapaBARIwamawaswe parABUwAH .</p>

10 (aWa vyAkaraNapaxArWanirNayAXikaraNam)

[praSnaxvArA_vArwwikAvawaraNaBARyam] <p>aWa vyAkaraNamiwyasya Sabxasya kaH paxArWaH. sUwram.</p>

[sUwrapakRe_AkRepavArwwikam] <p>sUwre vyAkaraNe RaRTyarWaH anupapannaH .16.</p>

[vyAKyABARyam] <p>sUwre vyAkaraNe RaRTyarWaH na upapaxyawe vyAkaraNasya sUwramiwi. kiM hi waxanyawsUwrAx vyAkaraNaM yasyAxaH sUwraM syAw.</p>

[AkRepAnwaravArwwikam] <p>SabxANAM cAprawipawwiH prApnowi vyAkaraNacCabxAnprawipaxyAmaha iwi. na hi sUwrawa eva SabxAnprawipaxyanwe kiM warih vyAKyAnawaSca.17.</p>

[AkRepabAXakaBARyam] <p>nanu ca waxeva sUwraM vigqhIwaM vyAKyAna Bavawi.</p>

[AkRepasAXakaBARyam] <p>na kevalAni carcApaxAni vyAKyAnaM vqxXiH Aw Ejiwi. kiM warhi. uxAharaNam prawyuxAharaNam vAKyAXyAhAra iwyewawsamuxiwaM vyAKyAnam Bavawi.</p>

[vArwwikAvawaraNaBARyam] <p>evaM warhi Sabxah.</p>

[SabxapakRe_AkRepavArwwikam] <p>Sabxe lyudarWaH.18.</p>

[vyAKyABARyam] <p>yaxi Sabxo vyAKaraNam ludarWaH na upapaxyawe. vyAkriyawe anena iwi vyAkaraNam. na hi Sabxena kiMcix vyAkriyawe. kena warhi. sUwreNa.</p>

[AkRepAnwaravArwwikam] <p>Bave.19.</p>

[vyAKyABARyam] <p>Bave ca waxXiwaH na upapaxyawe. vyAkaraNe BavaH yogaH vEyAkaraNaH iwi. na hi Sabxe BavaH yogaH. kiM warhi. sUwre.</p>

[AkRepAnwaravArwwikam] <p>prokwAxayaSca waxXiwaH.20.</p>

[vyAKyABARyam] <p>prokwAxayaSca waxXiwa na upapaxyawe. pANinina prokwaM pANinIyam. ApiSalam. kASakqwsnamiwi. na hi pANinina SabxAH prokwaH. kim warhi. sUwram.</p>

[vArwwikapraNayanAkRepaBARyam] <p>kimarWam ixam uBayam ucyawe Bave prokwAxayaH ca waxXiwa iwi. na prokwAxayaH ca waxXiwaH iwi eva Bave api waxXiwaH ca uxiwaH syAw.</p>

[samAXAnaBARyam] <p>purawAw ixam AcAryeNa xqRtam Bave waxXiwa iwi wawpaTiwam. wawa uwwarakAlam ixam xqRtam prokwAxayaH ca waxXiwa iwi waxapi paTiwam. na ca ixanIm AcAryAH sUwrANi kqwvA nivarwayanwi.</p>

[praWmAkRepabAXakaBARyam] <p>ayaM wAvaxaxoRo yaxucyawe Sabxe lyudarWa iwi. nAvaSyam karaNAXikaraNayoH eva lyu viXIyawe. kiM warhi. anyeRu api kArakeRu kqwyalyuto bahulam iwi. waxyaWA. praskanxanam prapanamiwi.</p>

[karaNArWasamarWanaBARyam] <p>aWavA SabxEH api SabxAH vyAkriyanwe. waxyaWA. goH iwyukwe sarve saMxehA nivarwanwe na aSvaH na gaxarBaH iwi.

[AkRepasmAraNaBARyam] <p>ayaM warhi xoRaH Bave prokwAxayaH ca waxXiwa iwi.</p>

[vArwwikAvawaraNaBARyam] <p>evaM warhi.</p>

[pakRANwaravArwwikam] <p>lakRyalakRaNe vyAKaraNam.21.</p>

[vyAKyABARyam] <p>lakRyaM ca lakRaNaM ca ewaw samuxiwaM Bavawi. kiM punaH lakRyaM lakRaNaM ca. Sabxo lakRyaH sUwram lakRaNaM.</p>

[AkRepaBARyam] <p>evamapi ayam xoRaH samuxAye vyAKaraNaSabxaH pravqwwaH avayave na upapaxyawe. sUwrANi cApyaXIyAnaH iRyawe vEyAkaraNa iwi.</p>

[samAXAnaBARyam] <p>na eRaH xoRaH. samuxAyeRu hi SabxAH pravqwwaH avayaveRu api varwanwe. waxyaWA. pUrve paFcAlAH. uwware paFcAlAH. wElam Bukwam. GqwaM Bukwam. SuklaH nIlAH kqRNaH iwi. evam ayam samuxAye vyAKaraNaSabxaH pravqwwaH avayave api varwawe.</p>

[praWamapakRAByupagamaBARyam] <p>aWavA punaH aswu sUwram.</p>

[praWamAkRepasmAraNaBARyam] <p>nanu ca ukwam sUwre vyAkaraNe RaRTyarWaH anupapannaH iwi.</p>

[AkRepanirAsaBARyam] <p>na eRaH xoRaH. vyapaxeSivaxBAvena BaviRyawi.</p>

[xviwIyAkRepanirAkaraNasmAraNaBARyam] <p>yaxapi ucyawe SabxAprawipawwiH iwi. na hi sUwrawa eva SabxAnprawipaxyanwe. kiM warhi vyAKyAbawaH ca iwi. parihqwamewawwaxeva sUwram vigqHIwam vyAKyAnam Bavawi iwi.</p>

[nirAkaraNabAXakasmAraNaBARyam] <p>nanu ca ukwam na kevalAni carcApaxAni vyAKyAnam vqxXiH Aw Ejiwi. kiM warhi uxAharaNam prawyuxAharaNam vAkyAXyAhAra iwi ewaw samuxuwam vyAKyAnam Bavawi iwi.</p>

[sUwrapaxArWasamarWnaBARyam] <p>avijAnawa ewaxevam Bavawi. sUwrawa eva

hi SabxAnprawipaxyanwe. AwaSca sUwrawa eva yaH hyuwsUwram
kaWayennAxo gqhyewa.</p>

11 (aWa SivasUwrasya varNopaxeSAXikaraNam)
[vArwwikAvawaraNaBARyam] <p>aWa kimarWaH varNAnAmupaxeSaH.</p>
[varNopaxeSaprayoJanavArwwikam] <p>vqwwisamavAyArWa upaxeSaH.22.</p>
[vyAKyABARyam] <p>vqwwisamavAyArWo varNAnAmupaxeSaH karwavyaH. kimixam
vqwwisamavAyArWa iwi. vqwwaye samavAyo vqwwisamavAyaH. vqwwyarWo
vA samavAyo vqwwisamavAyaH. vqwwiprayojanaH vA samavAyaH
vqwwisamavAyaH. kA punaH vqwwisamavAyaH. vqwwiprayojano vA samavAyo
vqwwisamavAyaH. kA punarvqwwiH. SASwrapravqwwiH. aWa kaH samavAyaH
. varNAnAmAnupUrvyeNa saMniveSaH. aWa kaH upaxeSaH. uccAraNam.
kuwaH ewaw. xiSiruccAraNakriyaH. uccArya hi varNAnAhopaxiRtA ime
varNA iwi.</p>
[prayoJanAnwaravArwwikam] <p>anubanXakaraNArWaSca.23.</p>
[vyAKyABARyam] <p>anubanXakaraNArWaSca varNAnAmupaxeSaH karwavyaH.
anubanXAnAsafkRyAmIwi. na hyanupaxiSya varNAnanubanXAH SakyA
Asafkwum. saH eRaH varNAnAmupaxeSo
vqwwisamavAyAraScAnubanXakaraNArWASca.
vqwwisamavAyaScAnubanXakaraNam ca prawyAhArArWam. prawyAhAro
vqwwyarWaH.</p>
[vArwwikAvawaraNaBARyam] <p>iRtabuxXyrWaSca. iRtabuxXyarWaSca
varNAnAmupaxeSaH. iRtAnvarNAnBowsya iwi. na hyanupaxiSya varNAniRtA
varNAH SakyA viFjAwum.</p>
[AkRepavArwwikam] <p>iRtabuxXyarWaScewi
cexuxAwwAnuxAwwasvariAnunAsikaxIrGaplurAnAnapyupaxeSaH.24.</p>
[vyAKyABARyam] <p>iRtabuxXyarWaScewi
cexuxAwwAnuxAwwasvariAnunAsikaxIrGaplurAnAmapyupaxeSaH karwavyaH.
evaMguNA api hi varNA iRyanwe.</p>
[vArwwikAvawaraNaBARyam] <p>AkqwyupaxeSAwsixXam.
AkqwyupaxeSAwsixXamewaw. avarNAKqwirupaxiRtA sarvamavarNakulam
grahIRyaw. waWevarNAKqwiH. waWovarNAKqwiH.</p>
[AkRepavArwwikam] <p>AkqwyupaxeSAwsixXamiwi cewsaMvqwaXInAm prawiReXaH
.25.</p>
[vyAKyABARyam] <p>AkqwyupaxeSAwsixXamiwi cewsaMvqwaInAM prawiReXo
vakwavyaH. ke punaH samvqwaXayaH. samvqwaH kalo XmaWa eNIkqwaH
ambUkqwaH arXakaH graswaH niraswaH pragIwa upagIwaH KviNNo romaSa
iwi. aparaH Aha. graswam niraswamavilambiwam nirhawamambUkqwaM
XmaWamaWo vikampiwam. saMxaRtameNIpqwamarXakam xruwam vikIrNamewAH
svaraxoRaBAvanA iwi. awaH anye vyaFjanaxoRAH.</p>
[AkRepanirAkaraNaBARyam] <p>na eRaH xoRaH.
gargAxibivAxipATAwsaMvqwaXInAm nivqwwirBaviRyaw.</p>
[AkRepasAXakaBARyam] <p>aswyanyax gargAxibixAxipATe prayoJanam. kim.
samuxAyAnAm sAXuwvam yaWA syAXiwi.</p>
[pakRANwaraxvArA_vArwwikasaxqSavacanAvawAraBARyam] <p>evaM warhi
aRtAxaSaXA BinnAm nivqwwakalAxikAmavarNasya prawyApawwiM vakRYAmi.<
/p>
[praSnaBARyam] <p>sA warhi vakwavyA.</p>
[AkRepanirAkaraNavArwwikasaxqSavacanam] <p>lifgArWA wu prawyApawwiH
.26.</p>
[vyAKyABARyam] <p>lifgArWA sA warhi BaviRyaw.</p>
[AkRepaBARyam] <p>waw warhi vakwavyam.</p>
[samAXAnaBARyam] <p>yaxyapyewaxucyawe aWavEwarhyaneKamanubanXaSawm

noccAryamiwsaFjA ca na vakwavyA lopaSca na vakwavyaH. yaxanubanXEH
kriyawe wawkaLAxiBiH kariRyawe.</p>
[sixXAnwaBARYam] <p>sixXyawyevamapANinIyam wu Bavawi.</p>
yaWAnyAsamevAswu.</p>
[AkRepasmAraNaBARYam] <p>nanu ca ukwam Akqwi upaxeSAw sixXam iwi cew
saMvqwAxInAM prawiReXa iwi.</p>
[samAXAnaBARYam] <p>parihqwamewax gargAxibixAxipATAwsaMvqwAxInAM
nivqwwirBaviRyawi.</p>
[AkRepasmAraNaBARYam] <p>nanu ca anyax gargAxivixAxipATe prayojanam
ukwam. kim. samuxAyAnAm sAXuwvaM yaWA syAw iwi.</p>
[samAXAnaBARYam] <p>evam warhi uBayam anena kriyawe pATaH ca eva
viSeRyawe kaLAxayaH ca nivarwyanwe. kaWam punaH ekena yawnena
uBayam laByam. laByam iwi Aha. kaWam. xvigawA api hewavaH Bavanwi.
waxyaWA. AmrASca sikWAH piwaraH ca prINiWA iwi. waWA vAkyAni api
xviRTAni Bavanwi. SvewaH XAvawi. alambusAnAM yAwewi.</p>
[samAXAnAnwaraBARYam] <p>aWavexaM wAvaxayaM prRtavyaH. kva ime
saMvqwAxayaH SrUyeranniwi. AgameRu. AgamAH SuxXAH paTyanwe.
vikAreRu warhi. vikArAH SuxXAH paTyanwe. prawyayeRu warhi.
prawyayAH SuxXAH paTyanwe. XAwuRu warhi. XAwavaH api SuxXAH
paTyanwe. prAwipaxikERu warhi. prAwipaxikAni api SuxXAni paTyanwe.
yAni warhi agrahaNAni prAwipaxikAni. eweRAM api
svaravarNAnupUrvIFjAnArWam upaxeSaH karwavyaH. SaSaH RaRa iwi mA
Buw. palASaH palARA iwi mA Buw. maFcakaHmaFjaka iwi mA Buw.
AgamASca vikArASca prawyayAH saha XAwuBiH. uccAryanwe wawasweRu
neme prApwAH kaLAxayaH. iwi upAXyAyajEyatapuwrakEyatakqwe
mahABARYapraxIpe praWamasyAXyAyasya praWame pAxe praWmamAhnikaM.
iwi SrIBagavawpawaFjaliviraciwe vyAkaraNamahABARye
praWmasyAXyAyasya praWame pAxe praWmamAhnikaM.</p>
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