In Pāṇini We Trust: Discovering the Algorithm for Rule Conflict Resolution in the Aṣṭādhyāyī'

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In Pāṇini We Trust

Discovering the Algorithm for Rule Conflict Resolution in the Aṣṭādhyāyī

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This thesis is submitted for the degree of

Doctor of Philosophy
Declaration

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Rishi Rajpopat

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Contents

Acknowledgements ........................................................................................................... 5

Abstract .......................................................................................................................... 7

Chapter One .................................................................................................................... 8

1.1 Introduction to the Aṣṭādhyāyī .................................................................................. 8

1.2 Metarules in the Pāṇinian Grammatical Tradition ................................................. 11

1.3 Modern Perspectives on the Functioning of the Aṣṭādhyāyī ............................... 14

1.4 The Traditional View on Rule Conflict ................................................................. 20

1.5 Analysis of the Traditional Perspective ............................................................... 23

1.6 Modern Scholarship on 1.4.2 ............................................................................... 27

1.7 My Opinion ........................................................................................................... 31

Chapter Two .................................................................................................................. 33

2.1 Two Types of Operational Rule Interaction ......................................................... 33

2.2 Solutions for Type 1 (SOI) and Type 2 (DOI) ...................................................... 34

2.3 Evidence for My Interpretation of Para .............................................................. 35

2.4 A Key Difference Between SOI and DOI ............................................................. 38

2.5 Pāṇinian and Post-Pāṇinian Approaches to Derivations .................................... 39

2.6 Traditional Solutions ............................................................................................ 45

2.7 Examples of DOI .................................................................................................. 48

2.8 Examples of SOI ................................................................................................... 67

Chapter Three ............................................................................................................... 83

3.1 Response to Challenges ....................................................................................... 83

3.2 DOI in the Inflection of Taddhita, Samāsa and Kṛdanta Nominal Bases .......... 91

3.3 SOI in Taddhita derivations .................................................................................. 107
Chapter Four

4.1 Anādhikāra

4.2 Examples of Application of 1.4.13 and 6.4.1

4.3 Examples of DOI Conflict

4.4 Examples of SOI

4.5 Selection of Examples

4.6 Distribution of Examples of Conflict

Chapter Five

5.1 Traditional Views on Asiddha and Asiddhavat

5.2 My Interpretation of These Three Rules

Chapter Six

6.1 How and Why Pāṇini Composed 1.4.2

6.2 A Summary of Post-Pāṇinian Ideas on 1.4.2

6.3 The Way Forward

Appendix A: Some Pāṇinian Metarules on Substitution

Appendix B: 1.1.66 and 1.1.67 in the Context of Augmentation

Appendix C: ‘Conflicts’ Between Antaraṅga and Bahiraṅga Rules

Appendix D: Tables of Concordance

Appendix E: Some Thoughts on the Siddha Principle

Appendix F: List of Sūtras Containing the Term Para

Bibliography
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Abstract

If two rules are simultaneously applicable at a given step in a Pāṇinian derivation, which of the two should be applied? Put differently, in the event of a ‘conflict’ between the two rules, which rule wins?

In the Aṣṭādhyāyī, Pāṇini has taught only one metarule, namely, 1.4.2 vipratiṣedhe param kāryam, to address this problem. Traditional scholars interpret it as follows: ‘in the event of a conflict between two rules of equal strength, the rule that comes later in the serial order of the Aṣṭādhyāyī, wins.’

Pāṇinīyas claim that if one rule is nitya, and its simultaneously applicable counterpart is anitya, or if one is antaraṅga and the other bahiraṅga, or if one is an apavāda (exception) and the other the utsarga (general rule), then the two rules are not equally strong and consequently, we cannot use 1.4.2 to resolve the conflict between them. The nitya, antaraṅga and apavāda rules are stronger than their respective counterparts and thus win against them.

But this system of conflict resolution is far from perfect: the tradition has had to write numerous additional metarules to account for umpteen exceptions. In this thesis, I propose my own solution to the problem of rule conflict which I have developed by relying exclusively on Pāṇini’s Aṣṭādhyāyī. I replace the aforementioned traditional categories of rule conflict with a new classification, based on whether the two rules are applicable to the same operand (Same Operand Interaction, SOI), or to two different operands (Different Operand Interaction, DOI).

I argue that, in case of SOI, the more specific i.e., the ‘exception’ rule, wins. Additionally, I develop a systematic method for the identification of the ‘more specific’ rule – based on Pāṇini’s style of rule composition. I also argue that, in order to deal with DOI, Pāṇini has composed 1.4.2, which I interpret as follows: ‘in case of DOI (vipratiṣedha), the right-hand side (para) operation (kārya) prevails.’ I support my conclusions with both textual and derivational evidence.

I also discuss my interpretation of certain metarules teaching substitution and augmentation, the concept of aṅga, and the asiddha and asiddhavat rules and expound on not only their interaction with 1.4.2 but also their influence on the overall functioning of the Pāṇinian machine.
Chapter One

1.1 Introduction to the Aṣṭādhyāyī

Pāṇini\(^1\) composed the *Aṣṭādhyāyī* around 350 BC\(^2\) in North-Western South Asia.\(^3\) The *Aṣṭādhyāyī* is a samāhāra ‘collection’ of *aṣṭa*(n) ‘eight’ *adhyāyas* ‘books’, hence the name *Aṣṭa-adhyāy(a)-ī*. Each book of the *Aṣṭādhyāyī* has four *pādas* ‘chapters’ that are made up of *sūtras* ‘rules’. In all, the *Aṣṭādhyāyī* comprises about 4000 rules. The *Aṣṭādhyāyī* is a comprehensive grammar of the Sanskrit language as known to its author Pāṇini. It stands out for doing more than merely describing its object language: the *Aṣṭādhyāyī* is a full-fledged machine which helps construct grammatically correct Sanskrit words and sentences through a step-by-step derivation\(^4\) process. In the *Aṣṭādhyāyī*, Pāṇini does not give us a general introduction to his work, nor does he discuss the theoretical principles that have been used to construct his *sūtras*. He conveys whatever has to be said, through his *sūtras* alone.

The first two books are mainly composed of *saṃjñā* *sūtras* ‘definition rules’ and *paribhāṣā* *sūtras* ‘metarules’\(^5\). The remaining books mainly consist of *vidhi* *sūtras* ‘operational rules’. Books three to five teach the addition of both inflectional and derivational affixes to bases. Book three teaches the addition of various affixes to verbal roots and stems, and books four and five teach the addition of different affixes to nominal stems. Books six, seven and eight teach various morpho-phonological operations that should be performed on both bases and

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\(^1\) There are many disagreements about the dates, and what I mention here are the dates agreed upon by much recent scholarship.


\(^3\) I say ‘composed’ and not ‘wrote’ because scholars disagree on whether he used the aid of writing to create his grammar. In recent times, Vergiani (2020) has present strong arguments in favour of the proposition that Pāṇini did use written means to put together his magnum opus. Writing or not, it is known that, just as happened with the Vedas, the *Aṣṭādhyāyī* too was orally transmitted from one generation to the next.

\(^4\) In the modern literature on the Pāṇinian grammatical tradition, it is customary to use the verb ‘to derive’ and its derivatives (e.g., derivation) to simply mean ‘to construct’. The verb ‘to derive’ is used in the context of not only derivational but also inflectional morphology. I shall abide by this convention in this thesis.

\(^5\) Metarules teach us how rules should be interpreted, how certain operations should be undertaken, and how rules interact with one another.
affixes. Different kinds of rules from multiple books are required to derive a word using Pāṇini’s method.

To truly understand the Aṣṭādhyāyī, one needs to familiarize oneself with the methodology used by Pāṇini to compose and arrange rules in his work. Pāṇini’s style is not entirely self-evident, and one faces challenges at multiple levels when attempting to unravel the enigma that is the Aṣṭādhyāyī. Firstly, it is not easy to determine the exact meanings of Pāṇini’s rules because the sūtra style in which they are composed is very concise and compact. Much information is often packed into a few words, thereby making it considerably difficult to comprehend their exact purport. Consider 6.1.9 sanyaṅoḥ, which teaches that a verbal base⁶, which has not undergone reduplication, undergoes reduplication in the presence of affixes saN⁷ and yaṄ, the desiderative and intensive markers, respectively.⁸ The question about whether sanyaṅoḥ is a genitive dual or a locative dual is a crucial one, and has important implications for how we conceptualize prakriyā ‘the (derivational) procedure’.⁹

Secondly, to make sense of any given rule, it is essential to take into account the contents of preceding rules. This is because Pāṇini uses a device called anuvṛtti ‘continuation into the following rules’ to economically express his observations: to understand the complete and correct meaning of a rule, certain words from preceding sūtras may need to be borrowed into that rule by anuvṛtti. But there is no universal convention as to which terms are supposed to or can become anuvṛtta ‘continued’ into a certain rule. For example, consider 1.1.33 prathamacaramatayālpārdhakatipayanemāś ca, which teaches that certain words are called sarvanāma. But it is difficult to determine whether or not the words from the previous rule 1.1.32 vibhāṣā jasi should be continued into this rule. If they are continued into 1.1.33, then

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⁶ Note that the whole base does not undergo reduplication. Instead, only one syllable does. See 6.1.1 ekāco dve prathamasya and 6.1.2 ajāder dvitīyasya.

⁷ In this thesis, I use capital letters in Pāṇinian morphemes to represent itsanīñakas (taught in 1.3.2 upadeśe’j anunāsika it and following sūtras). Such its (commonly called anubandhas in post-Pāṇinian grammatical literature) are used to mark certain properties of the item to which they are added, and are not actually part of the item. Their unconditional deletion is taught by 1.3.9 tasya lopaḥ.

⁸ Note that, in this thesis, I have used English translations of Pāṇini’s rules by Sharma (1987-2003) and Katre (1987), for many but not all rules. I have taken the liberty to edit their translations as required. For the remaining rules, I have presented my own translations.

this would restrict 1.1.33 only to those cases where these stems are followed by the nominative plural affix *Jas*, and would also make 1.1.33 optional.10

Thirdly, even after the meaning of the rule has been understood, it does not become patently obvious how to use it. This is because Pāṇini’s rules are placed together on the basis of topical and functional categories, and not according to the derivations in which they participate.11 Thus, one cannot easily ascertain the order in which rules apply or select the step at which they become applicable. For example, consider the rule 3.1.33 *syatāś i ṭluṭoh*, which teaches that the affixes *syā* and *tāśI* should be added to the left of *LR* (*LRT* and *LRN*) and *LUT* respectively. But the question that has troubled both traditional and modern scholars is: should and can this rule apply before the *lakāras* are replaced with finite verb endings (3.4.77 *lasya*; 3.4.78 *tip-tas-jhi*…12)?13

Fourthly, after one has come to a conclusion about where to apply a given rule, one is often faced with situations in which two rules become applicable at the same step. In many such cases, one rule blocks the other, or both rules block each other. This is called ‘rule conflict’. According to the tradition, a metarule taught by Pāṇini, namely 1.4.2 *vipratiṣedhe paraṁ kāryam* addresses this issue. However, it seems unable to give the right answer when applied to certain cases of conflict.

We can conclude that the *Aṣṭādhyāyī* is a very sophisticated grammar, and that to operate its grammatical machine, we have to understand it at multiple levels. What would an early grammarian or linguist have done in order to interpret the *Aṣṭādhyāyī* independently? With negligible access to any commentary on the text, and with limited or no guidance of a teacher well-versed in the *Aṣṭādhyāyī*, a scholar would have taken notes for himself in order to comprehend, analyse and corroborate the teachings of the *Aṣṭādhyāyī*. He would have started by paraphrasing the contents of the *Aṣṭādhyāyī* to establish what they exactly mean, both independently and in the context of the preceding rules.

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10 Bloomfield 1927: 61-70.

11 Besides, it is not possible to arrange rules on the basis of the derivations in which they participate because most rules participate in umpteen different derivations.


To ensure that he had understood such a complex grammar correctly, or to confirm that the grammar accurately describes the structure of the language, a scholar would have tried to verify the validity and accuracy of different rules against spoken language or attested literature. He would have gradually developed his own ideas about where rules should apply, and how derivations should proceed. He would have noticed how rules interact amongst themselves and would have come up with ways to classify and deal with such interactions. He would also have suggested certain changes to these rules to make them more precise, to help them better characterize their object language and/or to help them function more consistently with other rules within the Pāṇinian system.

This is presumably what happened in the Indian grammatical tradition when Kātyāyana understood the meanings and functions of Pāṇinian rules on the basis of his independent study of the *Aṣṭādhyāyī*. Then as a teacher, he also taught them to his pupils using his notes on the *Aṣṭādhyāyī* as pedagogical aid. His students taught the *Aṣṭādhyāyī* to their students using Kātyāyana’s work and also commented on Kātyāyana’s writings, thereby sharing their own opinions, interpretations and analyses with their students and readers. Successive generations participated in this process of knowledge processing, production and transmission, thereby giving birth to the Pāṇinian grammatical tradition.

The texts of the Pāṇinian grammatical tradition have played a dominant role in influencing and shaping our understanding of, and opinions about the *Aṣṭādhyāyī*. They also give us significant insights into the evolution of different ideas in the Pāṇinian tradition. Below I introduce the texts that I shall refer to in the rest of the thesis and briefly discuss the history of the Pāṇinian tradition with special reference to metarules.

### 1.2 Metarules in the Pāṇinian Grammatical Tradition

Early grammatical thought in the Indian subcontinent, as represented by the works called *Prātiśākhya*s, was intended to assist the recitation of Vedas by explaining the pronunciation of accents and dissolution of *sandhi*s. Their objective was merely descriptive, that is, to make grammatical observations and offer clarifications where necessary. But a number of

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14 I think that there was a break in the transmission of the *Aṣṭādhyāyī* between Pāṇini and Kātyāyana, since Kātyāyana seems to be in the process of understanding the *Aṣṭādhyāyī* without much help from anyone else. I shall furnish evidence to support this statement in chapter 6.
independent and full-fledged grammars emerged subsequently which sought to ‘derive’ language rather than simply ‘describe’ it: they built mechanistic systems which perform various operations on bases and affixes in order to produce correct word forms and, using these fully derived words, to construct meaningful sentences.

While Pāṇini himself mentions many of his predecessors in his sūtras, his work, the Aṣṭādhyāyī, remains the oldest surviving derivational grammar of Sanskrit. Composing such a grammar required Pāṇini to meticulously design every aspect of the derivational procedure, which explains why Pāṇini made significant efforts in formulating his paribhāṣā sūtras ‘metarules’. These metarules play a pivotal role in the correct interpretation and application of vidhi sūtras ‘operation rules’ at every step of the derivation, thereby ensuring that the derivational machine produces the grammatically correct output.

Given the Aṣṭādhyāyī’s remarkable exhaustiveness and accuracy, it is not surprising that Kātyāyana, around 250 BC\(^{15}\), undertook a systematic analysis of what must have been for him an unprecedented and extraordinary treatise. Kātyāyana recorded his thoughts and findings in the form of vārttikas, which are short statements seeking to explain, examine, criticize and sometimes integrate Pāṇini’s rules with additions. Without overlooking the more specific and individual aspects of the grammar, Kātyāyana sought to develop a broad perspective about the functioning of the Aṣṭādhyāyī as an integrated machine. This involved interpreting the metarules of Pāṇini’s grammar, providing examples and counterexamples to determine their verity, and composing new metarules to help the Pāṇinian system run even more smoothly.

Around 150 BC, Patañjali wrote the Mahābhāṣya, which is a commentary on Kātyāyana’s vārttikas.\(^{16}\) It records the arguments and counter-arguments that must have transpired between Patañjali and his pupils about the contents of the vārttikas. Patañjali too approached the Aṣṭādhyāyī with his independent perspective about its derivational system, and skilfully wove Kātyāyana’s vārttikas into his own presentation of the Pāṇinian machine. In doing so, he both established his independent interpretation of Pāṇini’s and Kātyāyana’s metarules, and wrote new metarules to afford us greater clarity to the Aṣṭādhyāyī’s derivational procedure.

In the course of time, some Pāṇinīyas took it upon themselves to compile and comment on all such metarules from Patañjali’s Mahābhāṣya. They also came up with new metarules to fill the

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\(^{16}\) The two major commentaries on the Mahābhāṣya are the Pradīpa of Kaiyaṭa and the Uddyota of Nāgėśa.
knowledge gaps that they thought existed in the tradition. They came to be known as *paribhāṣākāras* ‘authors of *paribhāṣās*’, and the literature composed by them, as *paribhāṣā* literature. *Paribhāṣā* texts have been written over many centuries – from around17 (or soon after) Patañjali’s time, if not before him, to the 18th century. Among the *paribhāṣā* texts of the Pāṇinian tradition, the most popularly studied, quoted and commented upon in modern times is the relatively recent *Paribhāṣenduśekhara* of Nāgeśa Bhaṭṭa, which was written in the eighteenth century.

A rich tradition of *paribhāṣā* literature has long existed in other schools of Sanskrit grammar too (e.g., *Kātantra, Haima, Cāndra*).18 Both Pāṇinian and non-Pāṇinian *paribhāṣākāras* were especially interested in certain topics, for example, rule conflict. In Nāgeśa’s work, the section containing *paribhāṣās* 38 to 70 deals exclusively with rule conflict and is thus called *bādhabīja*.19 Similarly, in the *Kātantra* system, *paribhāṣā sūtras* are actually divided into *balābala sūtras* ‘metarules dealing with comparison of rule strength’ and others which do not deal with this topic.20 A significant exchange of ideas took place between Pāṇinian and non-Pāṇinian traditions due to mutual borrowing of *paribhāṣās*.

Circa 7th century AD, Jayāditya and Vāmana wrote the *Kāśikā*, which consists of *vṛtti*s on each rule.21 A *vṛtti* paraphrases the rule, teaches metarules that help us correctly apply that rule, gives examples of its application, and justifies the existence of each word of that rule. *Vṛtti*s borrow a significant proportion of their contents from Patañjali’s *Mahābhāṣya*. They are unique in that they do not comprise new metarules, yet by quoting some metarules from Patañjali’s *Mahābhāṣya* and ignoring others, they present an evolved perspective about the mechanistic aspects of Pāṇinian derivations – often quite different from Patañjali’s.

Lastly, let us talk about *kaumudī* texts, which explicitly envision the *Aṣṭādhyāyī* as a grammatical machine. The *kaumudī* tradition which began in the fifteenth century with

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17 Abhyankar 1967: 12.
18 K.V. Abhyankar has edited and compiled many Pāṇinian and non-Pāṇinian *paribhāṣā* treatises in his *Paribhāṣāsāṃgraha* (1967).
19 Abhyankar 1967: 12.
20 Ibid., 3.
21 The two major commentaries on the *Kāśikā* are the *Nyāsa* of Jīnendrabuddhi and the *Padamañjarī* of Haradatta.
Rāmacandra’s Prakriyākaumudī, reorders the sūtras of the Aṣṭādhyāyī to reflect their derivational roles: in any Kaumudī text, a rule is introduced when the first derivation involving it is taught. The Kaumudī texts first introduce saṁjñā and paribhāṣā rules, then teach sandhi rules, then introduce nominal and verbal inflections in the order in which forms appear in paradigms, and then teach derivatives and compounds. The most celebrated text in this genre is Bhāṭṭojī Dīkṣīta’s Siddhāntakaumudī written in the seventeenth century. By reordering the Aṣṭādhyāyī’s rules, the Kaumudī not only gives us a glimpse of how Pāṇini’s derivational mechanism actually works, but also tells us which metarules apply where, and how these metarules enable the us to perform derivations uniformly.

Even though the traditional texts discussed above broadly agree on most derivational technicalities, they present different perspectives on the nature and characteristics of the machine.

1.3 Modern Perspectives on the Functioning of the Aṣṭādhyāyī

Before we explore how modern scholarship perceives the Aṣṭādhyāyī, let us very briefly consider what the tradition, and more specifically Kātyāyana and Patañjali say, about the meaning and purpose of vyākaraṇa. In vt. 14 of the Paspaśāhnika, Kātyāyana says: lakṣyalakṣaṇe vyākaraṇam ‘grammar (stands for the combination of) lakṣya i.e., words (and sentences)’ and lakṣaṇa ‘rules’. This is true of any grammar, not just the Aṣṭādhyāyī. But does the Aṣṭādhyāyī have certain mechanistic properties which set it apart from conventional grammars? Below we will look at modern perspectives on this topic. According to Patañjali, vyākaraṇa serves the following purposes: rakṣōghamalaghvasandehāḥ ‘rakṣa ‘protection of the Vedas’, ūha ‘adapting inflected forms in Vedic mantras as required during rituals’, āgama

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22 The earliest reordered commentary was the Rūpāvatāra of Dharmakīrti (10th century), but its influence on the later kaumudī literature is uncertain.
23 It is accompanied by Bhāṭṭojī’s auto-commentary on the Siddhāntakaumudī called Praudhamanoramā. Two commentaries on the Siddhāntakaumudī are widely used to study it, namely Vāsudeva Dīkṣīta’s elaborate and beginner (lit. bāla ‘child’) -friendly Bālamanoramā, and Jānendrā Sarasvatī’s concise and advanced Tattvabodhini (Cardona 1976: 285-286).
‘following Vedic injunctions’, laghu ‘brevity i.e., easy of learning the language’, and asandeha ‘resolution of doubts’”. These certainly are some of the factors that must have motivated Pāṇini to write his grammar. But was Pāṇini also aiming to build a somewhat mechanistic model for deriving Sanskrit words (and subsequently, sentences)? Let us look at what modern scholarship tells us about topics like rule conflict and order of rule application in Pāṇinian derivations, and therefore, about the status of the Aṣṭādhyāyī as a ‘machine’.

Let us start by looking at Bronkhorst’s work on this topic. Bronkhorst (2004) shows that Patañjali prefers a linear reading of the Aṣṭādhyāyī, that is, Patañjali believes that in order to decide which rule should apply at any step in a derivation, one need not know the outcomes of previous or following steps. He says, “It is clear from the above that Patañjali tries both to avoid looking back and looking ahead in explaining grammatical derivations.”

Bronkhorst also points out that the Paribhāṣenduśekhara teaches the metarule pūrvaparamityāntaraṅgapavādānāṁ uttarottarāṇi baḷīyaḥ (paribhāṣā 38) ‘Of [these five kinds of rules, - viz.] a preceding [rule], a subsequent [rule], a nitya [rule], an antaraṅga [rule], and an apavāda [rule], - each following [rule] possesses greater force [than any one of, or all, the rules which in this paribhāṣā are mentioned before it].’ He concludes: “…(this) clearly shows that, according to the traditional view, decisions concerning the continuation of

26 Bronkhorst 2004: 37.
27 1.4.2 vipratisedhe paraṁ kāryam ‘The rule that comes later in the serial order of the Aṣṭādhyāyī wins the rule conflict between two equally powerful rules.’
28 Let us say that there is a conflict between rules A and B. A is called nitya with respect to B if A is applicable (both before and) after the application of B (cf. Pbḥ 117 kṛtāṅkṛtaprasaṅgī yo vidhiḥ sa nityāḥ, Vyāṣiparibhāṣāpāṭha). B is called anitya with respect to A if B is applicable before, but not after the application of A. The nitya rule A is stronger than, and defeats the anitya rule B.
29 Paribhāṣenduśekhara, describes antaraṅga as follows: antarmadhye bahiraṅgasāstriyaṁnīmīttasamudāyamadhye ‘ntarbhūtyā anāgāni nimittāni yasya tad antaraṅgam. Kielhorn translates it as follows: ‘antaraṅga is (a rule) the causes (of the application) of which lie within (or before) the sum of the causes of a bahiraṅga rule’. See Abhyankar’s reprint (second edition) of Kielhorn’s work (1960: 221-222).
30 An apavāda ‘exception’ is stronger than, and thus defeats, the utsarga ‘general’ rule in case of conflict.
32 The contents in brackets have been added by me.
a grammatical derivation at any particular point are taken on the basis of the situation at hand. More specifically, no information about the earlier or later phases of the derivation is required to make a correct decision at any stage.”

Bronkhorst states that he is unconvinced by Patañjali’s evidence suggesting that the *Aṣṭādhyāyī* functions linearly. He thinks that Pāṇini did not intend for the *Aṣṭādhyāyī* to be approached linearly, and attempts to establish that at least for some derivations, the knowledge of the derivation’s history and/or its future course is essential to select the right rule at a given step.

One of the reasons Bronkhorst thinks looking ahead into the derivation is required is to determine the order in which two rules should apply with respect to each other. Roodbergen has a different opinion on this subject. He recommends some changes to the traditional order in which the following processes occur: the replacement of *lakāras* ‘tense and mood proxies’ with *tiN* ‘verbal endings’ and the introduction of *vikaraṇas* ‘affixes placed between verbal roots and *lakāras/the endings that replace *lakāras*. This shows that Roodbergen does believe in reading the *Aṣṭādhyāyī* linearly but disagrees to some extent with the tradition’s order of rule application. And he thinks that this topic is not related to rule conflict and its resolution: ‘this ordering principle has nothing to do with a feeding relation between rules in which the application of one rule is made dependent on the effect of the application of another rule. It has nothing to do either, with the question of conflict of rules. To solve a conflict, other principles apply: *paratva, siddha/asiddha* and *utsarga/apavāda.*’

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33 Bronkhorst 2004: 6. Patañjali says that *para* may mean *iṣṭa* ‘desirable’ in his commentary on 1.4.1 (*iṣṭavācī paraśabdaḥ. vipraḥ sūdy param yad iṣṭam tad bhavati; Mbh I.306.9-10*). According to Bronkhorst, by *iṣṭa*, Patañjali means ‘the rule that he thinks should be applied’. I disagree with Bronkhorst’s interpretation. I think by *iṣṭa*, Patañjali means ‘the rule that should be applied so as to get the correct final form.’ This means that, in order to determine which rule is *iṣṭa*, one is required to know the final form. And to know the final form, one needs to look ahead into the derivation. So, in my opinion, this is an instance where Patañjali repudiates his linear reading of the *Aṣṭādhyāyī*.


35 Ibid., 16-17.


37 A is *siddha* with respect to B if B recognizes the existence of A. Likewise, A is *asiddha* ‘not *siddha*’ with respect to B if B does not recognize the existence of A.
Scholars working on rule conflict have peripherally addressed the topic of linearity. Cardona says that ‘the derivational prehistory of a form is pertinent to the operations which apply to it.’ Joshi and Kiparsky think that it is important to look ahead into a derivation. They propose the extended siddha principle which they claim governs Pāṇinian derivations and which ‘scans entire candidate derivations…’ thanks to its ‘global (trans-derivational) “lookahead” condition on derivations’ ‘and chooses the one in which siddha-relations (bleeding and feeding) are maximized’. So, both Cardona and Joshi & Kiparsky, do not support an exclusively linear reading of the Aṣṭādhyāyī.

According to Houben, ‘a comparison between Pāṇini’s grammar and “a machine” may be useful in demonstrating some of the features and procedures it incorporates, but the comparison has now and then been carried too far.’ He continues: ‘in fact, in the practice of Pāṇiniyas through the ages up to the present, no-one can ever have produced a correct form through Pāṇini’s system that was not already his starting point, or among his starting options … the system is therefore not well characterized as “synthetic”, even if synthetic procedures are central and most visible; rather the system is to be called “reconstitutive” - which implies the presence of a user, a preliminary statement, and the application of both analytic and synthetic procedures to the words in it … aiming at the best possible, saṁskṛta form of his preliminary statement.’ He attributes the reception of Pāṇinian grammar as a machine to Bhaṭṭojī Dīkṣita’s Siddhāntakaumudī and Nāgeśa’s Paribhāṣenduśekhara: ‘in order to provide the desired solid authoritative basis to Sanskrit grammar it was moreover necessary to posit it as a closed system of rules and metarules – something it had never been in a true sense of this term for around two millennia, although Kātyāyana's and Patañjali's investigations on selected sūtras had prepared

40 Ibid.
41 The contents in brackets have been added by me. Rule A bleeds rule B if B, which was applicable before the application of A, is no longer applicable after the application of A. A feeds B, if B, which was not applicable before the application of A, becomes applicable after the application of A.
43 Houben 2003: 50.
44 Ibid., 53.
the ground for such an approach. The culmination in this trend came only a few generations later with Nāgeśa Bhaṭṭa's Paribhāṣenduśekhara...45

Let us summarize what we have surveyed so far. Houben is not in favour of perceiving the Aṣṭādhyāyī as a derivational machine, thereby also implicitly dismissing both the concept of linearity and consistent conflict-resolution procedures. Roodbergen believes that the Aṣṭādhyāyī is a derivational machine, proposes his own version of a linear reading of the Aṣṭādhyāyī. Roodbergen also argues that the order of rule application and resolution of rule conflict are not related or associated with each other. Bronkhorst claims that the existence of paribhāṣā 38 of the Paribhāṣenduśekhara, which creates a hierarchy of conflict resolution tools (in addition to Patañjali’s statements), indicates that the tradition prefers a linear reading of the Aṣṭādhyāyī. In doing so, Bronkhorst establishes a correlation between consistent rule conflict resolution procedures and a linear reading of the Aṣṭādhyāyī. Bronkhorst rejects the linear approach. On the other hand, Joshi & Kiparsky and Cardona seem to think that their rejection of a strictly linear reading of the Aṣṭādhyāyī does not substantially undermine the mechanistic prowess of the Pāṇinian system, and devote much of their scholarly attention to solving rule conflict.

While the functioning of the Aṣṭādhyāyī remains the primary focus of this thesis, we shall also look at its interactions with the structure of the Aṣṭādhyāyī. Let me first outline how the Aṣṭādhyāyī is structured. The rules of the Aṣṭādhyāyī are organized on the basis of their purpose: rules teaching certain sanjñās are grouped together, rules about a certain substitute are placed together and so on and so forth. In most such groups, the apavāda sūtras ‘exception rules’ are listed immediately after the utsarga sūtras ‘general rules’. These groups of rules are themselves placed in one of the eight books depending on their role: sanjñā sūtras ‘definition rules’ and paribhāṣā sutras ‘metarules’ are generally placed in the first two adhyāyas, rules teaching affixation in the following three, and rules teaching morpho-phonological changes in the last three.

The structure and organization of the Aṣṭādhyāyī, that is, the general arrangement and serial order of rules in the Aṣṭādhyāyī, have an influence on its functioning in different ways. In the opinion of the tradition, 1.4.2 vipratiṣedhe param kāryam teaches that in the case of conflict between two equally powerful rules, the rule that appears later in the Aṣṭādhyāyī’s serial order

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wins, which implies that the serial order of rules in the Aṣṭādhyāyī has a direct impact on rule conflict resolution.

Pāṇini has ingeniously composed three asiddha sections, headed respectively by 6.1.86 ṣatvatukor asiddhah, 6.4.22 asiddhavad atrābhāt and 8.2.1 pūrvatrāsiddham. 6.4.22 teaches us that two rules treat each other as asiddhavat ‘as if suspended’ when both lie within 6.4.22-129, which helps avoid certain undesirable instances of rule conflict. 8.2.1 teaches us that from there onwards, a preceding rule treats any following rule as asiddha ‘suspended’, which helps facilitate or avoid the application of certain rules. Here too, the position of one rule with respect to other rules has a significant impact on Pāṇinian derivations or the functioning of the Aṣṭādhyāyī.

Interestingly, the functioning of the Aṣṭādhyāyī may have had an impact on its structure too. Roodbergen argues that ‘the word building process proceeds in what is visually a left-to-right direction’. According to Roodbergen, this direction of word-building which underlies the functioning of the Aṣṭādhyāyī, impacts its structure, that is, the positioning of rules in different books and chapters of the Aṣṭādhyāyī: ‘rules dealing with left-side elements are introduced earlier [in earlier sections of the Aṣṭādhyāyī] than rules dealing with right-side elements’.

We have seen what the existing literature on the subject says about the functioning of the Aṣṭādhyāyī and its connection with its structure. In this thesis, I share my research on rule interaction, and then go on to show how these findings shed light on the functioning of the Aṣṭādhyāyī. I conclude that Pāṇini did intend for the Aṣṭādhyāyī to be interpreted linearly and as a closed grammatical machine. Before I share my understanding of rule interaction, let us first look at the tradition’s views on this subject.

46 A single replacement of the preceding and the following sounds is suspended (asiddha) with respect to rules teaching replacement with ṣ (ṣatva) and the introduction of augment ṭUK.
47 According to the Kāśikā, and broadly, the tradition, the scope of 6.4.22 continues up to the end of 6.4. I will discuss this in detail in chapter 5.
49 The contents in brackets have been added by me to clarify what the author means.
50 Roodbergen 1991: 313. However, note that the positioning of rules teaching compounds in the Aṣṭādhyāyī poses a challenge to Roodbergen’s proposition.
1.4 The Traditional View on Rule Conflict

As will be shown in chapter 6, the views of the tradition have gradually evolved on the topic of rule conflict. But here, I shall introduce the topic by outlining those ideas on rule conflict that today’s traditional scholars hold true. To achieve this, I will present the views of the Kāśikā and paribhāṣā texts on this topic. 1.4.2 vipratiṣedhe paraṁ kāryam is the only metarule in the Aṣṭādhyāyī which explicitly deals with rule conflict. Here is Vasu’s English translation of the rule 1.4.2 of the Aṣṭādhyāyī which is in keeping with the Kāśikā’s interpretation: ‘when rules of equal force prohibit each other, then the last in the order herein given is to take effect.’

On this rule, the Kāśikā says:

virodho vipratiṣedhaḥ. yatra dvau prasaṅgāv anyārthāv ekasmin yugapat prāpnutaḥ sa tulyabalavirodho vipratiṣedhaḥ. tasmin vipratiṣedhe paraṁ kāryaṁ bhavati. utsargapavādaniyāntaraṅgabahiraṅgeṣu tulyabalatā nāśūti nāyam asya yogasya viṣayāḥ, balavataiva tatra bhavitavyam. apravṛttau paryāyeṇa vā pravṛttau prāptāyāṁ vacanam ārabhyate.

Here is my translation of this passage, which represents the traditional interpretation of 1.4.2:

‘The word vipratiṣedha means “conflict”. When two operations which can be applied at other sites become simultaneously applicable at one [and the same site], this is called a conflict of equal strength or vipratiṣedha. In the event of vipratiṣedha, the rule that comes later [in the serial order of the Aṣṭādhyāyī] prevails. A general rule (utsarga) and its exception (apavāda), or a nitya rule and an anitya rule, or an antaraṅga and a bahiraṅga rule, are not rules of equal strength. These pairs do not fall under the jurisdiction of this rule. In these cases, the stronger rule wins. When both rules are unable to apply, or when they are only able to apply alternatively, this rule comes into play.’

Then the Kāśikā gives us an example:

ato dīrgho yañi supi cety asyāvakāśaḥ. vrksāḥbhyaṁ plakṣābhyaṁ bahuvacane jhaly et ity asyāvakāśaḥ vrkṣeṣu plakṣeṣu ihobhayam prāpnoti. vrkṣeḥbhyaḥ plakṣeḥbhyaḥ iti. paraṁ bhavati vipratiṣeddhena.

This is explained by Vasu as follows:

51 I have translated para kārya as understood by the tradition.
‘As an example of rules of equal force, see 7.3.102 and 7.3.103. The first rule declares, when a case-affix beginning with a letter of yaÑ pratyāhāra follows, the long vowel is substituted for the final of an inflective base ending in a short a. As vṛksa + bhyām = vṛksābhyaṁ. The next rule declares:- When a plural case-affix beginning with a letter or [sic] jhaL pratyāhāra follows, e is the substitute for the final a of an inflective base. As vṛksa + su = vṛkṣeṣu. But when the plural case-affix bhyaś follows, what rule are we to apply? For the letter bha belongs both to pratyahāras yaÑ and jhaL. Are we to lengthen the short a or substitute e? The present sūtra gives the reply, e is to be substituted because 7.3.103 ordaining e follows next to 7.3.102. Thus vṛksa + bhyaḥ = vṛksēbhyaḥ.’

The Kāśikā teaches us that when two conflicting rules are not of equal force, 1.4.2 is not applicable to the conflict between them. The paribhāṣā tradition throws light on conflicts between rules which are not of equal strength:

a. Between a nitya and an anitya operation, a nitya rule is more powerful.  
Nityānityayor nityo vidhir balavān (Paribhāṣā 118, Vyādiparibhāṣāpāṭha).

b. Between an antaraṅga and a bahiraṅga operation, an antaraṅga operation is more powerful.  
Antaraṅgabahiraṅgayor antaraṅgo vidhir baliyān (Paribhāṣā 115, Vyādiparibhāṣāpāṭha).

c. Between an apavāda and an utsarga operation, an apavāda operation is more powerful.  
Utsargāpavādayor apavādavidhir balavān (Paribhāṣā 85, Bhojaparibhāṣāsūtra).

The more powerful rule wins. The following paribhāṣā, which has been popularized by the Paribhāṣenduśekhara, creates a hierarchy of importance between four tools of rule conflict resolution namely paratva, nityatva, antaraṅgatva and apavādatva: pūrva-para-nitya-

52 Of.

53 Perhaps Vasu intended to say ‘sound’ and not ‘letter’.

54 This example in the Kāśikā is borrowed from Mahābhāṣya on 1.4.2 (Mbh I.304.15).

55 Another version of this paribhāṣā is balavan nityam anityāt (92, Bhojaparibhāṣāsūtra).

56 Another version of this paribhāṣā is (balavad) antaraṅgam bahiraṅgāt (93, Bhojaparibhāṣāsūtra), where balavat is anuvṛtta from the previous paribhāṣā.

57 It is not clear why the word pūrva has been mentioned in the paribhāṣā.
antaraṅga-apavādānāṁ uttarottaraṁ baliyaḥ (Pbh 38, Paribhāṣenduśekhara). We have already mentioned this paribhāṣā before. Below I will clarify its implications.

Paribhāṣā 38 of the Paribhāṣenduśekhara says that a para sūtra is stronger than a pūrva sūtra; a nitya sūtra is stronger than a para sūtra; an antaraṅga sūtra is stronger than a nitya sūtra; and an apavāda sūtra is stronger than an antaraṅga sūtra. In practical terms this translates into the following procedure.

First try establishing the relationship taught in step a:

a. apavāda>utsarga: an apavāda (exception) sūtra is more powerful than, and wins when competing with, an utsarga (general rule) sūtra.

If and only if this step does not yield the correct result, try establishing the relationship taught in step b:

b. antaraṅga>bahirāṅga58: an antaraṅga sūtra is more powerful than, and wins when competing with, a bahirāṅga sūtra.

If and only if this step does not yield the correct result, try establishing the relationship taught in step c:

c. nitya>anitya: a nitya rule is more powerful than and wins when competing with an anitya rule.

If and only if this step does not yield the correct result, apply 1.4.2 vipratiṣedhe paraṁ kāryam, which we call step d here:

d. para>pūrva: a para sūtra (a later rule in the Aṣṭādhyāyi’s serial order) is more powerful than, and wins when competing with, a pūrva sūtra (which appears before the para sūtra).

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58 Patañjali and Nāgėśa hold the antaraṅga paribhāṣā true for both conflict and other situations. See the Mahābhāṣya on 1.4.2 (Mbh I.309.24 onwards) and paribhāṣā 50 of the Paribhāṣenduśekhara, asiddham bahirāṅgam antaraṅge.
1.5 Analysis of the Traditional Perspective

Let us look at 1.4.2 vipratiṣedhe paraṁ kāryam again. Pāṇini does not explain the meaning of vipratiṣedha in the Aṣṭādhyāyī. The Kāśikā claims that vipratiṣedha means tulyabalavirdha ‘conflict between two equally powerful rules.’ This is a plausible assumption because, in Sanskrit literature, the term has been used to mean ‘the opposition of two courses of action which are equally important, the conflict of two even-matched interests’ \(^{59}\). But which conflicts qualify as tulyabala ‘having equal strength’? The Kāśikā says that rule pairs which are not nitya-anitya, antaraṅga-bahirāṅga, apavāda-utsarga are tulyabala ‘having equal strength’.

Let us try to understand why the tradition felt the need to come up with these tools. According to the tradition, para in 1.4.2 means ‘the rule that appears after another in the serial order of the Aṣṭādhyāyī’. Thus, in the case of a conflict (vipratiṣedha) between two rules, the operation prescribed by the later rule should prevail. However, if one assumes that any rule conflict can be called vipratiṣedha, and therefore applies 1.4.2 uniformly to every instance of such a conflict, in many cases one gets the wrong answer at the end of the derivation. Let us consider a few examples: tud is a 6th class root which can take both parasmaipada ‘active’ and ātmanepada ‘middle’ endings.

When deriving its present third person singular form, two rules become applicable at the step tud + tiP. One is 7.3.86 pugantalaghūpadhasya ca (sārvadhātukārdhadhātukayoḥ guṇah)\(^{60}\), which teaches that the penultimate light vowel \(iK\) (i, u, r̥, l̥) is replaced with guṇa (a, e, o) when followed by a sārvadhātuka or ārdhadhātuka affix. The other is 3.1.77 tudādibhyaḥ sāḥ (sārvadhātuke kartari), which teaches the addition of affix Ša after roots belonging to the class starting with tud in the Dhātupāṭha, when the root is followed by a sārvadhātuka affix in an

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\(^{59}\) See the entry on vipratiṣedha in Apte’s Sanskrit dictionary.

\(^{60}\) The terms in brackets are anuvṛtta ‘continued’ from previous sūtras.
active construction. Note that, since 7.3.86 comes after 3.1.77 in the serial order of the \textit{Aṣṭādhyāyī}, according to the traditional understanding of 1.4.2 it should win, but applying 7.3.86 would give the wrong answer: \textit{tod + tiP} (7.3.86) \rightarrow \textit{tod + Ša + tiP} (3.1.77) \rightarrow \textit{*todati}. Notice that 3.1.77 is applicable after 7.3.86 applies, as seen in the derivation above. On the other hand, if 3.1.77 applies first, we get: \textit{tud + Ša + tiP}. Since \textit{Śa} is marked with a Š, it is \textit{sārvadhātuka} by 3.4.113 \textit{tiṅśit sārvadhātukam}, and being a \textit{sārvadhātuka} which is not marked with a \textit{P}, it is treated as if marked by \textit{N} by 1.2.4 \textit{sārvadhātukam apit (niit)}. By 1.1.5 \textit{kīti ca (na iko gunavrddhi)}, the \textit{guṇa} replacement of \textit{u} in \textit{tud} by 7.3.86 is no longer possible. So 7.3.86 is not applicable once 3.1.77 has applied.

Thus, 3.1.77 and 7.3.86 are \textit{nitya} and \textit{anitya} respectively. If the \textit{nitya} rule, i.e., 3.1.77 wins, we get: \textit{tud + Ša + tiP} (3.1.77) \rightarrow \textit{tudati}, which is the correct answer. In this example, relying on \textit{paratva} gives the wrong answer, but using \textit{nityatva} gives the right answer. We shall come back to this after we look at a few more examples.

Consider the next example: to derive \textit{syona} ‘a sack, something stitched’, \textit{na} is added to \textit{siv} ‘to sew, stitch’: \textit{siv + na} (3.3.1 \textit{unādayo bahulam}).\textsuperscript{61} First, by 6.4.19\textsuperscript{62} \textit{chvoḥ śūḍ anunāsike ca (kvijhaloh kīti)}, \textit{v} of \textit{siv} is replaced with \textit{ū} (\textit{siū}) + \textit{na}. Now, two rules are simultaneously applicable here: 6.1.77 \textit{iko yan aci}, which is caused by \textit{ū} and prescribes the replacement of \textit{i} with \textit{y}, and 7.3.86 \textit{pugantalaghūpadhasya ca}, which is caused by \textit{na} and prescribes the replacement of \textit{i} of \textit{si} with its corresponding \textit{guṇa} (i.e., \textit{e}). Since 7.3.86 comes after 6.1.77 in the serial order of the \textit{Aṣṭādhyāyī}, by 1.4.2 it should win. But applying 7.3.86 gives us the wrong answer.

According to the \textit{Paribhāṣenduśekhara}, ‘\textit{antaraṅga} is (a rule) the causes (of the application) of which lie within (or before) the sum of the causes of a \textit{bahiraṅga} rule’. So, in the case of \textit{siū + na}, \textit{ū}, the cause of 6.1.77, lies before (i.e., to the left of) \textit{na}, the cause of 7.3.86. Thus, 6.1.77

\textsuperscript{61} This is one of only two \textit{sūtras} that refer to an ancillary text known as \textit{Unādisūtras}, which provide for introducing certain affixes after verb roots to derive nominal bases (Cardona 1976: 170). There is no clear consensus about whether or not Pāṇini himself wrote the \textit{Unādisūtras} (Cardona 1976: 174). I personally do not think he did, and so I do not consider this derivation ‘Pāṇiniya’. But because the commentarial tradition uses this as an example in the present context, I discuss it nonetheless. The relevant \textit{Unādi sūtra} here is 289 \textit{siveṣ ter yū ca}.

\textsuperscript{62} I am aware that the tradition reads this rule as \textit{cchvoḥ…} and not as \textit{chvoḥ…}. However, I think that the original version must have been \textit{chvoḥ}. See Kiparsky 1982: 89.
is antaraṅga whereas 7.3.86 is bahiraṅga. Using the antaraṅgatva tool, 6.1.77 wins. We get syū + na → syo + na (sārvadhātukārdhadhātukayoh) → syona, which is the correct answer. Relying on paratva gives the wrong answer, while using antaraṅgatva gives the right answer.

Let us look at one more example. Two rules, namely 1.4.16 siti ca (padam) and 1.4.18 yaci bham (svādiṣv asarvanāmasthāne) lie in the ekā sanjñā section (1.4.1 ȧ kaḍārād ekā sanjñā). 1.4.1 teaches that up to 2.2.38 kaḍārāḥ karmadhāraye, any item can take only one sanjñā ‘technical designation’. 1.4.16 siti ca (padam) teaches that an item is called pada when an affix marked with S follows, and 1.4.18 yaci bham (svādiṣv asarvanāmasthāne) teaches that an item is called bha when a y- or vowel-initial, non-sarvanāmasthāna affix belonging to the class starting with sU follows. Consider the example ūrṇā + yuS. Here ūrṇā can potentially take two sanjñās: pada by 1.4.16 and bha by 1.4.18. However, since both rules lie within the jurisdiction of 1.4.1, ūrṇā can take only one of the two sanjñās. By 1.4.2, the para rule i.e., 1.4.18 should win. But if ūrṇā takes the bha sanjñā, then ā of ūrṇā gets deleted by 6.4.148 yasyeti ca (bhasya lopaḥ taddhite), which teaches that the final i or a (both short and long) of an item which is termed bha are deleted when followed by an ī or a taddhita affix. This gives us the wrong taddhita stem *ūrṇyu. The Kāśikā says that 1.4.16 is an apavāda of 1.4.18 without justifying this claim.64 If the apavādatva tool is used, 1.4.16 wins, which gives the correct stem ūrṇāyu. Using paratva gives the wrong answer, while using apavādatva gives the right answer.

In all three examples discussed above, using paratva gives the wrong answer, but using nityatva, antaraṅgatva and apavādatva respectively leads to the correct answer. Below, I present an abridged version of how I think the current method of solving rule conflict has gradually evolved. Having realized that treating all rule conflicts as vipratiṣedha and applying

63 5.2.123 ūrṇāyā yus ‘The taddhita suffix yuS occurs to denote the sense of matUP after syntactically related nominal stem ūrṇā “wool”’.
64 I agree with Cardona’s (1970: 46) explanation for this: “Consider now 1.4.16. There are only four affixes marked with S in Pāṇini’s grammar: ghaS (→ īya by 7.1.2) introduced by 5.1.106, chaS (→ īya, 7.1.2) by 4.2.114-5, yaS (ya) by 5.2.138, and yuS (→ aka, 7.1.1) by 5.2.123, 138, 140. For example, rtviya- ‘tempestivus’ (<ṛtu ‘appropriate time, season’) contains ghaS. All such affixes are taddhita (4.1.76: taddhitāḥ), included among the affixes referred to in 1.4.17-8, and all also begin with y or a vowel. Hence, items occurring before these are eligible for being bha by 1.4.18.” With the help of this information, we can infer that 1.4.18 is applicable wherever 1.4.16 is applicable, but 1.4.16 is not always applicable where 1.4.18 is. 1.4.16 is more specific than 1.4.18 and thus wins.
1.4.2 uniformly to every instance of such a conflict gives the wrong answer in many cases, the Pāṇinīyas:

(1) claimed that they found jñāpakas ‘hints or clues’ in Pāṇini’s sūtras which authorised them to devise new tools like nityatva, antaraṅgatva, anavakāśatva, etc., for the purpose of solving rule conflicts;

(2) restricted the jurisdiction of rule 1.4.2 by declaring that vipratiṣedha implies only tulyabala conflicts, i.e., conflicts between equally powerful rules; and

(3) declared that rule pairs like nitya-anitya, antaraṅga-bahiraṅga, and anavakāśa-sāvakāśa were to be called atulyabala ‘not equally powerful’.

This allowed them to exclude the atulyabala rule pairs, namely nitya-anitya, antaraṅga-bahiraṅga etc., from the jurisdiction of 1.4.2, thereby containing the problems caused by their interpretation of 1.4.2 to a smaller number of cases. Gradually, the Pāṇinīyas also constructed the hierarchy taught in paribhāṣā 38 of Paribhāṣenduśekhara above to determine which tool takes precedence over which other tools.

However, these post-Pāṇinian tools are not without flaws, to compensate for which umpteen other paribhāṣās have been written by Pāṇinīyas. Many of these paribhāṣās address very specific cases or even single examples of conflict, thereby defeating the entire purpose of writing metarules, which is to arrive at broad generalizations that can govern the application of and interactions between the whole body of rules. And even after this, the Pāṇinīyas are not able to solve every case of conflict correctly: every time they falter, they find one tortuous explanation or the other to justify that ‘exception’.

I do not think that all paribhāṣās taught by the Pāṇinīyas should be rejected. Many post-Pāṇinian paribhāṣās accurately capture how the Pāṇinian machine functions, and thus they are of great importance to us. They are mostly descriptive in nature and make insightful observations about the Aṣṭādhyāyī. However, we also find post-Pāṇinian paribhāṣās that teach us tools for rule conflict resolution, such as nityatva and antaraṅgatva, which Pāṇini would

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65 For example, consider Pbh 52 of the Paribhāṣenduśekhara, antaraṅga api vidhīn bahiraṅgo lug bādhate ‘A bahiraṅga rule teaching LUK deletion defeats an antaraṅga rule [in case of conflict]’, which is an exception of Pbh 50 antaraṅge bahiraṅgam asiddham ‘An antaraṅga rule treats a bahiraṅga rule as suspended.’
certainly not have left unstated if he actually wanted to teach them, and which impose post-Pāṇinian ideas onto the *Aṣṭādhyāyī*. Thus, the validity of this set of *paribhāṣās* is questionable.

**1.6 Modern Scholarship on 1.4.2**

The tradition thinks that 1.4.2 applies to *tulyabala* conflicts between any two rules of the *Aṣṭādhyāyī*. But many modern scholars, starting with Faddegon (1936), have tried to restrict the scope of 1.4.2 further, to include only those rules that lie between 1.4.2 and 2.2.38: they argue that since 1.4.2 lies within the *ekā saṃjñā adhikāra* (cf. 1.4.1 ā kaḍārād ekā saṃjñā ‘up to 2.2.38 kaḍārāḥ karmadhāraye, each item can take only one saṃjñā’), the jurisdiction of 1.4.2 too should be suspended at 2.2.38. Kiparsky comes up with his own justification for this interpretation, in which he argues that the alternate version of 1.4.1 mentioned by Patañjali is proof of the fact that 1.4.2 only governs rules between 1.4.2 and 2.2.38. Let us look at Patañjali’s commentary first, and then consider Kiparsky’s argument based on it. On 1.4.1, Patañjali suggests that Pāṇini has taught two different versions of 1.4.1 to his pupils:

\[
\text{katham tv etat sūtram paṭhitavyam. kim ā kaḍārād ekā saṃjñeti. āhosvit prāk kaḍārāt param kāryam iti. kutah punar ayaṁ sandehaḥ. ubhayathā hy acārayena śisyāḥ sūtram pratipāditāḥ. kecid ākaḍārād ekā saṃjñeti. kecit prāk kaḍārāt param kāryam iti. kaś cātra viśeṣaḥ.}
\]

\[
tatraikasaṃjñādhipākāre tadvacanaṁ (vt. 2)
\]

\[
tatraikasamjñādhipākāre tadvaktyam. kim. ekā saṃjñā bhavatīti. nanu ca yasyāpi pariṇākaryatvam tenīpi paragrahaṇam kartavyam. parārtham mama bhaviṣyati. vipratiṣedhe ca iti. mamāpi tarhy ekagrahaṇam parārtham bhaviṣyati. sarūpāṇām ekaśeṣa ekavibhaktau iti.}
\]

---

66 On this, Joshi (1998: 58) makes an interesting remark: ‘in his 1936 publication on Pāṇini’s grammar (p. 26-27) B. Faddegon casually notes that P. 1.4.2 is a *paribhāṣā*, and that it is valid up to the end of P. 2.2, as if there never had been any doubt. Compare further Cardona 1976, p. 190.’

67 Mbh I.296.11-18.
“But how should this rule be read? Is it आ का धाराद एका साम्ज्ञा or प्राक का धारात पराम कार्यम? But how [does] this doubt [arise]? Because the students have been taught this rule in both ways by the teacher. Some [have been taught] आ का धाराद एका साम्ज्ञा [and] some प्राक का धारात पराम कार्यम. And what is the difference [between these alternative readings] here?

In that section where one name applies, the statement of that [must be made]. (vt. 2)

In that section where one name applies, that should be stated. What [should be stated]? That only one साम्ज्ञा applies [per item]. However, one who [believes that] the following rule [prevails] has to include the word पराम too. It will [serve] another [purpose] for me later [that is, by continuation, in] vipratisedhe ca. For me too then, the mention of एका will [serve] another [purpose], in sarūpāṇām ekaśeṣa ekavibhaktau.

The two versions of the rule pair 1.4.1-2 are: 1.4.1 आ का धाराद एका साम्ज्ञा, 1.4.2 vipratisedhe param kāryam; and 1.4.1 प्राक का धाराद पराम कार्यम, 1.4.2 vipratisedhe ca. The former version is found in the available manuscripts of the Aṣṭādhyāyī, while the latter version is first mentioned by Patañjali himself. In the case of the latter, Patañjali only indirectly hints at what I have called 1.4.2, when explaining how he could use पराम from 1.4.1 प्राक का धाराद पराम

68 Up to 2.2.38 का धाराह कर्मधारये, each item can take only one साम्ज्ञा.
69 Up to 2.2.38 का धाराह कर्मधारये, the rule that comes later in the Aṣṭādhyāyī’s serial order prevails.
70 In the Aṣṭādhyāyī’s serial order, 1.2.64 sarūpāṇām ekaśeṣa ekavibhaktau comes before 1.4.1 आ का धाराद एका साम्ज्ञा. So, one may wonder how Patañjali would be able to continue एका from 1.4.1 into 1.2.64 by anuvṛtti. I want to clarify here that Patañjali is proposing to reorder the rules such that आ का धाराद एका साम्ज्ञा comes before sarūpāṇām ekaśeṣa ekavibhaktau, so that he may be able to continue एका from the former into the latter by anuvṛtti. I do not see how doing this would be justified or useful.
71 Note that there is no evidence that Kātyāyana was aware of these two versions. Vt. 2 tatraikasanijñādikāre tadvacanāṁ (Mbh I.296.15) has been written in context of the first vārttika, and not in the context of these supposedly different versions of 1.4.1 (and 1.4.2). The first vārttika reads: anyatra sanijñāsamāveśāṁ niyamārthaṁ vacanam “Because names co-apply elsewhere, the statement is for the sake of making a restriction.” (Mbh I.296.3). And so, the second vārttika continues to discuss this topic: tatraikasanijñādikāre tadvacanāṁ ‘In that section where one name applies, the statement of that [must be made].’ As is peculiar of Patañjali, he skilfully weaves Kātyāyana’s vārttikas into his own discourse. But it must be borne in mind that, as far as we know, the idea of two different versions of 1.4.1 (and 1.4.2) is Patañjali’s alone.
kāryam later in the following rule (1.4.2) vipraṭiṣedhe ca through anuvṛtti. It logically follows that its co-referent kāryam too would be continued into 1.4.2 along with paramā.

1.4.1 prāk kaḍārād [paramā kāryam]

1.4.2 vipraṭiṣedhe ca

<table>
<thead>
<tr>
<th>Original version</th>
<th>Patañjali’s alternate version</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.4.1 ā kaḍārād ekā saṁjñā</td>
<td>prāk kaḍārāt paramā kāryam</td>
</tr>
<tr>
<td>1.4.2 vipraṭiṣedhe paramā kāryam</td>
<td>vipraṭiṣedhe ca (paramā kāryam)</td>
</tr>
</tbody>
</table>

Note that both versions of 1.4.1 apply only to the section between 1.4.1 and 2.2.38, whereas both versions of 1.4.2 apply to the entire Aṣṭādhyāyī. Besides, while the two versions of 1.4.1 say different things (one says ekā saṁjñā and the other says paramā kāryam), the two versions of 1.4.2 essentially say the same thing.

So, what does the alternative version of 1.4.1 i.e., prāk kaḍārāt paramā kāryam exactly mean? It translates as: between 1.4.1 and 2.2.38 the later rule should be applied. But when? In which context or situation? This version of 1.4.1 is at best ambiguous. Secondly, it seems very unlikely that Pāṇini would teach two different versions of his own rules to his pupils. In the following chapter, I reinterpret the meaning of para, which makes it clear that the alternate version of 1.4.1 does not make sense. For all these reasons, I conclusively reject the alternate version.

On the other hand, Kiparsky assumes that the alternate version is the correct one, and uses this assumption to argue for restricting the scope of 1.4.2 to the section up to 2.2.38. He says, “A very suggestive piece of evidence that the domain of 1.4.2 is limited to 1.4-2.2 is that Patañjali actually records a variant reading of Pāṇini’s rules in which that must be the interpretation. In discussing 1.4.1 Patañjali says, ‘How then is this rule to be read: as ā kaḍārād ekā saṁjñā “up to kaḍāra (2.2.38) (everything gets only) one technical term” or as prāk kaḍārāt paramā kāryam “up to kaḍāra apply the last”? Why is this an issue? Because the teacher [Pāṇini] had his students recite both ways, some of the ā kaḍārād ekā saṁjñā, others prāk kaḍārāt paramā

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72 The presence of the word ca in 1.4.2 vipraṭiṣedhe ca hints at the fact that some words would become anuvṛtta from 1.4.1 into 1.4.2.
Thus, these were still two versions of the rules in Patañjali’s time. Not surprisingly, the version in which the domain of the *para* relation could be extended over the whole grammar eventually won out. But it seems reasonable to assume that the version in which the domain obviously has to be limited to 1.4 to 2.2 has a greater claim to authenticity.\(^3\)

In his analysis, Kiparsky conveniently ignores the part where Patañjali talks about 1.4.2 *vipratiṣedhe ca* (param kāryam). If 1.4.1 is *prāk kaḍārāt-param kāryam*, 1.4.2 would be *vipratiṣedhe ca* (param kāryam), as mentioned by Patañjali himself. Thus, the *para* relation would still be applicable to the entire *Aṣṭādhyāyī* even if we accept the alternate version of 1.4.1-2 as being the actual or correct one. So, I conclude that contrary to Kiparsky’s claim, both versions of the pair (1.4.1-2) allow the *para* relation to extend to the entire *Aṣṭādhyāyī*. Thus, his speculation about why the *ekā saṁjñā* version won out does not pass muster, and the argument that *paraṁ kāryam* does not hold beyond 2.2.38 too remains unsubstantiated.

Now going back to the general argument that 1.4.2 does not apply beyond 2.2.38, Faddegon and others reduced the scope of 1.4.2 with the objective of avoiding the application of 1.4.2 to those cases of conflict wherein applying 1.4.2 may give the wrong answer. But we have already seen in the derivation of *ūrṇāyu* that even within 1.4.1-2.2.38, the *pūrva* rule 1.4.16 *siti ca* prevails over the *para* rule 1.4.18 *yaci bham*. In other words, even within 1.4.1-2.2.38, 1.4.2 does not give the right answer.

Besides, those conflicts which we come across in 1.4.2-2.2.38, which are essentially conflicts between *saṁjñā* rules, can be successfully solved by choosing the specific rule (the exception) over the general one, thereby rendering Faddegon’s restriction of 1.4.2’s scope redundant anyway.\(^4\) For example, 1.4.16 *siti ca*, as we have seen above, is more specific than and therefore an exception of 1.4.18 *yaci bham*. Thus 1.4.16 wins. Similarly, 1.4.11 *saṁyoge guru* (which teaches that a short vowel is called *guru* ‘heavy’ when followed by a consonantal conjunct) is more specific than 1.4.10 *hrasvam laghu* (which teaches that a short vowel is called *laghu* ‘light’). Thus, 1.4.11 wins.

\(^3\) Kiparsky 1982: 114.

\(^4\) While Joshi (1998: 45)’s overall view on this topic is very different from mine, he makes some observations which resonate with my findings: “the tradition in general is wrong...in thinking that *apavādatva* cannot take care of the designations introduced in the *ekā saṁjñā* section”.

73 Kiparsky 1982: 114.

74 While Joshi (1998: 45)’s overall view on this topic is very different from mine, he makes some observations which resonate with my findings: “the tradition in general is wrong...in thinking that *apavādatva* cannot take care of the designations introduced in the *ekā saṁjñā* section”.
In the same way, 1.4.100 taṅnāv ātmanepadam (which teaches that taṅ, ŚānaC and KānaC, which replace la, take the ātmanepada saṁjñā) is more specific than and thus defeats 1.4.99 laḥ parasmaipadam (which teaches that the affixes which replace la take the parasmaipada saṁjñā\(^{\text{a}}\)). Similarly, 1.4.46 adhiśīṅsthāsāṁ karma (which teaches that a kāraka which constitutes the locus of the action is called karma with the verbs śīĮ ‘to lie down’, sthā ‘to stand’, and ās ‘to sit’ occurring with preverb adhi) is more specific than and thus wins against 1.4.45 ādhāro’dhikaraṇam (which teaches that a kāraka which constitutes the locus of the action is called adhikaraṇa).\(^{\text{a}}\) These examples satisfactorily prove that the apavāda tool is sufficient to identify the winning rule in the section 1.4.1-2.2.38.

Secondly, restricting the scope of 1.4.2 to 1.4.1-2.2.38 implies that Pāṇini has given us no instructions about the conflicts that lie beyond 2.2.38, which I think is a highly unlikely scenario. In any case, the few attempts that have been made to deal with conflicts beyond 2.2.38 by scholars such as Cardona (1970) and Joshi and Kiparsky (1979) address only certain types of rule conflict and fail to paint an overarching picture.\(^{\text{a}}\)

### 1.7 My Opinion

In my view, firstly, Pāṇini did not expect us to create the categories ‘tulyabala’ and ‘atulyabala’. Secondly, I think that he taught 1.4.2 as a metarule which, rather than being restricted to a particular section of the Astādhyāyī, is applicable to the entire Astādhyāyī.

More broadly, I do not agree with both the traditional and the modern perspectives towards this topic, because instead of trying to decipher the actual meaning of 1.4.2, these approaches try to brush 1.4.2 under the carpet, to make it less effective or to weaken its impact. One does it

\(^{\text{a}}\) Besides, there are some cases which may appear to be conflicts between rules teaching kāraka saṁjñās but which, according to me, are not conflicts at all. For example, whether one says geham praviśati (cf. 1.4.49 kartur ūpsitatamaṁ karma → 2.3.2 karnaṇi dvitiyā) or gehe praviśati (cf. 1.4.45 ādhāro’dhikaraṇam → 2.3.36 saptamy adhikaraṇe ca) depends entirely on the non-linguistic feature that the speaker wishes to express - that is, whether he/she wants to express kartur ūpsitatama or ādhāra. So, this choice lies outside the domain of Pāṇini’s Astādhyāyī. In conclusion, in my opinion, rule conflict does not arise between 1.4.45 and 1.4.49.

\(^{\text{a}}\) We shall look at limited blocking (Cardona) in chapter 4 and siddha principle (Joshi and Kiparsky) in Appendix E.
by excluding certain rule pairs from the scope of vipraśūrdha, and the other by reducing the jurisdiction of 1.4.2. This approach which seeks to undervalue Pāṇini’s rule interaction mechanism and replaces it with self-invented methods of ‘rule conflict resolution’ can lead to some success for a limited set or specific type of examples, but does not allow us to understand and appreciate the larger picture.

To get instructions about dealing with rule interaction, I try to rely, as much as possible, upon ‘internal metarules’, that is, those metarules which Pāṇini has taught in his work, setting aside any ‘external metarules’, that is, those metarules that are not found in the Astādhyāyī, such as nityatva, antaraṅgatva, post-Pāṇinian paribhāṣās from the Paribhāṣenduśekhara, vārtikas that discuss rule interaction etc. In this thesis, I have come up with my own interpretation of 1.4.2 and, using that, I have reinterpreted Pāṇini’s derivational mechanism. I have attempted to show that Pāṇini’s grammatical machine is self-sufficient, that is, its own (internal) metarules, are able to run it with remarkable perfection, and that no external metarules are able or required to aid this process.
Chapter Two

2.1 Two Types of Operational Rule Interaction

In the previous chapter, I have discussed how the tradition has misinterpreted 1.4.2 *vipratiṣedhe param kāryam*. In this section, I lay the conceptual foundation that will help us understand the actual meaning of 1.4.2 in the next section (2.2).

Over a period of time, I studied different examples in which two *vidhi sūtras* ‘operational rules’ are simultaneously applicable at the same step of a derivation, from both traditional sources and modern literature. Henceforth, we will refer to such interaction between two simultaneously applicable operational rules as ‘Same-Step Rule Interaction’, or simply SSRI. I tried to divide these examples into different groups on the basis of the similarities between them.

In my opinion, at any step in a derivation, even though two (or more) rules are applicable, only one rule applies. So, I attempted to determine if, of the two competing rules, a certain kind of rule always prevails over the other rule, in all the examples of that group. In other words, I came up with one generalization per group about the result of such competition between rules. The generalization that I made for one particular group of rules immediately caught my attention. In order to highlight the common property that binds together the examples of this group, first, I need to explain certain concepts, which I will do in this section. In section 2.2, I will discuss the said group of examples, and how this group of examples led me to discover the actual meaning of 1.4.2.

Consider the two types of SSRI:

<table>
<thead>
<tr>
<th>Type 1:</th>
<th>A       +       B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R1A                      R2A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type 2:</th>
<th>A       +       B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RA               RB</td>
</tr>
</tbody>
</table>
We will call Type 1 Same Operand Interaction - henceforth SOI - because both rules R1A and R2A are applicable to the same operand A at the same step. We will call Type 2 Different Operand Interaction - henceforth DOI - because the two rules R_A and R_B are applicable to two different operands A and B respectively at the same step.

In their efforts to understand the meaning of 1.4.2, both traditional and modern scholars have failed to make good use of this clear distinction between SOI and DOI.1 Going further, we will see that this distinction plays a critical role in helping us understand Pāṇini’s key rule 1.4.2 and, consequently, the entire derivational system of the Aṣṭādhyāyī.

As stated before, in my opinion, at any step in a derivation, even though two (or more) rules are applicable, only one rule applies. So, for both Type 1 and Type 2, we need to determine which of the two rules should be applied at the given step.

2.2 Solutions for Type 1 (SOI) and Type 2 (DOI)

Which one of the two rules R1A and R2A should we apply at this step? Pāṇini does not give us any explicit instructions about solving SOI. In my view, if two rules are applicable simultaneously to the same operand, the rule that is more specific, which we may call ‘the special or exception rule’, wins. Note that this is similar to the traditional notion that an apavāda ‘exception’ rule defeats an utsarga ‘general’ rule.

It is likely that Pāṇini did not deem it necessary to state explicitly that the exception rule defeats the general rule in case of SOI because the general-exception framework is not a feature of ‘grammar’ alone but more broadly, a feature of the sūtra style itself. Freschi and Pontillo (2013: 2) point out that “the basic framework of Sanskrit śāstras ‘systematic treatises’ is based on the practical and effective opposition between general and specific rules”.

1 Cardona (1970: 48) does recognize this distinction: “the general condition for vipratiṣedha is, as noted...that two rules tentatively apply to provide operations which cannot possibly take place concurrently. The two operations can involve (a) a single operand or (b) different operands.” But he does not develop this intuition, relying instead on the traditional approach to rule interaction.
Note that the traditional approach is different from mine because:

(i) The tradition does not draw a clear distinction between SOI and DOI.

(ii) The tradition often ends up using tools other than utsarga-apavāda to resolve SOI.

(iii) The tradition has not developed a systematic procedure to determine which of the two rules involved in SOI is more specific.

I will develop such a procedure later in this chapter. Now, let us look at DOI.

The group of examples referred to in section 2.1 are those that involve DOI. I noticed that in the case of DOI, if we pick the right-hand side (henceforth, RHS) operation, that is, application of rule R_B to its operand B, over the left-hand side (henceforth, LHS) operation, that is, the application of rule R_A to operand A, we always get the correct answer. This led me to realize the meaning of para in 1.4.2: para stands for the RHS operation. And thus, vipratiṣedha ‘mutual opposition’ in 1.4.2 stands for DOI. I think it is apt to refer to DOI as vipratiṣedha ‘mutual opposition’ because only one of the two operations wins, so in that sense, the two operations oppose each other. In sum, 1.4.2 means: ‘in the event of DOI (mutual opposition between the two operations), the RHS operation wins.’

Note that even though in the previous chapter I frequently used the phrase ‘rule conflict’ - which has acquired a very specific connotation in modern Pāṇinian scholarship - to discuss the traditional and modern interpretations of 1.4.2, I have not used this phrase in the context of my own interpretation of 1.4.2. I interpret vipratiṣedha ‘mutual opposition’ as ‘DOI’ and not as ‘rule conflict’. DOI and rule conflict are different concepts. I will discuss this topic in detail later in this chapter.

### 2.3 Evidence for My Interpretation of Para

Before going further, let me provide more evidence to support my interpretation of para. The meaning of para in 1.4.2 can be confirmed by looking at the meaning of para in the rest of the Aṣṭādhyāyī. The term para has been used by Pāṇini on many occasions. Its occurrences can be classified into two groups:
Let us consider an example from Group A. 1.1.34 \( \text{pūrvaparāvara} \text{dakṣinottarāparādhārāni} \text{vyavasthāyām asaṁjñāyām} \) teaches that the terms \( \text{pūrva}, \text{para} \) etc. are called \( \text{sarvanāma} \) optionally when followed by \( \text{Ja s} \). In 1.1.34 and in the other rules belonging to Group A, \( \text{para} \) is used as an ordinary word of the object language Sanskrit. In these rules, it does not have any special technical connotation with respect to Pāṇinī’s derivational system. We are not interested in Group A, because 1.4.2 belongs to group B.

Let us consider some examples from Group B. 1.1.47 \( \text{mīd aco ‘ntyāt paraḥ} \) teaches that an item marked with \( \text{anubandha M} \) is placed after, i.e., to the right-hand side of, the last vowel of the item to which it is added. 1.1.51 \( \text{ur aṇ raparaḥ} \) teaches that \( \text{r} \) is added after, i.e., to the right side of the vowels \( \text{a, i, u} \) when they are substitutes of \( \text{r̥} \). 1.1.54 \( \text{ādeḥ parasya} \) teaches that a substitute taught for the following or right-hand side item replaces its first sound. From these examples, it becomes clear that in the rules I have listed under group B, \( \text{para} \) is used to mean ‘right-hand side’ in the context of Pāṇinian derivations.

Furthermore, we also see that in the \( \text{Aṣṭādhyāyī} \) the term \( \text{pūrva} \), the antonym of \( \text{para} \), when used specifically in the context of Pāṇinian derivations, means LHS. For example, consider the pair of rules 1.1.66 \( \text{tasminn iti nirdiṣṭe pūrvasya} \) and 1.1.67 \( \text{tasmād ity uttarasya} \). 1.1.66 teaches that when an item is taught (\( \text{nirdiṣṭe} \)) in the locative (\( \text{tasminn iti} \)), it means that the item to its left-hand side (\( \text{pūrvasya} \)) undergoes an operation, and 1.1.67 teaches that, when an item is

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2 Since our focus is not on this group, I have not listed certain rules in which we find compounds or secondary derivatives containing \( \text{para} \). Examples include \( \text{parasmaipada}, \text{parokṣa}, \text{aparokṣa}, \text{parovara}, \text{parama}, \) and \( \text{paraspara} \).

3 The original rule is \( \text{upasargād anotparaḥ} \), but Patañjali has suggested that it should be read as \( \text{upasargād bahulam} \). We find the latter version in many recensions.

4 See Appendix F for the list of \( \text{sūtras} \).
taught in the ablative (tasmād iti), it means that the item to its right-hand side (uttarasya)\textsuperscript{5} undergoes the operation\textsuperscript{6}.

Let us confirm this by considering some rules which contain both pūrva and para. 6.1.84 ekaḥ pūrvaparayoh teaches that (in the following rules) a single sound replaces both the LHS sound and the RHS sound in case of sanhītā ‘immediate proximity’. Similarly, 1.1.57 acaḥ parasmin pūrvavidhau teaches that a substitute for a vowel, if it is conditioned by an RHS context, is treated like its substituendum with respect to an operation on an LHS element.

Besides, the word kāryam in 1.4.2 also gives us some crucial information. We know that in the Aṣṭādhyāyī, Pāṇini does not generally use finite verbal forms in his rules. For example, in 6.1.77, he does not say iko yaṇ aci bhavati / kāryam, but simply iko yaṇ aci. So, in the case of 1.4.2 too, we can safely interpret kāryam as a noun rather than interpreting it as an optative passive participle meaning ‘should be done’. What does the noun kārya generally mean? It means ‘operation’, not ‘rule’. If Pāṇini wanted to say what the tradition interprets him as saying, I think he would have simply said vipratiṣedhe paraṁ sūtram and not vipratiṣedhe paraṁ kāryam. All this corroborates my interpretation of para in 1.4.2.

Let me summarize this topic now. In ordinary speech, para means ‘following, something that lies after’. Accordingly, in 1.4.2, para actually means ‘that which comes after’ in the left-to-right sense in the context of derivations. However, the tradition took it as ‘that which comes after’ in the top (first)-to-bottom (last) or beginning-to-end sense in the context of the serial order of rules. And so, while para in 1.4.2 refers to the operand or operation that lies after, or on the right-hand side relative to another operand or operation, the tradition misunderstood it as the rule which comes after the other rule in the serial order of the Aṣṭādhyāyī.

This leads to an important question: if traditional scholars interpreted para as ‘RHS item/operation’ in so many metarules as shown above, why did they interpret it as ‘the following rule’ in 1.4.2?\textsuperscript{7} I think this misunderstanding possibly arose because another

\textsuperscript{5} Here uttara is a synonym of para.

\textsuperscript{6} These are the traditional interpretations of these two rules. I discuss my interpretations of them in Appendix B.

\textsuperscript{7} While I will discuss this in detail in chapter 6, I must mention here that Kātyāyana mentions that para in 1.4.2 could mean ‘RHS’ in vt. 12 on 6.1.158 anudāttām padam ekavārjām. He says: sāstraparavipratiṣedhāniyamād vā śabdaparavipratiṣedhāt siddham ‘[in the event of vipratiṣedha between two operations] because it has not been [explicitly] mandated that paratva of rules [alone
metarule, 8.2.1 *pūrvatrasiddham*, uses *pūrva*, the opposite of *para*, to mean ‘preceding rule’. 8.2.1 teaches that from 8.2.1 onwards, a preceding rule treats a following rule as suspended. This may have led Kātyāyana, the first scholar to comment upon Pāṇini’s sūtras, to think that, in sūtras dealing with relationships between rules such as 8.2.1 and 1.4.2, *pūrva* and *para* mean preceding rule and following rule respectively. However, upon closer examination, one realizes that when Pāṇini wants to indicate that he is referring to the relationship between preceding and following rules rather than operands, he adds the affix *tṛaL* to the base: he says *pūrva-tṛa* in 8.2.1.9 This topic deserves our meticulous attention, and we will discuss it in greater detail in chapter 5. Here is the summary of my comprehensive solution:

![Same Step Rule Interaction (SSRI)](image)

**2.4 A Key Difference Between SOI and DOI**

SOI and DOI have one prominent feature in common: in case of both SOI and DOI, two (or more) rules are simultaneously applicable at a certain step of the derivation. However, it is important to shed light on a key difference between SOI and DOI. This difference between SOI and DOI pertains to whether or not they involve competition between two operands.

---

should be used to resolve] *vipratiṣedha*, alternatively *paratva* of sounds [may also be used to] accomplish [the task of resolving] *vipratiṣedha*’ (Mbh III.100.12).

8 5.3.10 *saptamās tṛaL*.

9 *Pūrvatra* stands for ‘with respect to a rule which comes earlier in the *Aṣṭādhyāyi*’s serial order’.

10 As stated before, by ‘rule’, here I specifically mean *vidhi sūtra* ‘operational rule’.

38
In case of DOI, we see that the two simultaneously applicable rules \( R_A \) and \( R_B \) compete for the sole position of the rule that applies at that step. But the two operands \( A \) and \( B \) too compete for the sole position of the operand that undergoes an operation at that step.

In case of SOI, the two simultaneously applicable rules \( R_{1A} \) and \( R_{2A} \) compete for the sole position of the rule that applies at that step. However, since both are applicable to the same operand \( A \), we do not observe any competition between operands.

Because Pāṇini has not given any instructions about SOI, but has taught the metarule 1.4.2 for dealing with DOI, we can say that Pāṇini has given explicit instructions about how we must deal with competition between operands (which we see in DOI but not in SOI), but not about how we must deal with competition between rules (which we see in both DOI and SOI).

Thus, we must understand \( vipratiṣedha \) in 1.4.2 not as mutual opposition between rules but rather as mutual opposition between operands.

### 2.5 Pāṇinian and Post-Pāṇinian Approaches to Derivations

In order to determine why post-Pāṇinian (both traditional and modern) scholars have misinterpreted Pāṇini’s rule 1.4.2, we need to understand that there is a fundamental difference between what I think are Pāṇinian\(^{11}\) and post-Pāṇinian conceptions of, or perspectives towards, the derivational procedure itself. I will explain exactly what I mean by this statement by means of examining six representative examples of SSRI from both Pāṇinian and post-Pāṇinian perspectives below.

Let us start with the latter. But before we examine these representative examples from the post-Pāṇinian perspective, let me explain certain fundamental concepts which will help us

\(^{11}\) When I make the distinction between Pāṇinian and post-Pāṇinian approaches in the following pages, it must be understood that by ‘Pāṇinian approach’, I mean ‘my interpretation of the Pāṇinian approach’.
understand this perspective better. Let us divide SSRI into two categories, namely ‘conflict’ and ‘non-conflict’. In order to define conflict and non-conflict, we must first define blocking. Let us say that two rules X and Y are simultaneously applicable at step $K$. We say that rule X blocks rule Y if Y will not be applicable at the following step ($K+1$) after the hypothetical application of X at the present step ($K$). Conflict is defined as an SSRI which involves some blocking. Non-conflict is defined as an SSRI which does not involve any blocking.

Note that, in my opinion, Pāṇini has not defined or discussed the categories ‘conflict’ and ‘non-conflict’ in any way whatsoever, and he does not expect us to know about or use them either. Traditional scholars too have not made an explicit distinction between conflict and non-conflict. In modern / western scholarship, the concept of ‘(rule) conflict’ has been widely used, but ‘non-conflict’ has not been used at all.

Then, the question arises: why have I made this distinction between conflict and non-conflict? I have done this to highlight that, for the most part, post-Pāṇinian scholarship has focused on conflict and has not paid much attention to non-conflict. Why is this the case? To answer this question, let us look closely at non-conflict, wherein the two rules X and Y do not block each other: if X applies at the present step, then Y is applicable at the following step, and if Y applies at the present step, then X is applicable at the following step. Before we go further, note that ‘being applicable’ is different from ‘applying’. Consider the following situation:

---

12 In other words, let us say that there is an SSRI between X and Y.
Step 1:  
\[ \text{Step 1: } \begin{array}{c} \uparrow \text{g} \\ \downarrow \text{X} \\ \uparrow \text{h} \\ \downarrow \text{Y} \end{array} \]

Let us say Y applies at this step, changing h to h*. Now, at the following step, not only X but another rule Z too becomes applicable:

Step 2:  
\[ \text{Step 2: } \begin{array}{c} \uparrow \text{g} \\ \downarrow \text{X} \\ \uparrow \text{h*} \\ \downarrow \text{Z} \end{array} \]

Suppose that Z, and not X, applies at step 2.

Here, we see that, if Y applies at step 1, X is applicable at the step 2. However, X does not apply at the step 2. This is the difference between ‘being applicable’ and ‘applying’.

Now, let us go back to our conversation about why post-Pāṇinian scholarship does not take much interest in non-conflict. In most cases of non-conflict, if X applies at the present step, then Y is not only applicable but also applies at the following step. Similarly, if Y applies at the present step, then X is not only applicable but also applies at the following step. Thus, regardless of the order in which the two rules apply, one gets the correct form at the end of the derivation. This explains why the tradition can afford to overlook such examples of non-conflict, which, as I said, constitute a huge majority of the set of all non-conflict examples.

However, there is a minority of examples of non-conflict wherein if Y applies at the present step, X is applicable at the following step, but does not end up applying at the following step. The tradition does take some interest in such examples of non-conflict, which constitute a very tiny minority of the set of all non-conflict examples.

Having defined both blocking and conflict, now let us look at how post-Pāṇinian scholarship views the following representative examples:

\[ \text{13 So, going by the definition of blocking, Y does not block X.} \]
If we apply R at this step, W will be applicable at the following step. R does not block W.

If we apply W at this step, R will not be applicable at the following step. W blocks R.

We call this a case of asymmetrical or unidirectional blocking. Since this interaction involves blocking, this is a case of conflict. Such examples are of interest to post-Pāṇinian scholars.

If we apply S at this step, V will not be applicable at the following step. S blocks V.

If we apply V at this step, S will not be applicable at the following step. V blocks S.

We call this a case of symmetrical or mutual blocking. Since this interaction involves blocking, this is a case of conflict. Such examples are of interest to post-Pāṇinian scholars.

If we apply P at this step, Y will be applicable at the following step. P does not block Y.

If we apply Y at this step, P will not be applicable at the following step. Y blocks P.

We call this a case of asymmetrical or unidirectional blocking. Since this interaction involves blocking, this is a case of conflict. Such examples are of interest to post-Pāṇinian scholars.

If we apply Q at this step, X will not be applicable at the following step. Q blocks X.

If we apply X at this step, Q will not be applicable at the following step. X blocks Q.

We call this a case of symmetrical or mutual blocking. Since this interaction involves blocking, this is a case of conflict. Such examples are of interest to post-Pāṇinian scholars.
Post-Pāṇinian scholars are very interested in these four representative examples (REs). But one may ask: what about the remaining two REs? Let us look at them.

5) \[ i + j \]

If we apply \( T \) at this step, \( U \) will be applicable at the following step. \( T \) does not block \( U \).

If we apply \( U \) at this step, \( T \) will be applicable at the following step. \( U \) does not block \( T \).

There is no blocking, so this is a case of non-conflict. The tradition does not think about or pay much heed to this kind of situation, for the most part.

6) \[ c + d \]

If we apply \( O \) at this step, \( Z \) will be applicable at the following step. \( O \) does not block \( Z \).

If we apply \( Z \) at this step, \( O \) will be applicable at the following step. \( Z \) does not block \( O \).

There is no blocking, so this is a case of non-conflict. The tradition does not think about or pay much heed to this kind of situation, for the most part.

Let us now summarize the relationship between blocking and conflict.

<table>
<thead>
<tr>
<th>No blocking</th>
<th>Non-Conflict</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unidirectional blocking</td>
<td>Conflict</td>
</tr>
<tr>
<td>Mutual blocking</td>
<td>Conflict</td>
</tr>
</tbody>
</table>

Before we continue discussing these six examples from the post-Pāṇinian perspective, let us consider the Pāṇinian perspective on them:
This is a case of SOI. Let us say \( W \) is more specific. Thus, \( W \) wins.

This is a case of SOI. Let us say \( V \) is more specific. Thus, \( V \) wins.

This is a case of DOI. By 1.4.2, the RHS rule \( Y \) wins.

This is a case of DOI. By 1.4.2, the RHS rule \( X \) wins.

This is a case of SOI. Let us say \( U \) is more specific. Thus, \( U \) wins.

This is a case of DOI. By 1.4.2, the RHS rule \( Z \) wins.

Note that in all six representative examples discussed here, Pāṇini does not require us to worry about what happens to the losing rule, for instance, \( P \), in example 3: we need not be concerned about whether or not \( P \) is applicable at the following step, or whether or not \( P \) actually applies at the following step. In other words, Pāṇini does not use concepts like blocking and conflict to give instructions about dealing with SOI and DOI.
Even though Pāṇini does not use concepts like ‘conflict’ to give instructions about SSRI, and even though the tradition makes no explicit distinction between SOI and DOI, let us discuss both Pāṇinian and post-Pāṇinian concepts under one umbrella to understand this topic better. I have included both SOI and DOI examples because Pāṇini deals with them separately and have included examples of both conflict and non-conflict because the post-Pāṇinian approach subconsciously makes this distinction by focusing on conflict alone. Here is a summary of the examples:

<table>
<thead>
<tr>
<th>RE¹⁴</th>
<th>Type</th>
<th>Blocking</th>
<th>Conflict</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SOI</td>
<td>unidirectional</td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td>SOI</td>
<td>mutual</td>
<td>Yes</td>
</tr>
<tr>
<td>3</td>
<td>DOI</td>
<td>unidirectional</td>
<td>Yes</td>
</tr>
<tr>
<td>4</td>
<td>DOI</td>
<td>mutual</td>
<td>Yes</td>
</tr>
<tr>
<td>5</td>
<td>SOI</td>
<td>none</td>
<td>No</td>
</tr>
<tr>
<td>6</td>
<td>DOI</td>
<td>none</td>
<td>No</td>
</tr>
</tbody>
</table>

Representative examples 1, 2, 3 and 4 are of significant interest to post-Pāṇinian scholarship because they involve some kind of blocking, thereby constituting cases of conflict.

### 2.6 Traditional Solutions

Now let us look at how the tradition solves examples of conflict. As stated in the previous chapter, traditional scholars tried to use their interpretation of 1.4.2 (the rule that comes later in the serial order of the Aṣṭādhyāyī wins the conflict) to resolve such conflicts. This often gave them the wrong answer, so in order to reduce the challenges posed by their interpretation of 1.4.2, they significantly reduced the scope of applicability of 1.4.2.

They achieved this by restricting the meaning of vipratiṣedha to tulyalavirādha ‘conflicts between rules of equal strength’. So, 1.4.2 does not apply to pairs of conflicting rules if the two rules are not of equal strength. In the case of such pairs of unequal strength, the rule which is

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¹⁴ RE = ‘Representative Example’.

¹⁵ Only a minority of cases of SOI involve unidirectional blocking. Most cases of SOI involve mutual blocking.
stronger than the other wins. The tradition has come up with certain methods to identify these pairs of unequal strength. While we have already looked at some of them in the previous chapter, I will briefly discuss them below to outline which tool is used to deal with what kind of interaction (SOI / DOI) and what kind of blocking (unidirectional / mutual).

1. *nitya* > *anitya*: in a conflict between two rules A and B, A is called *nitya* with respect to B if A is applicable (both before and) after the application of B. B is called *anitya* with respect to A if B is applicable before but not after the application of A. The *nitya* rule A is stronger than and defeats the *anitya* rule B. In other words, A wins against B if A unidirectionally blocks B.

2. *antaraṅga* > *bahiraṅga*: according to the *Paribhāṣenduśekhara*, ‘*antaraṅga* is (a rule) the causes (of the application) of which lie within (or before) the sum of the causes of a *bahiraṅga* rule’.

Note that this tool is seldom used to solve actual cases of conflict and is mostly only used to solve what I call cases of pseudo-conflict. We will delve into this in Appendix C.

3. *apavāda* > *utsarga*: an exception rule, or a more specific rule, defeats the general rule.

4. *pūrvavipratiṣiddha*: when applying 1.4.2 gives the wrong answer, Kātyāyana comes up with *pūrvavipratiṣiddha* vārttikas. These state that in certain cases, contrary to what is taught by the traditional interpretation of 1.4.2, it is not the *para* rule (the rule which comes after the other rule in the serial order of the *Aṣṭādhyāyī*), but instead the *pūrva* rule (the rule that comes before the other rule in the serial order of the *Aṣṭādhyāyī*) that wins. *Pūrvavipratiṣiddha* too has come to be used like a conflict resolution tool. Here are two well-known examples of such vārttikas (vt. 10 and 11 respectively on 7.1.96 *striyāṁ ca*):

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16 In the previous chapter I have discussed the hierarchy of these rules (Pbh 38 of the *Paribhāṣenduśekhara*), so I do not discuss it here again. This hierarchy is not of much consequence, practically speaking.

17 See Abhyankar’s reprint (second edition) of Kielhorn’s work (1960: 221-222).

a. vt. 10 guṇavṛddhyauttvatr̥jvadbhāvebhyo num pūrvavipratiṣiddham: in case of vipratiṣedha, the pūrva sūtra, which teaches the insertion of the augment nUM, takes precedence over para sūtras which teach (i) guṇa\textsuperscript{19}, (ii) vṛddhi\textsuperscript{20}, (iii) auttva\textsuperscript{21}, (iv) trjvadbhāva\textsuperscript{22}.

b. vt. 11 numaciratr̥jvadbhāvebhyo nuṭ (pūrvavipratiṣiddham): in case of vipratiṣedha, the pūrva sūtra, which teaches the insertion of the augment nUṬ\textsuperscript{23} takes precedence over para sūtras which teach (i) numāgama ‘insertion of augment nUM’\textsuperscript{24}, (ii) replacement with r when followed by a vowel (aC)\textsuperscript{25}, (iii) trjvadbhāva\textsuperscript{26}.

5. niravakāśa / anavakāśa > sāvakāśa\textsuperscript{27}: In his first vārttika\textsuperscript{28} on 1.4.2, Kātyāyana defines vipratiṣedha as a conflict which arises between two sāvakāśa rules: dvau prasaṅgāv anyārthāv ekasmin sa vipratiṣedhah ‘[When] two rules [which are] applicable elsewhere (i.e., in other derivations) [become applicable] at the same place, this [situation is called] vipratiṣedha’. But when one of the two rules is niravakāśa, that is, when it does not have scope to apply elsewhere, such a conflict is not called vipratiṣedha. In such cases, the niravakāśa rule is thought to be stronger than the sāvakāśa rule. The niravakāśa rule wins.

As discussed in the previous chapter, the tradition does not apply these tools consistently, and often, applying some of these tools gives the wrong form. Nonetheless, through the table presented below, I try to give a broad and general overview of the tools that are used to deal with different kinds of conflicts:

\textsuperscript{19} 7.3.111 gher ūnīti.
\textsuperscript{20} 7.2.115 aco īnīti.
\textsuperscript{21} 7.3.119 ac ca gheḥ.
\textsuperscript{22} 7.1.95 trjvat kroṣṭuḥ.
\textsuperscript{23} 7.1.54 hrasvanadyāpo nuṭ.
\textsuperscript{24} 7.1.73 iko’ci vibhaktau.
\textsuperscript{25} 7.2.100 aci ra ṛtah.
\textsuperscript{26} 7.1.95 trjvat kroṣṭuḥ.
\textsuperscript{27} niravakāśā hi vidhayah sāvakāśān vidhīn bādhante ‘niravakāśa operations defeat sāvakāśa operations’ (Pbh 11 of Vyāḍiparibhāṣāpāṭha).
\textsuperscript{28} Mbh I.304.13.
Lastly, alongside these tools, the tradition liberally uses (its interpretation of) 1.4.2 to deal with all kinds of conflict when it is necessary and/or desirable to do so.

### 2.7 Examples of DOI

In my opinion, 1.4.2 *vipratiṣedhe param kāryam* means: in the event of DOI, the RHS rule wins. As stated before, I have not used the term ‘rule conflict’ in my interpretation of 1.4.2. This is because I think that Pāṇini does not require us to use such a concept to understand 1.4.2, and consequently, to perform derivations correctly.

However, as shown above, all post-Pāṇinian discussion pertaining to 1.4.2 has focused on conflict. So, I do need to deal with the topic of conflict to contextualize my findings in the contemporary discourse. In other words, I need to show that my interpretation of 1.4.2 correctly resolves examples of DOI conflict, which I will call Type 2a henceforth. For each example, I will first prove that the example involves conflict, then discuss my solution to it, and finally present the traditional solution to it.

Even though the tradition is not very interested in non-conflict, I will also show that 1.4.2 helps deal with examples of DOI non-conflict, which I will call Type 2b henceforth.

Before we start looking at examples, here is a diagram which summarizes this topic:
Type 2 (DOI = vipratiṣedha)

- unidirectional blocking (RE\textsuperscript{29} 3)
- mutual blocking (RE 4)
- no blocking (RE 6)

- DOI conflict (Type 2a)
  [of significant interest to the tradition]

- DOI non-conflict (Type 2b)
  [not of much interest to the tradition]

My solution: 1.4.2 (RHS wins)

Note the difference between vipratiṣedha, as interpreted by me, and the concept of conflict, which is popularly discussed in modern post-Pāṇinian literature, in the diagram above.

In this section, I have chosen examples from nominal inflection.\textsuperscript{30}

In all derivations performed in this thesis, I present only those steps diagrammatically at which multiple rules are simultaneously applicable. For example, at step \(a + b\), if rules \(R_1\) and \(R_2\) are applicable to \(a\) and \(b\) respectively, then I draw the following kind of diagram to illustrate the same:

\[
\begin{array}{c}
\text{a} \\
\uparrow \\
R_1
\end{array}
\quad +
\quad 
\begin{array}{c}
\text{b} \\
\uparrow \\
R_2
\end{array}
\]

However, if only one rule \(K_1\) is applicable (to \(c\)) at a given step \(c + d\), then I do not draw diagrams of the following kind to represent this:

\[
\begin{array}{c}
\text{a} \\
\uparrow \\
R_1
\end{array}
\quad +
\quad 
\begin{array}{c}
\text{b} \\
\uparrow \\
R_2
\end{array}
\]

\textsuperscript{29} RE = ‘Representative Example’.

\textsuperscript{30} Note that examples from nominal inflection are simpler than those from verbal inflection. One of the many reasons behind this is that, while nominal inflection involves only two items, i.e., a base and affix, verbal inflection generally involves at least three items, i.e., a base followed by two affixes. We will look at examples from verbal inflections as well as primary and secondary derivatives in the following chapters.
Instead, I simply describe this in words, or symbolically, as follows: \( c + d \rightarrow c^* + d \ (K_1) \).

(1) \textit{deva} + \textit{bhis} – ‘God’ (masculine), instrumental plural

\[
deva + bhis
\]

7.3.103 \textit{bahuva}c\textit{ane jhaly et} (ataḥ supi): an \( e \) replaces the final \( a \) of a nominal base when a plural declensional affix starting with \textit{jhal} (a non-nasal stop or a fricative) follows.

7.1.9 \textit{ato bhisa ais}: \( ais \) replaces \textit{bhis} when \textit{bhis} occurs after an \( a \)-final base.

If \textit{bhis} is replaced with vowel-initial \textit{ais} by 7.1.9, then 7.3.103, which applies to only those bases which are followed by a \textit{jhal}-initial affix, will not be applicable at the following step. Similarly, if the \( a \) of \textit{deva} is replaced with \( e \) by 7.3.103, then 7.1.9, which applies to affixes that are preceded by \( a \)-final bases, will not be applicable at the following step.

Therefore, 7.1.9 and 7.3.103 block each other. This is a case of mutual blocking, and thus of Type 2a (DOI conflict).

By my interpretation of 1.4.2, the RHS operation 7.1.9 wins, leading to the correct form: \( \textit{deva} + \textit{ais} \rightarrow \textit{devais} \) (6.1.88 \textit{vyddhir eci} \rightarrow \textit{devair} (8.2.66 \textit{sasajuṣḥ ruḥ} \rightarrow \textit{devaiḥ} (8.3.15 \textit{kharavasāna}yor \textit{visarjanīyaḥ})).

In his comments on 7.1.9, Patañjali tries to solve this conflict by using \textit{para tva} (the rule that comes later in the serial order of the \textit{Aṣṭādhyāyī} wins) but that gives the wrong answer: *\textit{devebhis}. He then asserts that 7.1.9 is \textit{nitya} and thus wins, giving the correct form: \textit{devaiḥ}.\(^{31}\)

His explanation for calling 7.1.9 \textit{nitya} is illogical at best, and we will not delve into it. Suffice it to say that the \textit{nitya} tool, which can only solve cases of unidirectional blocking, cannot be applied to the present case of mutual blocking. \textit{Pradīpa} and \textit{Uddyota}, the two popular commentaries on the \textit{Mahābhāṣya} suggest that the rule 7.1.9 is \textit{anavakāśa} whereas 7.3.103 is

\(^{31}\) Mbh III.244.13-21.
sāvakāśa. So, the former wins. The anavakāśa tool is simply a technical way of arguing the following:

(i) 7.1.9 does not apply anywhere else.

(ii) Surely, Pāṇini must have composed 7.1.9 because it applies somewhere.

From (i) and (ii), the tradition concludes that it has to apply here.

For this and many other examples, instead of following a systematic procedure of rule conflict resolution, the tradition adopts a trial-and-error approach to come up with a justification for the application of the rule which leads to the correct form.

(2) hari + āṄ – ‘green’ (masculine), instrumental singular

\[
\text{hari} \quad + \quad \text{āṄ}^{32}
\]

6.1.77 iko yan aci: iK (i, u, r, l) is replaced with yaN (y, v, r, l) when aC (any vowel) follows.

7.3.120 ānō nāstriyām: nā replaces the affix āṄ, when it occurs after a non-feminine base termed ghi (a base ending in i or u except sakhi).

If the i of hari is replaced with y by 6.1.77, then 7.3.120 which applies only to bases ending in i or u, will not be applicable at the following step. And if āṄ is replaced with consonant-initial nā, then 6.1.77, which could have applied to the i of hari when it is followed by a vowel, will no longer be applicable. Thus, 7.3.120 and 6.1.77 block each other.

This is a case of mutual blocking, and thus of Type 2a (DOI conflict).

By my interpretation of 1.4.2, the RHS operation 7.3.120 wins, leading to the correct form: harinā.\textsuperscript{33}

\textsuperscript{32} The instrumental singular affix taught by 4.1.2 sv-au-jas… is ṭā and not āṄ. The use of āṄ instead of ṭā “is best understood as reflecting earlier traditions” (Cardona 1997: 51).

\textsuperscript{33} n > n, by 8.4.2 ṛṭkupvāṇnumvyavāye’pi.
To the best of my knowledge, the tradition does not discuss this conflict. But I would guess that it would have used its interpretation of 1.4.2 (the rule that comes later in the serial order of the *Aṣṭādhyāyī* wins) or *niravakāśatva* to solve it.

(3) vārī + āṆ – ‘water’ (neuter), instrumental singular

For reasons I will clarify below, let us look at the three rules which are applicable at this step without resorting to a diagram:

6.1.77 *iko yan aci*: same as above.

7.1.73 *iko’cī vibhaktau* (*num napuṁsakasya*): augment *nUM* is attached to a neuter base ending in *iK* (*i, u, r̥, l̥*) when a vowel-initial declensional affix follows.

7.3.120 *āṇo nāstiryām*: same as above.

The important question to ask here is, how should we regard the interaction between 6.1.77 *iko yan aci* and 7.1.73 *iko’cī vibhaktau*? Is it a case of SOI or that of DOI?

One could argue that it is a case of DOI. Let me explain why. 6.1.77 is applicable to *i* of vārī. On the other hand, by 1.1.47 *mid aco’ntyāt paraḥ* (which teaches that an item marked with *M* is placed after i.e., to the RHS of the last vowel of the morpheme), 7.1.73 is applicable, not to *i*, but instead to the (currently empty) position that is to the right-hand side of *i*. Additionally, note that 1.1.47 uses the term *para* which is also used in the rule governing DOI (cf. 1.4.2 *vipratisedhe param kāryam*). For these reasons, one could say that the two rules are applicable to two different operands. Here is the diagrammatic representation of the same:

\[
\text{vārī} \quad + \quad \text{āṆ} \\
6.1.77 \quad 7.1.73 \quad 7.3.120
\]

On the other hand, one could argue that the interaction between 6.1.77 and 7.1.73 is a case of SOI because the whole base vārī itself is the common operand of both 6.1.77 and 7.1.73. Here is the diagrammatic representation of the same:

\[
\text{vārī} \quad + \quad \text{āṆ} \\
[\text{vārī}] \quad 6.1.77 \quad 7.1.73 \quad 7.3.120
\]
In fact, we ought to answer other similar questions before moving forward: if there is an SSRI between a rule teaching the attachment of an augment marked with ṭ (cf. 1.1.46 ādyantau taṅita) to a given item and a rule teaching the substitution of the first sound of that item, then should that interaction be treated as an SOI or as a DOI? Similarly, if there is an SSRI between a rule teaching the attachment of an augment marked with K (cf. 1.1.46 ādyantau taṅita) to a given item and a rule teaching the substitution of the last sound of that item, then should that interaction be treated as an SOI or as a DOI?

Without looking at a large number of examples of SSRI involving augments marked with M, ṭ or K, it would be difficult to decide which of the two positions is correct. In my thesis, I do not focus on augments and thus am not in a position to definitively answer the aforementioned questions. For the sake of this thesis, I have treated examples of the aforementioned kind involving M-marked augments as cases of DOI and those of the aforementioned kind involving ṭ- or K-marked augments as cases of SOI. I have done this so that the reader may get exposure to both positions – one, that these are cases of SOI and the other, that these are cases of DOI. This will help set the stage for future research on this topic.

Coming back to the present example, this is a case of DOI between the three rules.

\[
\begin{array}{ccc}
\text{vār} & i & + \\
6.1.77 & 7.1.73 & 7.3.120 \\
\end{array}
\]

Now let us look at the relationships between these rules. We have already seen in the previous example that 6.1.77 and 7.3.120 block each other.

Let us look at the DOI interaction between 6.1.77 and 7.1.73. If vārī takes the augment nUM by 7.1.73, then we get vārin which does not end in vowel i and thus, 6.1.77 will not be applicable at the following step. If i of vārī is replaced with y by 6.1.77, then we get vāry which does not end in i, thus 7.1.73 will not be applicable at the following step. Thus, 6.1.77 and 7.1.73 block each other. This is a case of mutual blocking and thus of Type 2a (DOI conflict).

Now let us look at the DOI interaction between 7.1.73 and 7.3.120. If vārī takes the augment nUM by 7.1.73, thereby becoming consonant-final vārin, then 7.3.120, which applies only to

---

34 Items marked with ṭ and items marked with K should be attached to the beginning and end respectively.
those affixes that are preceded by *ghi* bases ending in *i* or *u*, will not be applicable at the following step. And if consonant-initial *nā* replaces *Ṭā* by 7.3.120, then 7.1.73 which only applies to certain bases followed by vowel-initial affixes will not be applicable at the following step. Thus, 7.3.120 and 7.1.73 block each other. This is a case of mutual blocking, and thus of DOI conflict.

By my interpretation of 1.4.2, we apply the right-most rule 7.3.120\(^{35}\) and get the correct form: *vāriṇā*.\(^{36}\)

We have already discussed the traditional position on the conflict between 6.1.77 and 7.3.120 in the previous example. I do not think the tradition discusses the conflict between 6.1.77 and 7.1.73. We can assume that it would use its interpretation of 1.4.2 (the rule that comes later in the serial order of the *Aṣṭādhyāyī* wins) or the *apavāda* tool to solve this conflict. As for the conflict between 7.1.73 and 7.3.120, the *Bālamanoramā* commentary on the *Siddhāntakaumudī* solves it using the traditional interpretation of 1.4.2.

(4) *strī* + ām – ‘woman’ (feminine), genitive plural

\[
\begin{array}{c}
\text{strī} & + & \text{ām} \\
6.4.79 & & 7.1.54
\end{array}
\]

6.4.79 *striyāḥ* (*aci iyaṅ*): the final sound of the base *strī* is replaced with *iyAṄ* when a vowel-initial affix follows.

7.1.54 *hrasvanadāyapo nuṭ* (*āmi*): augment *nUṬ* is introduced to affix ām when it occurs after a nominal base which ends in a short vowel, or is termed *nadī* (feminine long *ī*- and *ū*-final bases), or has taken the feminine affix *ṬāP*.

If the *ī* of *strī* is replaced with *iyAṄ* by 6.4.79, thereby making it *striy*, then 7.1.54, which applies to ām when preceded by *nadī*-final vowels *ī* and *ū*, will not be applicable at the following step.

\(^{35}\) Note that this is one of the rare cases in which even if we had applied another rule, namely 7.1.73, we would still have got the correct form.

\(^{36}\) *n > n*, by 8.4.2 *atkuṇṇumvyavāye’pi*. 

54
If the augment $nUṬ$ is added to the affix $ām$ by 7.1.54, thereby making it consonant-initial $nām$, then 6.4.79, which is only applicable to the base $strī$ when it is followed by vowel-initial affixes, will not be applicable at the following step.

This is a case of mutual blocking, and thus of Type 2a (DOI conflict).

By my interpretation of 1.4.2, the RHS operation 7.1.54 wins, leading to the correct form: $strīṇām$.\(^{37}\)

The Bhaimī commentary on the Laghusiddhāntakaumudī solves the conflict between 6.4.79 and 7.1.54 using the traditional interpretation of 1.4.2 (i.e., the rule that comes later in the serial order of the Aṣṭādhyāyī wins).

(5) $vāri + ām$ – ‘water’ (neuter), genitive plural

\[vāri + ām\]

7.1.73 $iko'ci$ vibhaktau ($num$ napuṁsakasya): augment $nUM$ is attached to a neuter base ending in $iK$ ($i$, $u$, $r$, $l$) when a vowel-initial declensional affix follows.

7.1.54 $hrasvanadyāpo$ $nuṭ$ ($āmi$): same as above.

If the augment $nUM$ is attached to $vāri$ by 7.1.73, thereby making it consonant-final $vārin$ (1.1.47 mid aco’ntyāt parah), then 7.1.54, which only applies to $ām$ when it is preceded by certain vowel-final bases, will not be applicable at the following step.

On the other hand, if the augment $nUṬ$ is attached to the affix $ām$ by 7.1.54, thereby making it consonant-initial $nām$, then 7.1.73, which is only applicable to certain bases that are followed by vowel-initial affixes, will not be applicable at the following step.

Both 7.1.54 and 7.1.73 block each other. This is a case of mutual blocking, and thus of Type 2a (DOI conflict).

---

\(^{37}\) $n > n$, by 8.4.2 $aṭkupvānmvyavāye’pi$. 

55
By my interpretation of 1.4.2, the RHS operation 7.1.54 wins, leading to the correct form: vārīṇām\textsuperscript{38} (6.4.3 nāmi, 8.4.2 atkupvāṁnumvyavāye’pi).

The tradition resorts to Kātyāyana’s vārttika ‘numaciraṭrjavadbhāvebhyo nųṭ pūrvavipratiṣiddham’ (vt. 11\textsuperscript{39} on 7.1.96 striyāṁ ca) to solve this conflict. This vārttika teaches that even though the rule teaching the attachment of the augment nUṬ (7.1.54) comes before the rule teaching the attachment of the augment of nUM (7.1.73) in the serial order of the Aṣṭādhyāyī, the former wins. In this and other pūrvavipratiṣiddha vārttikas, Kātyāyana simply lists those conflicts which cannot be correctly solved using the traditional interpretation of 1.4.2.

(6) kroṣṭu + ām – ‘jackal’ (masculine), genitive plural

\[
\begin{array}{c|c|c|c}
\text{kroṣṭu} & \text{+ ām} & \\
\hline
7.1.97 & 7.1.54 & \\
\end{array}
\]

7.1.97 vibhāṣā trīyādiṣv aci (trjvat kroṣṭuḥ): ‘the base kroṣṭu, is treated as if ending in affix tṛC optionally, when a vowel-initial ending of the trīyā triplet (instrumental) or any of the following triplets (namely dative, ablative, genitive or locative) follows.\textsuperscript{40}

7.1.54 hrasvanadyāpo nuṭ (āmī): same as above.

If the u of kroṣṭu becomes r by 7.1.97, then 7.1.54, which applies to ām when it is preceded by any of the short vowels, will be applicable to ām at the following step. But if the augment nUṬ is added to ām by 7.1.54, thereby making it (consonant-initial) nām, then 7.1.97, which applies to kroṣṭu only when it is followed by a vowel-initial trīyādi affix, will not be applicable at the following step.

\textsuperscript{38} Note that both augments i.e., nUM and nUṬ essentially refer to the same sound n. However, if we applied the rule prescribing nUM, we would get vārin + ām (1.1.47 mid aco’ntyāt paraḥ). In such a situation, we would not be able to elongate the ā of vārin because 6.4.3 nām would not apply here.

\textsuperscript{39} Mbh III.276.6.

\textsuperscript{40} Note that this is not actually an operational rule, but an atideśa sūtra ‘extension rule’. For the sake of studying conflict, we may treat it as an operational rule which teaches that the u of kroṣṭu changes to r.
7.1.54 blocks 7.1.97, but 7.1.97 does not block 7.1.54. This is a case of unidirectional blocking, and thus of DOI conflict.

By my interpretation of 1.4.2, the RHS operation 7.1.54 wins, leading to the correct form: *kroṣṭūnām* (6.4.3 *nāmi*).

Since this is a case of unidirectional blocking, the tradition could have used the *nitya* tool to solve this conflict. However, it does not do so.41 Instead, Kātyāyana has written the *vārttika* ‘numaciratrjvadbhāvebhyo nut pūrvavipratiṣiddham’ (vt. 1142 on 7.1.96 striyām ca) to solve it. This *vārttika* teaches that even though the rule teaching the attachment of the augment *nUṬ* (7.1.54) comes before the rule teaching *tṛjvadbhāva* (7.1.97) in the serial order of the *Aṣṭādhyāyī*, the former wins.

(7) *kartṛ* + *sU* – ‘doer’ (neuter), nominative singular

\[
\begin{array}{c}
\text{kartṛ} \\
7.1.94 \\
\end{array}
\quad + \quad
\begin{array}{c}
\text{sU} \\
7.1.23 \\
\end{array}
\]

7.1.94 *rduśanaspurudaṁso'nehasāṁ ca* (asambuddhau anai sau): the final sound of a base ending in *rṬ* or of the bases *uśanas*, *purudaṁsa*, and *anehas* is substituted with *anA ṇ* when followed by non-vocative *sU*.

7.1.23 *svamor napuṁsakāt* (*luk*): affixes *sU* and *am* occurring after a neuter base are substituted with *LUK*.

If we apply 7.1.23, then 7.1.94, which applies only when followed by *sU*, will not be applicable at the following step. If we apply 7.1.94, then 7.1.23, which applies to any neuter base regardless of its final sound, will be applicable at the following step.

This is a case of unidirectional blocking, and thus of Type 2a (DOI conflict).

By my interpretation of 1.4.2, the RHS operation 7.1.23 wins, thereby giving the correct form: *kartṛ*.

---

41 This is discussed in *Pradīpa* on vt. 11, 7.1.96.

42 Mbh III.276.6.
To the best of my knowledge, the tradition does not discuss this conflict. However, I think it would use the *nitya* tool (the rule that unidirectionally blocks the other wins) to solve it.

(8) *tad + sU* – ‘that’ (neuter), nominative singular

\[
\begin{array}{c}
tad \\
7.2.102 \\
7.1.23
\end{array}
\]

7.2.102 *tyadādīnām aḥ (vibhaktau)*: the final sound of a base belonging to the group headed by *tyad* ‘that’ is replaced with *a* when a declensional affix follows.

7.1.23 *svamor napuṁsakāt (luk)*: same as above.

What kind of interaction occurs between the two rules? The tradition seems to be confused about this. So, let us start by looking at my solution.

This is a case of DOI. By my interpretation of 1.4.2, the RHS rule 7.1.23 wins, giving us the correct answer: *tad*.\(^{43}\)

In his commentary\(^{44}\) on 7.1.23, Patañjali first tries to use the traditional interpretation of 1.4.2 (the rule that comes later in the serial order of the *Aṣṭādhyāyī* wins) to determine which of the two rules he must apply. But he gets the wrong answer upon doing so. Then, he tries to use the *nitya* tool.

If we apply 7.1.23 at this step, 7.2.102 will not be applicable at the following step. On the other hand, if we apply 7.2.102 at this step, 7.1.23 will still be applicable at the following step. Thus, this is a case of unidirectional blocking, and of Type 2a (DOI conflict). Therefore, the *nitya* tool can be used here.

However, Patañjali then says that 7.1.23 is not *nitya* with respect to 7.2.102. This is because, after the hypothetical application of 7.2.102, 7.1.23 is not the only rule that will be applicable. 7.1.24 *ato ’m*\(^{45}\) will also be applicable. Since 7.1.24 is an *apavāda* of 7.1.23, the former will win. So 7.1.23 will, despite being applicable, fail to apply, following the application of 7.2.102.

\(^{43}\) Note that 7.2.102 is not applicable at this point, thanks to 1.1.63 *na lumatāṅgasya*.

\(^{44}\) Mbh III.248.23-249.2.

\(^{45}\) Affixes *sU* and *am* occurring after a neuter base ending in *a* are replaced with *am*.
For this reason, Patañjali says that 7.1.23 cannot be called nitya with respect to 7.2.102. To deal with this problem, Patañjali suggests some changes in the wording of 7.1.23 svamor napuṇśakāt. We will not dwell on his argument, because it is beyond our scope.

Contrary to Patañjali’s conclusion that 7.1.23 cannot be called nitya, according to paribhāṣā 47 of the Paribhāṣenduśekhara, 7.1.23 is nitya and thus should win. It reads: yasya ca lakṣaṇaṁtareṇa nimitam vihanyate na tad anityam. Kielhorn translates it as follows: ‘(an operation [here 7.1.23]), the cause of which would, (after the taking effect of another operation [here, 7.2.102] that applies simultaneously), be removed by another (third) rule [here, 7.1.24], is not (on that account regarded as) anitya.’

(9) vāri + Ŋe – ‘water’ (neuter), dative singular

\[\text{vāri} \quad i \quad + \quad \text{Ŋe}\]

7.3.111 gher iti (guṇaḥ supi): the final vowel of a ghi base (a base ending in i or u, except sakhi) is replaced with guṇa (here, e / o) when followed by a declensional affix marked with Ŋ.

7.1.73 iko’ci vibhaktau (num napuṇśakasya): augment nUM is attached to a neuter base which ends in iK (i, u, r̥, l̥), provided a vowel-initial declensional affix follows.

This is a case of DOI. If we apply 7.3.111 at this step, then 7.1.73 will not be applicable at the following step. If we apply 7.1.73 at this step, then 7.3.111 will not be applicable at the following step. This is a case of mutual blocking and thus of Type 2a (DOI conflict).

By my interpretation of 1.4.2, we apply the RHS rule 7.1.73 and get the correct form: vārine.

The tradition uses the vārttika, gunavrddhyauttvatṛjvadbhāvebhyo num pūrvavipratiśiddham (vt. 10\textsuperscript{46} on 7.1.96 striyāṁ ca) to solve this conflict. This vārttika teaches that even though the rule teaching the attachment of the augment nUM (7.1.73) comes before the rule teaching guṇa (7.3.111) in the serial order of the Aṣṭādhyāyī, the former wins.

\[\text{\textsuperscript{46} Mbh III.275.23.}\]
Having looked at examples of DOI conflict (Type 2a), now let us look at examples of DOI non-conflict (Type 2b).

(10) rājan + sU – ‘king’ (masculine), nominative singular

6.4.8 sarvanāmasthāne cāsambuddhau (nopadhāyāh dīrghah): the penultimate sound of a base ending in \( n \) is replaced with its dīrgha ‘long’ equivalent when a non-vocative sarvanāmasthāna affix (\( sU, au, Jas, am, auT \) in non-neuter forms or \( Śi \)) follows.

6.1.68 halṅyābbhyo dīrghāt sutisyapr̥ktaṁ hal (lōpah): there is elision by LOPA of the finite verb affixes \( ti \) and \( si \), when they consist of a single sound and follow a form which ends in a consonant, and of the nominative singular case affix \( sU \), when it follows a form which ends in a consonant or the long final vowel of feminine affixes \( ṇī \) or \( āP \).

If 6.4.8 applies at step K, we get rājān, which still ends in a consonant. So 6.1.68 will be applicable at the step K+1. If \( sU \) is replaced with LOPA by 6.1.68 at step K, the properties of the affix \( sU \) still hold (cf. 1.1.62 pratyayalope pratyayalakṣaṇam), so 6.4.8 will be applicable at step K+1.

We see that 6.4.8 and 6.1.68 do not block each other. This is a case of Type 2b (DOI non-conflict).

By my interpretation of 1.4.2, the RHS rule 6.1.68 wins and we get rājan. Now thanks to 1.1.62 pratyayalope pratyayalakṣaṇam, we apply 6.4.8 and get rājān. At this juncture, we apply 8.2.7 nalopaḥ prātipadikāntasya\(^47\), which teaches that \( n \) is replaced with LOPA at the end of a nominal stem which is termed pada, and get the correct form: rājā.

Note that even if we had applied 6.4.8 (the LHS rule) at the first step, we could have still applied 6.1.68 at the following step. And applying these two rules in this order too would have given us the correct form.

\(^{47}\) 8.2.7 is asiddha with respect to 6.4.8 and 6.1.68 so it cannot be applied before them.
Why then did Pāṇini need to say anything about DOI non-conflict at all? Why did he prescribe that the RHS be applied in such cases (cf. my interpretation of 1.4.2)? We will answer this question while discussing the following examples.

The tradition is not interested in such cases of non-conflict.

(11) \( tri + ām \) – ‘three’ (feminine), genitive plural

\[
\begin{align*}
\text{tri} & \quad + \quad ām \\
7.2.99 & \quad & 7.1.54
\end{align*}
\]

7.2.99 \textit{tricaturoḥ striyāṁ tisṛcatasṛ}: \textit{tri} and \textit{catur} are replaced with \textit{tisṛ} and \textit{catasṛ} respectively in the feminine.

7.1.54 \textit{hrasvanadyāpo nuṭ} (āmi): augment \textit{nUṬ} is introduced to affix \textit{ām}\(^{48}\) when it occurs after a nominal base which ends in a short vowel, or is termed \textit{nadī} (feminine bases ending with \( i \) and \( ū \)), or has taken the feminine affix \( ṬāP \).

If we replace \textit{tri} with \textit{tisṛ} at this step, 7.1.54 will still be applicable at the following step because \textit{tisṛ} ends in a short vowel. And if we apply 7.1.54 at this step, 7.2.99 will still be applicable at the following step, because its application does not depend on the affix.

Neither of the two rules blocks the other, and so this is a case of Type 2b (DOI non-conflict). By my interpretation of 1.4.2, we apply the RHS rule 7.1.54 and get \( tri + nām \). Thereafter, we apply 7.2.99 \textit{tricaturoḥ striyāṁ tisṛcatasṛ} and get the correct form: \( tisṛṇām \).

In order to understand why Pāṇini has prescribed that we pick the RHS rule in cases of DOI non-conflict, let us perform this derivation again, this time by picking the LHS rule in case of DOI non-conflict.

\(^{48}\) The augment \textit{nUṬ} is added at the beginning of \textit{ām} by 1.1.46 ādyantau ṭakitau.

\(^{49}\) The \( r \) of \textit{tisṛ} does not undergo elongation by 6.4.3 \textit{nāmi} because this is prohibited by the following rule 6.4.4 \textit{na tisṛcatasṛ}. The \textit{n} of \textit{nām} becomes \( n \) in \textit{tisṛnām}. There is no rule in the \textit{Āṣṭādhyāyī} which explicitly teaches this. However, there is a \texttt{vārttika} on 8.4.1 \textit{raṣāḥhyāṁ no ṇaḥ samānapade} which correctly teaches this operation: \textit{raṣāḥhyāṁ nātvam ṣkāragraḥaṇam} ‘it should be added that [not only] after \( r \) and \( s \), [but after] \( r \) [too], \( n \) is replaced with \( n \).’ (Mbh III.452.1-6).
This is a Type 2b (DOI non-conflict). As stated above, as an experiment, we are going to apply the LHS rule 7.2.99 in this case (of DOI non-conflict). Upon applying 7.2.99, we get \( t\acute{\text{i}} \bar{n} + \bar{\text{a}} \text{m} \).

Here, two rules are applicable:

\[
\begin{array}{c}
\text{tri} \\
\text{7.2.99}
\end{array} + \\
\begin{array}{c}
\text{ām} \\
\text{7.1.54}
\end{array}
\]

7.2.99 \textit{tricaturoh striyāṁ tisṛcatasṛ}: same as above.

7.1.54 \textit{hrasvanadyāpo nuṭ (āmi)}: same as above.

7.2.100 \textit{aci ra ṛṭah (vibhaktau tricaturoh tisṛcatasṛ): a} \( r \) \text{ replaces} \( r \) \text{ of the bases} \( tisṛ \) \text{ and} \( catasṛ \), when a vowel-initial declensional affix follows.

7.1.54 \textit{hrasvanadyāpo nuṭ (āmi)}: same as above.

If \( r \) is replaced with consonant \( r \) by 7.2.100, then 7.1.54, which applies to \( ām \) when it is preceded by certain vowel-final bases will not be applicable at the following step. And if \( ām \) takes augment \( nUṬ \) by 7.1.54, thereby becoming consonant-initial \( nām \), then 7.2.100 which applies to \( r \) when a vowel-initial affix follows will not be applicable at the following step.

Thus, 7.2.100 and 7.1.54 block each other. This is a case of mutual blocking, and thus of Type 2a (DOI conflict).

By my interpretation of 1.4.2, the RHS operation 7.1.54 wins, leading to the correct form: \( tisṛṇām \).

We have seen that, regardless of whether we pick the LHS or the RHS rule in case of Type 2b (DOI non-conflict) here, we get the same answer: \( tisṛṇām \). However, the two derivational paths look different from each other. The first path, in which we pick the RHS rule at the first step (as taught by Pāṇini in [my interpretation of] 1.4.2), is significantly shorter than the second path, in which we pick the LHS rule at the first step. In other derivations too, I have noticed that the derivation looks relatively shorter when we pick the RHS rule in case of type 2b (DOI non-conflict) and relatively longer when we pick the LHS rule.
But is it merely to keep derivations compact that Pāṇini has prescribed the choice of the RHS rule in cases of DOI non-conflict? No. In the next example, we will see that we cannot get the correct answer without picking the RHS rule in case of DOI non-conflict.

How does the tradition perform this derivation? Vārttikas 11 to 14\(^{50}\) on 7.1.96 striyām ca, and Patañjali’s comments on them, deal with this topic in detail and propose various tools like pūrvavipratiṣiddha and apavāda to solve this problem. We will not delve into this topic here.

(12) idam + Ńe – ‘this’ (masculine), dative singular

All cases of DOI in this derivation are of Type 2b (DOI non-conflict). I will not prove this at each step.

\[
\begin{array}{ccc}
\text{id} & \text{a} & \text{m} & + & \text{Ńe} \\
7.2.112 & 7.2.102 \\
\end{array}
\]

7.2.112 an āpy akaḥ (vibhaktau idamaḥ idaḥ): the id of idam is substituted with an, when it does not include a k, and when a declensional affix belonging to āP, i.e., any instrumental, dative, ablative, genitive or locative affix, follows.

7.2.102 tyadādīnām aḥ (vibhaktau): the final sound of a base belonging to the group headed by tyad ‘that’ is replaced with a when a declensional affix follows.

By my interpretation of 1.4.2, the RHS rule 7.2.102 wins, and we get: ida-a + Ńe. Here, multiple rules are applicable:

\[
\begin{array}{ccc}
\text{id} & [\text{a-a}] & + & \text{Ńe} \\
7.2.112 & 6.1.97 & 7.1.14 \\
\end{array}
\]

7.2.112 an āpy akaḥ (vibhaktau idamaḥ idaḥ): same as above.

6.1.97 ato guṇe: when a short a, which is not pada-final (word-final) is followed by a guṇa vowel i.e., a, e, or o, then both a and the following guṇa are replaced with the latter.

\(^{50}\) Mbh III.276.6-22.
7.1.14 sarvanāṁnāḥ smai (i.e., yaḥ atāḥ): the affix Ňe, when occurring after a pronominal base ending in a, is replaced with smai.

By my interpretation of 1.4.2, we apply the right-most rule 7.1.14, and get ida-a + smai. Here, multiple rules are applicable:

```
  id                         [ a-a ] + smai
    7.2.112  7.2.113  6.1.97
```

7.2.112 an āpy akaḥ (vibhaktau idamaḥ idaḥ): the id of idam is substituted with an, when it does not include a k, and when a declensional affix belonging to āP, i.e., any instrumental, dative, ablative, genitive or locative affix, follows.

7.2.113 hali lopaḥ (vibhaktau idamaḥ idaḥ akaḥ): the id of idam is replaced with LOPA, when it does not include a k, and when a consonant-initial declensional affix belonging to āP, i.e., any instrumental, dative, ablative, genitive or locative affix, follows.

6.1.97 ato guṇe: same as above.

By my interpretation of 1.4.2, we apply the RHS rule 6.1.97 and get ida + smai. Here multiple rules are applicable:

```
  id a + smai
    7.2.112  7.2.113
```

We see that there is a case of SOI between 7.2.112 and 7.2.113. Because 7.2.113 applies only when the base is followed by a consonant initial affix, it is more specific than, and defeats 7.2.112. Thus, we get the correct form: asmai.

At the very first step of this derivation, where we see the two rules 7.2.112 and 7.2.102 involved in DOI non-conflict, if we had chosen to apply the LHS rule 7.2.112 instead of the RHS rule 7.2.102, we would have got the wrong form at the end of the derivation: *anasmāi. The same can be said about the second step too: picking 7.2.112 at the second step instead of 7.1.14 too would have given us the wrong form: *anasmāi.

This shows that, even though whether we choose the LHS rule or the RHS rule may not matter in certain cases of DOI non-conflict (see examples 10 and 11 above), in cases of DOI non-conflict like this one, choosing the RHS rule alone gives the correct answer.
Finally, let us look at an example which involves cases of both DOI conflict and DOI non-conflict.

(13) \( \text{asmad} + sU \) – ‘I’ (any gender), nominative singular

\[
\begin{array}{c}
\text{asma} \\
7.2.94
\end{array}
\begin{array}{c}
d \\
7.2.86
\end{array}
\begin{array}{c}
+ \\
7.1.28
\end{array}
\begin{array}{c}
sU
\end{array}
\]

7.2.94 tvāhau sau (\( \text{yuṣmadasmador maparyantasya vibhaktau} \)): the parts of \( \text{yuṣmad} \) and \( \text{asmad} \) extending up to \( \text{ma}^{51} \) are replaced with \( \text{tva} \) and \( \text{aha} \) respectively when followed by the case affix \( sU \).

7.2.86 \( \text{yuṣmadasmador anādeše (vibhaktau āḥ)} \): the final sounds of \( \text{yuṣmad} \) and \( \text{asmad} \) are replaced with \( ā \) when followed by consonant-initial case affixes which have not undergone any substitution.

7.1.28 \( \text{ṅepra} \text{thamayor am (yuṣmadasmadbhyāṁ vibhaktau)} \): \( \text{ṅe} \), and nominative, accusative affixes are replaced with \( \text{am} \) when preceded by \( \text{yuṣmad} \) and \( \text{asmad} \).

Let us determine the relationship between 7.2.94 and the two other rules.

If we apply 7.2.94 at this step, 7.2.86 will be applicable at the following step. Similarly, if we apply 7.2.86 at this step, 7.2.94 will be applicable at the following step. There is a Type 2b (DOI non-blocking) relationship between 7.2.94 and 7.2.86.

Similarly, if we apply 7.2.94 at this step, 7.1.28 will be applicable at the following step. If we apply 7.1.28 at this step, 7.2.94 will be applicable at the following step.\(^{52} \) There is a Type 2b (DOI non-blocking) relationship between 7.2.94 and 7.1.28.

---

\(^{51} \) The tradition translates \( \text{maparyantasya} \) as ‘up to \( m \)’ but I think that Pāṇini means ‘up to \( \text{ma} \)’. Both interpretations lead to correct answers for all forms of \( \text{yuṣmad-asmad} \). My interpretation makes derivations simpler and shorter.

\(^{52} \) Given that \( sU \) has been replaced with \( \text{am} \), how will 7.2.94 apply at the following step? This is because, by 1.1.56 \( \text{sthānivāda} \text{deśo 'nalvidhau, am is treated like sU. How do we know this is not an aL-vidhi? asma and am are not adjacent to each other (d sits in the middle of the two), and so this is not an aL operation.}
Thus 7.2.94 has a Type 2b (DOI non-conflict) with the other two rules.

Now let us determine the relationship between 7.2.86 and 7.1.28. If we apply 7.2.86 at this step, 7.1.28 will still be applicable at the following step. However, if we apply 7.1.28 at this step, then the affix \( sU \) will undergo \( ādeśa \) ‘substitution’ with \( am \). 7.2.86 can only apply to \( asmad \) when followed by a non-substituted, consonant-initial affix. Thus, 7.2.86 will not be applicable at the following step. This is a case of unidirectional blocking, and thus of Type 2a (DOI conflict).

By my interpretation of 1.4.2, we apply the right-most rule 7.1.28 and get: \( asmad + am \). Here again, two rules are applicable:

\[
\begin{align*}
\text{asma} & \quad \text{d} & \quad + & \quad \text{am} \\
7.2.94 & & & 7.2.90
\end{align*}
\]

7.2.90 \( sēṣe \) \( lopaḥ \): the final sounds of \( yuṣmad \) and \( asmad \) are replaced with LOPA when followed by case affixes not listed in the preceding rules (7.2.86-89).\(^{53}\)

If we apply 7.2.94 at this step, 7.2.90 will still be applicable at the following step. If we apply 7.2.90 at this step, 7.2.94 will be applicable at the following step. This is a case of no blocking, and thus of Type 2b (DOI non-conflict). By my interpretation of 1.4.2, we apply the RHS rule 7.2.90 and get \( asma + am \). Lastly, we apply 7.2.94 and get \( aha + am \), to which we apply 6.1.97 \( ato \) \( guṇe \).\(^{54}\) This gives the correct form: \( aham \).

As stated in a footnote on 7.2.94, the traditional interpretation of 7.2.94 is different from mine. Thus, its derivational process is different and slightly longer. We will not delve into it here. I will simply say that the tradition would have resolved the DOI conflict in this example using the \( nitya \) tool.

---

\(^{53}\) Note that, here, the affix \( sU \) has undergone \( ādeśa \) ‘substitution’ with \( am \). So, 7.2.86, which can only apply to \( asmad \) when followed by a non-substituted and consonant initial affix, and which was applicable in the previous step, is no longer applicable at this step. Instead of that rule, 7.2.90 has become applicable.

\(^{54}\) An \( a \) which is not at the end of a \( pada \) and the \( guṇa \) vowel following it are both replaced with the latter.
This brings us to the end of examples of DOI in this chapter. We will, of course, study more examples of DOI conflict in later chapters. Before we go to the next section, here I want to emphasize that I have discussed blocking and conflict in these derivations only because post-Pāṇinian scholarship is interested in these topics. In other words, I have attempted to show that examples of conflict can be solved by my interpretation of 1.4.2.

Note that, if we had simply avoided talking about blocking and conflict, we would have completed these derivations almost effortlessly, by simply picking the right-most rule (cf. my interpretation of 1.4.2) in every case of DOI, irrespective of whether or not the rules in question are involved in any kind of conflict.

2.8 Examples of SOI

Having discussed examples of DOI, I will now show, through the following examples, that my solution (i.e., the more specific rule wins) helps deal with cases of SOI. Note that we find very few examples of RE 5 (SOI non-conflict) in Pāṇinian derivations. These cases are neither particularly challenging nor of interest to the tradition. Thus, I will only discuss cases of conflict here. To avoid redundancy, I will refrain from reiterating or proving the existence of conflict in these examples. I will also develop a systematic procedure to identify which rule is more specific. At the end of each example, I will mention the traditional solution.

```
Type 1 (SOI)
  unidirectional blocking (RE 1)  mutual blocking (RE 2)  no blocking (RE 5)
      SOI conflict                SOI non-conflict

My solution: the rule which is more specific (i.e., the exception rule) wins
```
(1) rāma + bhyas – ‘Rāma’ (masculine), dative plural

7.3.102 supi ca (ato dīrgho yañi): the a at the end of a nominal base is replaced with its long equivalent when followed by a declensional affix starting with yañ (i.e., \(y, v, r, jh, bh\) or any nasal).

7.3.103 bahuvacane jhaly et (ataḥ supi): the a at the end of a nominal base is replaced with \(e\) when followed by a plural declensional affix starting with \(jhaL\) (any non-nasal stop or fricative).

Note that the sets of operands of both rules are exactly the same, namely the final a of a nominal stem.

However, the sets of contexts of the two rules are different. Neither set is a subset of the other. Instead, the two sets intersect each other.
So how do we decide which rule is ‘more specific?’ Let us develop a procedure that we can use to deal with all examples of SOI.

Each Pāñinian rule actually represents a collection of one or more sub-rules. For example, consider 7.3.102 which teaches that

\[ a^\& + ya^! \rightarrow \bar{a}^\& + ya^! \]

[\& = end of nominal stem; ! = beginning of case affix]

7.3.102 represents the following collection of sub-rules:

1. \[ a^\& + y^! \rightarrow \bar{a}^\& + y^! \]
2. \[ a^\& + v^! \rightarrow \bar{a}^\& + v^! \]
3. \[ a^\& + r^! \rightarrow \bar{a}^\& + r^! \]
4. \[ a^\& + l^! \rightarrow \bar{a}^\& + l^! \]
5. \[ a^\& + \tilde{n}^! \rightarrow \bar{a}^\& + \tilde{n}^! \]
6. \[ a^\& + m^! \rightarrow \bar{a}^\& + m^! \]
7. \[ a^\& + \tilde{n}^! \rightarrow \bar{a}^\& + \tilde{n}^! \]
8. \[ a^\& + n^! \rightarrow \bar{a}^\& + n^! \]
9. \( a^{\&} + n^i \rightarrow \overline{a^{\&}} + n^i \)
10. \( a^{\&} + jh^i \rightarrow \overline{a^{\&}} + jh^i \)
11. \( a^{\&} + bh^i \rightarrow \overline{a^{\&}} + bh^i \)

Pāṇini teaches these 11 sub-rules together in the form of the rule 7.3.102, using his pratyāhāra system, purely for the sake of brevity. Similarly, let us deconstruct 7.3.103 which teaches:

\( a^{\&} + jhL^i \# \rightarrow e^{\&} + jhL^i \# \)

[& = end of nominal stem; ! = beginning of case affix; # = plural]

7.3.103 can be represented by the following collection of sub-rules:

1. \( a^{\&} + jh^i \# \rightarrow e^{\&} + jh^i \# \)
2. \( a^{\&} + bh^i \# \rightarrow e^{\&} + bh^i \# \)
3. \( a^{\&} + gh^i \# \rightarrow e^{\&} + gh^i \# \)
4. \( a^{\&} + dh^i \# \rightarrow e^{\&} + dh^i \# \)
5. \( a^{\&} + dh^i \# \rightarrow e^{\&} + dh^i \# \)

…and so on.

Note that two sub-rules from the collection represented by 7.3.102 namely 11 and 12, which I have underlined, look similar to their respective underlined counterparts in the collection represented by 7.3.103. The actual SOI takes place between these two pairs of sub-rules. In fact, when I say that the more specific rule prevails in case of SOI, I mean, the more specific ‘subrule’ prevails.

The other (non-underlined) subrules just happen to be represented by 7.3.102 and 7.3.103 respectively and are actually completely irrelevant to the SOI at hand.

We know that \( jh \) is not present at the beginning of any case affix, so we will focus on the sub-rules which apply to the final \( a \) of nominal stems when they are followed by \( bh \)-initial case affixes.

<table>
<thead>
<tr>
<th>Relevant subrule of 7.3.102</th>
<th>Relevant subrule of 7.3.103</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. ( a^{&amp;} + bh^i \rightarrow \overline{a^{&amp;}} + bh^i )</td>
<td>2. ( a^{&amp;} + bh^i # \rightarrow e^{&amp;} + bh^i # )</td>
</tr>
</tbody>
</table>
Note that we find an extra # symbol in case of sub-rule 2 under 7.3.103. This # stands for plural. Therefore, we conclude that subrule 2 under 7.3.103 is more specific than sub-rule 11 under 7.3.102 and thus wins. Henceforth, I shall take the liberty to rephrase this as ‘7.3.103 is more specific than 7.3.102 and thus wins’.

I will discuss this detailed procedure for the next example too. But after that, to avoid redundancy, I will present this procedure in an abbreviated form for all examples of SOI in this thesis. I will now present the abbreviated form of the procedure discussed above for the present example.

Let us consider the conditions in which each of the two rules 7.3.102 and 7.3.103 apply. Note that here I draw a distinction between a rule and a condition: a rule can apply in multiple conditions. This clarification is important insofar as the exact conditions in which a rule applies can vary, as I will show below.

7.3.102 applies to:

**base ending in a + declensional affix starting with bh**

base ending in a + declensional affix starting with any other sound of yaÑ

7.3.103 applies to:

**base ending in a + declensional affix starting with bh (plural)**

base ending in a + declensional affix starting with any other sound of jhaL (plural)

Notice that I write sounds, for example, a, bh, yaÑ, jhaL etc., outside of brackets and all their characteristics such as being a plural affix, being a neuter base etc. inside brackets. I treat sounds and their characteristics as two distinct sources of information. Broadly speaking, I will follow this convention for all examples of SOI discussed throughout this thesis.

In every case of SOI, only one condition per rule is relevant to the conflict. I mark the relevant conditions by writing them in bold fonts, as can be seen above. I will do the same for the rest of the examples. We compare the two and determine which one is more specific.

Here the rule including the condition ‘in the plural’ (bahuvacane) is more specific than the other rule, which has no restriction based on number. So, the rule teaching the operation reserved for the plural, that is rule 7.3.103, wins, leading to the correct form: rāmebhyaḥ.
The Mahābhāṣya\textsuperscript{55} on 7.3.103 and the Kāšikā on 1.4.2 state that both 7.3.102 and 7.3.103 are sāvakāśa: 7.3.102 applies in derivations of forms like vṛksābhyām and plakṣābhyām, and 7.3.103 applies in derivations of forms like vṛksēṣu and plakṣēṣu. As stated before, Kātyāyana teaches that vipratiṣedha takes place between two sāvakāśa rules. Thus, by the traditional interpretation of 1.4.2 vipratiṣedhe param kāryam, the rule which comes later in the serial order of the Aṣṭādhyāyī, namely 7.3.103, wins.

(2) Now let us consider the sandhi between the two words of the compound rāmaudārya ‘Rāma’s generosity’. We will not look at how this compound is formed, confining ourselves to the relevant step of the derivation:

\[
\text{rām}[a + au]dārya
\]

6.1.87 ād guṇaḥ (aci): guṇa (a, e, o) replaces both a and the vowel immediately following it.

6.1.88 vṛddhir eci (āt): vṛddhi (ā, ai, au) replaces both a and the eC vowel (e, o, ai, au) immediately following it.\textsuperscript{56}

6.1.87 which teaches that

\[a + aC \rightarrow a / e / o\]

can be rewritten as the following collection of sub-rules:

\[a + a \rightarrow a\]
\[a + i \rightarrow e\]
\[a + u \rightarrow o\]
\[a + r \rightarrow a\]

\textsuperscript{55} Mbh III.340.1-5.

\textsuperscript{56} Note that both 6.1.87 and 6.1.88 belong to the ekādeśa-adhikāra i.e., the section headed by the sūtra 6.1.84 ekaḥ pūrvaparayoh which teaches that both the LHS and the RHS item are replaced with a single substitute.
\[ a + l \rightarrow a \]
\[ a + e \rightarrow e \]
\[ a + o \rightarrow o \]
\[ a + ai \rightarrow e \]
\[ a + au \rightarrow o \]

6.1.88 which teaches that
\[ a + eC \rightarrow \ddot{a} / ai / au \]

can be rewritten as the following collection of sub-rules:
\[ a + e \rightarrow ai \]
\[ a + o \rightarrow au \]
\[ a + ai \rightarrow ai \]
\[ a + au \rightarrow au \]

Note that the four underlined subrules under 6.1.87 correspond with the four underlined subrules under 6.1.88 respectively. However, both groups of underlined sub-rules are applicable in exactly the same four conditions, namely \( a + e \), \( a + o \), \( a + ai \) and \( a + au \), respectively. In such a case how can we decide which one is more specific? Since we cannot use sub-rules alone to make this decision, we need to look at the rules themselves. Even though 6.1.87 already deals with these four conditions, among other conditions, Pāṇini composed 6.1.88 exclusively to deal with these four conditions. This tells that Pāṇini wants us to apply 6.1.88, and not 6.1.87 in this example.

In the remaining examples I will present only abbreviated versions of this procedure, as follows:

6.1.87:
\[ a + e/ai/o/au \]
\[ a + any other vowel \]

6.1.88:
\[ a + e/o/ai/au \]
Unlike example 1, where one condition was slightly different from the other (by virtue of being marked with the grammatical restriction ‘plural’), in this example, both conditions highlighted in bold are exactly the same i.e., $a + e/ai/o/au$. In such a case, we go a step further and compare the two rules themselves. 6.1.88 applies only to $a + e/ai/o/au$ whereas 6.1.87 also applies to $a +$ any other vowel. Thus 6.1.88 is more specific and wins the SOI, giving us the correct form: rāmaudārya.

On 6.1.88, the Kāśikā says that 6.1.88 is an apavāda of, and thus wins against, 6.1.87. Even though the tradition does not explicitly define apavāda, I think that the tradition uses the apavāda tool in cases of SOI, when, for example, the conditions in which one rule, here 6.1.88, applies (cf. $a + e/ai/o/au$), clearly constitute a subset of the conditions in which the other rule, here 6.1.87, applies (cf. $a +$ any vowel). In many such cases, the apavāda rule is taught in the close vicinity of, and often immediately after, the utsarga rule, in the serial order of the Aṣṭādhyaśī. For example, the apavāda sūtra 6.1.88 is taught right after the utsarga sūtra 6.1.87.

(3) Let us look at the sandhi between two padas, i.e., words, tava ‘your’ and ānandam ‘happiness’. This example is similar to example 2. Two rules are simultaneously applicable to $a + ā$:

\[
\text{tav}[a + ā]nandam
\]

6.1.87 ād guṇah (acī): guṇa (a, e, o) replaces both a and the vowel immediately following it.

6.1.101 acaḥ savarne dīrghah: a long vowel replaces both aK (a, i, u, r̥, l̥) and the immediately following savarṇa ‘homogeneous’ vowel.

6.1.101:

\[a + \text{savarṇa}\]

\[i / u / r̥ / l + \text{savarṇa}\]

6.1.87:

\[a + \text{savarṇa}\]

\[a + \text{any other vowel}\]
Here too, like in example 2, the conditions highlighted in bold are exactly the same. So, we have to compare the two rules themselves.

However, here, this too seems difficult. Thus, we have to eliminate those conditions which are completely irrelevant to the SOI at hand, namely ‘i / u / r̥ / l̥ + savarna’. It is likely that Pāṇini combined this condition with ‘a + savarna’ purely for the sake of brevity. So, we omit it from the comparison.

6.1.101 applies only to cases of ‘a + savarna’ whereas 6.1.87 applies to ‘a + any other vowel’ as well. Thus, we conclude that 6.1.101 is more specific and wins, thereby leading to the correct form: tavānandam. To the best of my knowledge the tradition does not mention this conflict. I suppose it would use its interpretation of 1.4.2 to resolve it.

(4) Now let us consider an example similar to example 2. We will derive the genitive plural of the feminine form of tri ‘three’.

\[
\text{tri + ām}
\]

7.1.53 7.2.99

---

57 I must admit that my method is able to tackle other examples with greater ease as compared to this one. Here, I am compelled to add an extra step i.e., that of excluding the condition ‘i / u / r̥ / l̥ + savarna’ from the comparison. Perhaps we could attach greater value to Pāṇini’s use of the term savarna and characterize this SOI as follows:

6.1.101:

\[a + \text{vowel (savarṇa)}\]

\[i / u / r̥ / l̥ + \text{vowel (savarṇa)}\]

6.1.87:

\[a + \text{vowel}\]

I have written the conditions that are relevant to the conflict in bold. 6.1.101 is applicable only when the following vowel is a savarna. Thus, it is more specific and wins.
7.1.53 *tres trayāḥ* (āmi): the base *tri* is replaced with *traya* when ām follows.

7.2.99 *tricaturoḥ striyāṁ tis̱r̥catasr̥* (vibhaktau): *tri* and *catur* are replaced with *tis̱r̥* and *catasr̥* respectively in the feminine when a declensional affix follows.

7.1.53:

*tri* + ām

7.2.99:

*tri* (feminine) + ām

*tri* (feminine) + any other declensional affix

*catur* (feminine) + any declensional affix

I have written the conditions that are relevant to the conflict in bold. 7.2.99 is applicable only to the feminine *tri* base, whereas 7.1.53 is applicable to the base in all genders. 7.2.99 is more specific and thus wins, thereby giving us the correct form: *tis̱r̥ṇām*.

To the best of my knowledge the tradition does not mention this conflict. I suppose it would use its interpretation of 1.4.2 to resolve it.

Note that in the four examples above, (1) and (4) are similar to each other, and (2) and (3) are similar to each other.

In both (1) and (4), the two conditions (in bold) involved in the SOI are not exactly the same. One operation is conditioned by a grammatical specification (‘plural’ in example 1 and ‘feminine’ in example 4), while the other is not. The operation conditioned by the grammatical specification (which is often morphological) wins.

On the other hand, in the case of examples (2) and (3), the conditions highlighted in bold are exactly the same, and thus we have to go a step further and compare the two rules themselves.

For clarity, let us give names to these two types: we will call examples 1 and 4 SOI-L and examples 2 and 3 SOI-M. The primary definition of SOI-L is that it can be resolved at the first step of comparison: the conditions highlighted in bold are not exactly the same, and so the one which has a specific restriction or marker (e.g., plural) wins. The choice of the winning rule can be made at the first step of comparison itself, i.e., by comparing conditions.
On the other hand, SOI-M cases are defined as those where the conditions highlighted in bold are exactly the same, and so we cannot decide which one is more specific. We need to go a step further and compare the two rules themselves to determine the winning rule.

(5) Now let us look at the sandhi-related step of the derivation of the compound bhānūdaya ‘sunrise’:

\[ bhānu \, + \, udaya \]

Here the following two rules are applicable:

6.1.77 *iko yan aci*: \( iK (i, u, r, l) \) is replaced with \( yaN (v, r, l) \) when \( aC \) (any vowel) follows.

6.1.101 *akaḥ savarṇe dīrghaḥ (aci)*: a long vowel replaces both \( aK (a, i, u, r, l) \) and the following savarṇa ‘homogeneous’ vowel.

However, the problem is that they do not have exactly the same operand. Here I use round brackets to indicate the operand of 6.1.77 and square brackets to indicate the operand of 6.1.101:

\[ bhān[(u) \, + \, u]daya \]

The operand of 6.1.77 is inside the operand of 6.1.101. How do we solve such an example? I propose that we treat \( u \, + \, u \) as the operand of both rules. This means that we have to reanalyse rule 6.1.77: instead of saying that \( iK \) is replaced with \( yaN \) when \( aC \) follows, we say that \( iK \, + \, aC \) is replaced with \( yaN \, + \, aC \).

Now that both rules have the same operand, we can choose the rule that is more specific.

6.1.77:

\[ u \, + \, savarṇa \]

\[ u \, + \, \text{any other vowel} \]

\[ i / r / l \, + \, \text{any vowel} \]

---

58 Another way of comparing the two rules is to simply compare the RHS item of each. For example, for 6.1.77, the RHS item is \( aC \) (any vowel) while for 6.1.101, it is specifically a savarṇa sound. This leads us to the correct conclusion that 6.1.101 is more specific than 6.1.77.
6.1.101

*u + savarṇa*

\[a / i / ṛ / l + savarṇa\]

The conditions in bold are exactly the same. This is a case of SOI-M. Thus, we need to compare the two rules.

Note that the conditions ‘\(i / ṛ / l + \text{any vowel}\)’ (under 6.1.77) and ‘\(a / i / ṛ / l + \text{savarṇa}\)’ (under 6.1.101) are not relevant here because our operand is \(u + u\). So, we won’t take these conditions into account. 6.1.77 applies to cases in which \(u\) is followed by any vowel. On the other hand, 6.1.101 applies only to those cases in which \(u\) is followed by a \(\text{savarṇa}\). 6.1.101 is more specific and thus wins, leading to the correct form: \(bhānūdaya\).

To the best of my knowledge the tradition does not mention this conflict. I suppose it would use its interpretation of 1.4.2 to resolve it.

(6) \(vāna + sU – \text{‘forest’ (neuter), nominative singular}\)

\[\begin{align*}
&vāna + sU \\
&\text{7.1.23} & \text{7.1.24}
\end{align*}\]

7.1.23 \(svamor napuṁsakāt\) (luk): affixes \(sU\) and \(am\) occurring after a neuter base are replaced with \(LUK\).

7.1.24 \(ato’m\) (\(svamor napuṁsakāt\)): affixes \(sU\) and \(am\) occurring after a neuter base ending in \(a\) are replaced with \(am\).

7.1.23

\(-a\ \text{(neuter)} + sU / am\)

- any other sound (neuter) + \(sU / am\)

7.1.24

\(-a\ \text{(neuter)} + sU / am\)
The conditions in bold are exactly the same. This is a case of SOI-M. Thus, we now compare the rules. Both rules are meant for $SU$ and $am$ affixes added to neuter bases, but 7.1.24 is specifically meant for those cases in which $SU$ and $am$ are preceded by a base ending in $a$. 7.1.24 is more specific and thus wins, leading to the correct form: vanam.

On 7.1.24, the Kāśikā says that 7.1.24 is an apavāda of, and thus wins against, 7.1.23.

(7) $yuṣmad + bhyas$ – ‘you’ (any gender), ablative plural

```
yuṣmad + bhyas
```
```
7.1.30 7.1.31
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7.1.30 $bhyaso bhyam$ ($yuṣmadasmadbhyaṁ$): the affix $bhyas$ which occurs after the bases $yuṣmad$ and $asmad$ is replaced with $bhyam$.

7.1.31 $pañcamyā at$ ($yuṣmadasmadbhyāṁ bhyaso$): the ablative affix $bhyas$ which occurs after the bases $yuṣmad$ and $asmad$ is replaced with $at$.

7.1.30

$yuṣmad / asmad + bhyas$

7.1.31

$yuṣmad / asmad + bhyas$ (ablative)

Note that $bhyas$ is a plural affix used for both dative and ablative forms. 7.1.31 is specifically about the ablative $bhyas$. This is a case of SOI-L. 7.1.73 is more specific because it mentions the ablative, and thus wins, leading to the correct form: $yuṣmat$.

On 7.1.31, the Nyāsa says that 7.1.31 is an apavāda of, and thus wins against, 7.1.30.

(8) $eka + ſe$ – ‘one’ (masculine), dative singular

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eka + ſe
```
```
7.1.13 7.1.14
```

79
7.1.13 īner yah (ataḥ): the affix Ńe, when occurring after a base ending in a, is replaced with ya.

7.1.14 sarvanāmnaḥ smai (īner yah atah):59 the affix Ńe, when occurring after a pronominal base ending in a, is replaced with smai.

7.1.13

a + Ńe

7.1.14

a (pronoun) + Ńe

This is a case of SOI-L. 7.1.14 concerns only pronominal bases. Thus, it is more specific and wins, leading to the correct form: ekasmai.

To the best of my knowledge the tradition does not mention this conflict. I suppose it would use the apavāda tool to solve it.

(9) hari + au – ‘green’ (masculine) nominative dual

hari + au

The two rules that are applicable here are:

6.1.77 iko yaṇ aci: iK (i, u, r̥, l̥) is replaced with yaṆ (y, v, r, l) when aC (vowel) follows.

6.1.102 prathamayoh pūrvasavargah (aci akah dīrghah): aK (a, i, u, r̥, l̥) and the following vowel which constitutes the first sound of nominative and accusative affixes, are both replaced with a long vowel which is homogeneous with the sound on the left-hand side.

Note that, here too, like in example 5 of this section, the operand of one rule is inside the operand of another. We overcome this problem just as we did in example 5.

6.1.77

i / u / r / l + any vowel

59 The base eka is listed in the sarvādīna, referred to in 1.1.27 sarvādīni sarvanāmāni.
6.1.102

\(a + \text{any vowel (nominative / accusative)}\)

\(i / u / r / l + \text{any vowel (nominative / accusative)}\)

This is a case of SOI-L. 6.1.102 is more specific and thus wins, leading to the correct form: 
\(\text{harī}.\)

To the best of my knowledge the tradition does not mention this conflict. I suppose it would use its interpretation of 1.4.2 to solve it.

(10) \(vāri + ̄Nī – \text{‘water (neuter)’ locative singular}\)

Let us look at the rules that apply:

7.3.116 \(\text{ṅer ām nadyāmnībhyaḥ}\)

7.3.117 \(\text{idudbhyaḥ}\)

7.3.118 \(\text{aut}\)

7.3.119 \(\text{ac ca gheḥ}\)

Kielhorn\(^{60}\) shows that 7.3.117-7.3.119 together originally constituted one \(\text{sūtra}: \text{idudbhyaḥ aud ac ca gheḥ}\). Kātyāyana split it into two: \(\text{idudbhyaḥ}\) and \(\text{aud ac ca gheḥ}\), and Patañjali further split the latter into two: \(\text{aut}\) and \(\text{ac ca gheḥ}\). I accept the original version taught by Pāṇini himself: 7.3.117 \(\text{idudbhyaḥ aud ac ca gheḥ}\).

Now, in \(vāri + ̄Nī\), two rules are applicable:

\[
\begin{align*}
\text{vāri} & \quad + \\
\text{7.3.117} & \quad \text{7.1.73} & \quad \text{7.3.117}
\end{align*}
\]

7.1.73 \(\text{iko’ci vibhaktau (num napuṁsakasya):\ augment nUM is attached to a neuter iK-final (ending in } i, u, r, l) \text{ base when a vowel-initial declensional affix follows.}\)

\(^{60}\) See Staal’s ‘A Reader on the Sanskrit Grammarians’ (1972: 115).
7.3.117 *idudbhīyām aut ac ca gheḥ (ṅer):* after *ghi* bases, *Ñi* is replaced with *au*, and the final sound of the base is replaced with *a*.

Note that 7.3.117 is unusual because it teaches two operations together. And curiously, we can say that the operand of 7.1.73 lies between the two operands of 7.3.117. We cannot treat this as a case of DOI, so we have to treat this as a case of SOI.

7.1.73 applies to:

*ī/u (neuter) + Ñi*

*ī/u (neuter) + other vowel initial affixes*

*r̥/l̥ (neuter) + vowel initial affixes*

7.3.117 applies to:

*ī/u + Ñi*

This is a case of SOI-L and the condition which is marked ‘neuter’ is more specific and thus wins, giving us the correct form *vāriṇī*.

The tradition uses the *vārttika*, *guṇavyṛddhyaauttvatṛjvadbhāvebhyo num pūrvavipratiṣiddham* (vt. 1061 on 7.1.96 *striyāṁ ca*), to solve this conflict. This *vārttika* teaches that even though the rule teaching the attachment of the augment *nUM* (7.1.73) comes before the rule teaching *auttva* (7.3.117 *idudbhīyām aud ac ca gheḥ*) in the serial order of the *Aṣṭādhyāyī*, the former wins.

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61 Mbh III.275.23.
Chapter Three

3.1 Challenges

In the previous chapter, I introduced my solution to the problem of rule interaction at the same step. In this chapter, I will discuss the relationship of my solution with other aspects of the functioning of the *Aṣṭādhyāyī*.

Let us look at two examples of DOI from nominal inflection which pose a challenge to my interpretation of 1.4.2. In these two cases, it can be argued that the *Aṣṭādhyāyī*’s derivational machine does not follow its own algorithm.

Like in the previous chapter, I will first prove that the example involves conflict, given the interest of the post-*Pāṇinian* discourse in the subject of conflict, and will also discuss both my solution and the traditional solution thereafter.

(1) \( tri + ām \) – ‘three’ (masculine), genitive plural

7.1.53 tres trayaḥ: \( tri \) is replaced with traya when ām follows.

7.1.54 hrasvanadyāpo nūṭ: augment nUṬ is introduced to affix ām when it occurs after a base which ends in a short vowel (hrasvānta), or in a form which is termed nadī (nadyanta), or else, ends in the feminine affix āP (ābanta).

If we apply 7.1.53 at this step, we get traya + ām, to which 7.1.54 will be applicable. If we apply 7.1.54 at this step, we get \( tri + nām \), to which 7.1.53 will not be applicable. This is because 7.1.53 is applicable to \( tri \) if it is followed by ām, not nām.

This is a case of unidirectional blocking, and thus of Type 2a (DOI conflict).

By my interpretation of 1.4.2, the RHS rule 7.1.54 wins and we get: \( tri + nām \) (7.1.54) \( \rightarrow \) trīnām (6.4.3 nāmī) \( \rightarrow *trīṇām \) (8.4.2 aṭkupvāṁnumvyavāye ‘pi), which is not the correct form.

---

1 In this chapter, and in the following chapters, I will not provide anuvṛttā ‘continued’ terms in brackets (unless necessary), even though I did this in the previous chapters.

2 These are the only two exceptions of my interpretation of 1.4.2 known to me.
To get the correct answer, we must apply 7.1.53 here: \( \text{traya} + \text{āṁ} \) (7.1.53) \( \rightarrow \) \( \text{traya} + \text{nām} \) (7.1.54) \( \rightarrow \) \( \text{trayānām} \) (6.4.3 nāmi) \( \rightarrow \) \( \text{trayānām} \) (8.4.2 \( \text{aṭkupvānumvyavāye'pī} \)).

To the best of my knowledge, the tradition does not say anything on this matter.

As seen above, my interpretation of 1.4.2 does not give us the correct answer here. I have not found a convincing way to explain this phenomenon. However, below, I present a purely speculative and unsubstantiated explanation. Further research needs to be done to understand this issue better.

We know that Pāṇini was familiar with the form \( \text{trayānām} \) because he uses it in his rule 7.4.75 \( \text{nijāṁ trayānām guṇaḥ ślav} \) “a guṇa vowel replaces the abhyāsa of a base constituted by the list of three roots beginning with \( \text{nijIR} \) ‘to cleanse, nourish’ when \( \text{ŚLU} \) follows”. However, he may also have been familiar with the form \( \text{trīṇām} \): even though \( \text{trīṇām} \) is not to be found in classical Sanskrit, it is in fact used in Vedic Sanskrit: \( \text{trīṇām api samudrāṇām} \) ‘also of the three oceans’. It is possible that when Pāṇini composed the \( \text{Aṣṭādhyāyī} \), or at least its first layer of rules, both \( \text{trīṇām} \) and \( \text{trayānām} \) were acceptable as genitive plural form of \( \text{tri} \) (masculine) in \( \text{bhāṣā} \) ‘everyday Sanskrit’. So, even though he uses the form (\( \text{trayānām} \)) in his \( \text{sūtra} \), perhaps he wanted to teach the derivation of the other acceptable form (\( \text{trīṇām} \)).

In the course of time, as the language underwent further change, \( \text{trīṇām} \) got fully replaced with \( \text{trayānām} \). And to accommodate this change, it is possible that a later scholar added the \( \text{sūtra} \) 7.1.53 \( \text{tres trayaḥ} \) to the \( \text{Aṣṭādhyāyī} \). This scholar may not have known the actual meaning of 1.4.2 \( \text{vipratisedhe param kāryam} \), which is perhaps why he did not realize that this would create a problem.

In fact, we do find a very similar and related example of language change reflected in Pāṇini’s own rules. Consider the genitive plural of \( \text{tri} \) (feminine): \( \text{tri} + \text{āṁ} \). As shown in example 2 of section 2.3, after performing some operations, we get \( \text{tisṛ} + \text{nām} \). Here, 6.4.3 nāmi, which teaches the elongation of \( r \), is not applicable, thanks to 6.4.4 \( \text{na tisṛcatasṛ} \), which forbids us from applying 6.4.3 vis-à-vis \( \text{tisṛ} \) and \( \text{catasṛ} \). However, the next rule 6.4.5 \( \text{chandasy ubhayathā} \) teaches that, when constructing the Vedic form, one can optionally elongate \( r \) in the genitive plural.

---

3 This example has been given in the \( \text{Kāśikā} \) on 7.1.53. Another example is: \( \text{mahi trīṇām avo’stu dyuṣam mitrasyāryamṇāḥ} \) (Maṇḍala 10, Sūkta 185, Rk 1).

4 Observe its similarity with \( \text{trayaḥ} \), the nominative plural form of \( \text{tri} \) (masculine). It is likely that the presence of \( \text{traya} \) here rubbed off on the genitive plural.
plural of *tri* (feminine). This gives us two acceptable Vedic forms: *tisṛṇām* and *tisṛṇām*. It is likely that when Pāṇini composed the *Aṣṭādhyāyī*, the older version, *tisṛṇām* was becoming obsolete and simultaneously making way for the newer version *tisṛṇām*.

Similarly, it seems plausible that, in order to register the change from *trīṇām* to *trayāṇām* in the *Aṣṭādhyāyī*, or put differently, to update the *Aṣṭādhyāyī*, someone added the sūtra 7.1.53 *tres trayaḥ* to it. 7.1.53 *tres trayaḥ* must have been placed after 7.1.52 āmi sarvanāmnaḥ suṭ to continue āmi into 7.1.53 by anuvṛtti. But observe how oddly located it is – a substitution rule in the midst of augment insertion rules.

<table>
<thead>
<tr>
<th>Number</th>
<th>Content</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.1.50</td>
<td>āj jaser asuk</td>
<td>asug-āgama</td>
</tr>
<tr>
<td>7.1.51</td>
<td>āsvakṣiravṛṣalavanāṇāṁ ātmaprītāu kyaci</td>
<td>asug-āgama</td>
</tr>
<tr>
<td>7.1.52</td>
<td>āmi sarvanāṁnaḥ suṭ</td>
<td>sud-āgama</td>
</tr>
<tr>
<td>7.1.53</td>
<td>tres trayaḥ</td>
<td>tri → traya</td>
</tr>
<tr>
<td>7.1.54</td>
<td>hrasvanadyāpo nuṭ</td>
<td>nud-āgama</td>
</tr>
<tr>
<td>7.1.55</td>
<td>sācaturbhyaś ca</td>
<td>nud-āgama</td>
</tr>
<tr>
<td>7.1.56</td>
<td>śrīgrāmanyoś chandasi</td>
<td>nud-āgama</td>
</tr>
<tr>
<td>7.1.57</td>
<td>goḥ pādānte</td>
<td>nud-āgama</td>
</tr>
</tbody>
</table>

We also have another reason to believe that 7.1.53 might be an interpolation. Consider Pāṇini’s rule 6.4.3 nāmi (*dīrghah*). If he had said āmi ām instead of nāmi ām, then in deva + ām, two rules would have been simultaneously applicable:

\[
\text{deva} + \text{ām} \rightarrow \text{āmi (dīrghah)} \quad \text{hrasvanadyāpo nuṭ}
\]

Both rules would block each other. This is a Type 2a interaction (DOI conflict). By my interpretation of 1.4.2, the RHS rule would win leading to rāmanām → *rāmaṇām* (8.4.2 atkuṣvānumvyāvāye/pi), which is not the correct form. It is for this reason that Pāṇini said nāmi and not āmi, thereby requiring us to add the nUṬ augment first and to lengthen the vowel after doing so. Since Pāṇini was careful enough about this derivation, he would also have been careful about the derivation of trayāṇām – that is, if he had wanted to derive this form – which also deals with ām and nudāgama.

If Pāṇini had wanted to derive the word trayāṇām, I think he would have come up with a rule similar in style to 6.4.3 nāmi (*dīrghah*): tres trayaḥ nāmi. The derivation would have proceeded
as follows: \( tri + ām \rightarrow tri + nām \) (7.1.54 \( hrasvanadyāpo nuṭ \)). At this juncture there would arise an SOI conflict between 6.4.3 \( nāmi \) and \( tres \) \( trayāḥ \) \( nāmi \). The latter would win by virtue of being more specific, and we would get the correct form: \( trayāṇām \) (8.4.2 \( aṭkupvāṇumvyaavāye’pi \)). This suggests that Pāṇini may not be the composer of 7.1.53 \( tres \) \( trayāḥ \).

To conclude, as stated before, it is possible that when Pāṇini composed the \( Aṣṭādhyāyī \), or at least its first layer of rules, both \( trīṇām \) and \( trayāṇām \) were acceptable as genitive plural form of \( tri \) (masculine) in \( bhāṣā ‘everyday Sanskrit’. It is possible that Pāṇini, despite using the form \( trayāṇām \) in his rule, taught us the derivation of \( trīṇām \), while a later scholar added the rule 7.1.53 \( tres \) \( trayāḥ \) to the \( Aṣṭādhyāyī \) to facilitate the derivation of \( trayāṇām \).

However, I admit it is odd that Pāṇini would use one form (\( trayāṇām \)) in his \( sūtra \) but would teach the derivation of the other acceptable form (\( trīṇām \)), therefore this matter will require further consideration.

(2) \( bhavatU + sU \) – ‘Sir’ (masculine), nominative singular

\[
\begin{align*}
\text{bhav} & \quad a & \quad t & \quad + & \quad sU \\
6.4.14 & \quad 7.1.70 & \quad 6.1.68
\end{align*}
\]

6.4.14 \( atvasantasya cādhātoḥ \): the vowel, which is the penultimate sound of a base which ends in \( atU \) or \( as \) but is not a verbal root, is replaced with its long counterpart when the non-sambuddhi ending \( sU \) follows.

7.1.70 \( ugidacāṁ sarvanāmasthāne’dhātoḥ \): augment \( nUM \) is introduced to a base which is not a verbal root but is marked with \( UK \) (\( U, R̥, L̥ \)), and also to a base constituted by verbal root \( aṅcU \), when an affix termed \( sarvanāmasthāna \) follows.

6.1.68 \( halīyahābhhyo dīrghāt sutisyapr̥ktaiṁ hal \): there is elision by \( LOPA \) of the finite verb affixes \( ti \) and \( si \), when they consist of a single sound and follow a form which ends in a consonant, and of the nominative singular case affix \( sU \), when it follows a form which ends in a consonant or the long final vowel of feminine affixes \( ṝī \) or \( āP \).

86
If we apply 6.1.68 at this step, both 6.4.14 and 7.1.70 will potentially be applicable at the following step, thanks to 1.1.62 \textit{pratyayalope pratyayalakṣaṇam}. Similarly, even after 6.4.14 and 7.1.70 have been applied, the stem will still end in the consonant \textit{t}, so 6.1.68 will be applicable at the following step. So, 6.1.68 neither blocks nor is blocked by the other two rules, and thus shares a Type 2b (DOI non-conflict) relationship with them.

Now let us look at the relationship between 6.4.14 and 7.1.70. If we apply 6.4.14 at this step, then 7.1.70 which introduces \textit{nUM} after the last vowel, will still be applicable at the following step. But if we apply 7.1.70 at this step, then \textit{a} will no longer be the penultimate sound and so 6.4.14 will not be applicable at the following step. This is a case of unidirectional blocking, and is classified as Type 2a (DOI conflict).

By my interpretation of 1.4.2, we apply the right-most rule 6.1.68 and get: \textit{bhavat}. At this step, thanks to 1.1.62 \textit{pratyayalope pratyayalakṣaṇam}, two rules are applicable:

\[
\begin{array}{c|c|c}
\text{bhav} & \text{a} & \text{t} \\
6.4.14 & 7.1.70
\end{array}
\]

As seen above, there is a Type 2a (DOI conflict) relationship between them. By my interpretation of 1.4.2, the RHS rule 7.1.70 wins and we get \textit{bhavant}. Here, 6.4.14 is not applicable. We apply 8.2.23 \textit{sāmyogāntasya lopaḥ} which teaches LOPA deletion of the second consonant of a \textit{pada}-final conjunct. This gives us \textit{*bhavan} which is not the correct answer. To get the correct answer, we have to apply 6.4.14 first, and then apply 7.1.70: \textit{bhavat} + \textit{sU} \rightarrow \textit{bhavat} (6.1.68) \rightarrow \textit{bhavāt} (6.4.14) \rightarrow \textit{bhavānt} (7.1.70) \rightarrow \textit{bhavān} (8.2.23).

The tradition too takes cognizance of this problem, because even the application of its own conflict resolution tools gives the wrong form. 7.1.70 is both \textit{niita} (the rule which unidirectionally blocks the other rule) and \textit{para} (the rule which comes after the other rule in the serial order of the \textit{Aṣṭādhyāyī}) with respect to 6.4.14. And yet 6.4.14 has to prevail for us to get the correct answer. On 6.4.14 the \textit{Kāśikā} says: \textit{atra kṛte dīrghe numāgamaḥ kartavyaḥ. yadi hi paratvān niityatvāc ca num syāt, dīrghasya nimittam atūpadhā vihanyeta }\textit{‘Here, the

\footnote{An operation conditioned by an affix applies even if the affix has been replaced with LOPA.}

\footnote{Note that we cannot replace the penultimate \textit{a} of \textit{bhavan} at this stage with \textit{ā} by 6.4.14 because 6.4.14 treats 8.2.23 as \textit{asiddha} and thus cannot see that \textit{t} has been deleted by 8.2.23. So 6.4.14 still sees the form as \textit{bhavant}, to which it cannot apply.}
augment *nUM* should be inserted [only] after lengthening [the vowel]. If *nUM* wins, because it is *para* and *nitya*, then the cause of lengthening [namely] the status of *a* as the penultimate sound is finished.

Returning to the topic at hand, this example too seems to invalidate my interpretation of 1.4.2. I have not found a fully satisfactory way to overcome this problem. Nonetheless, I present here, which I think might explain why this happens. Let us write down the group of rules to which 6.4.14 belongs, along with those words (in box brackets) which are continued by *anuvṛtti*.

(Please go to the next page)
If a term A in rule number ‘n’ does not have an equivalent term B in rule number n+1, then A becomes *anuvṛttta* from rule n to n+1, *if* it is relevant in rule n+1.⁸ For example, *inhanpūṣāryamṇām* of 6.4.12 is the equivalent of *apṛṭṛṭṛcsvasṛṇaptṛ*... of 6.4.11 so *apṛṭṛṭṛcsvasṛṇaptṛ*... is not continued by *anuvṛttta* from 6.4.11 to 6.4.12. The phrase *vā śapūrvasya nigame* makes the concerned operation optional in a certain context and does not get continued into the following rules⁹.

Note that *cāsambuddhau* ‘and not in vocative singular’¹⁰, which is *anuvṛttta* from 6.4.8 into 6.4.9, 6.4.10 and 6.4.11 does not become *anuvṛttta* in 6.4.12 *sau inhanpūṣāryamṇām* because *Śi* is never seen in *sambuddhi* ‘vocative singular’ forms. So, it is irrelevant there and does not get continued into 6.4.12. The next rule is 6.4.13 *sau ca*, and we know that *sU* is added to bases to derive both vocative and non-vocative forms. *cāsambuddhau* is relevant in 6.4.13, because it can play the role of restricting 6.4.13 to only non-vocative cases of *sU*, and thus, gets *anuvṛttta* in 6.4.13. This is one of many examples in the *Aṣṭādhyāyī* in which a term displays what is called *maṇḍukapluti* ‘frog jump’, i.e., it becomes *anuvṛttta* from rule number ‘n’ to rule number ‘n+2’ without becoming *anuvṛttta* in rule number ‘n+1’, thereby jumping like a frog from one rule in which it is relevant to the next rule in which it is relevant, skipping, on its way, those rules in which it would be irrelevant.

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<table>
<thead>
<tr>
<th>Rule</th>
<th>Term(s)</th>
<th>Note(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>08</td>
<td>sarvanāmasthāne cāsambuddhau [dīrghaḥ nopadhāyāḥ]</td>
<td></td>
</tr>
<tr>
<td>09</td>
<td>sarvanāmasthāne cāsambuddhau dīrghaḥ nopadhāyāḥ</td>
<td>(vā śapūrvasya nigame)</td>
</tr>
<tr>
<td>10</td>
<td>sarvanāmasthāne cāsambuddhau dīrghaḥ nopadhāyāḥ</td>
<td>x sāntamahataḥ saṁyogasya</td>
</tr>
</tbody>
</table>
| 11   | sarvanāmasthāne cāsambuddhau dīrghaḥ upadhāyāḥ | x aptṛṛntṛcsvasṛnaptṛ...
| 12   | sau                      | x inhanpūṣāryamṇām |
| 13   | sau cāsambuddhau dīrghaḥ upadhāyāḥ | x inhanpūṣāryamṇām  ca |
| 14   | sau cāsambuddhau dīrghaḥ upadhāyāḥ | x atvasantasya  ca adhātoḥ |

---

7 *apṛṭṛṭṛcsvasṛṇaptṛṇesṭṛksattṛḥotṛṭṛpraśāstṛṇām.*
9 For more on the *anuvṛttta* of optional terms see Joshi-Bhate (1984: 70).
10 2.3.49 ekavacanāṁ sambuddhiḥ.
Now let us look at saṁyogasya of 6.4.10.

6.4.10 sāntamahataḥ saṁyogasya: a substitute long vowel replaces the short vowel that is penultimate with respect to a $n$ which is part of a stem-final conjunct either ending in $s$ or constituting part of the pre-affixal stem mahat- ‘great’ when a sarvanāmasthāna affix other than sambuddhi follows.

saṁyogasya is not relevant in 6.4.11, 6.4.12 and 6.4.13 because those bases do not end in a saṁyoga ‘conjunct’. In the table above I have put ‘x’ marks under saṁyogasya to indicate this. What about 6.4.14? The tradition does not continue saṁyogasya into 6.4.14. However, I think that saṁyogasya is relevant in 6.4.14, so I propose to read saṁyogasya by anuvṛtti in 6.4.14 (See ‘!!!’ sign). Like cāsambuddhau, saṁyogasya too displays the trait of maṇḍukapluti.

Now 6.4.14 reads:

6.4.14 atvasantasya cādhātoḥ (saṁyogasya sau cāsambuddhau dirghah upadhāyāḥ): a substitute long vowel replaces a short vowel that is penultimate with respect to the stem-final conjunct of a non-verbal stem ending in $atU$ or with respect to the last sound of a non-verbal stem ending in $as$, when a non-sambuddhi ending $sU$ follows.

Note that saṁyogasya is only relevant to $atU$ and not to $as$. Now, let us perform the derivation again, bearing this new meaning of 6.4.14 in mind:

$\text{bhav} \quad a \quad t \quad + \quad sU$

7.1.70 6.1.68

Note that 6.4.14, as interpreted by me, is not applicable here because bhavat does not end in a conjunct. 7.1.70 and 6.1.68 do not block each other. This is a Type 2b (DOI non-conflict) interaction.

By my interpretation of 1.4.2, we apply the RHS rule 6.1.68 and get bhavat. Now by 1.1.62 pratyayalope pratyayalakṣaṇam, 7.1.70 applies and we get bhavant. Since bhavant ends in a saṁyoga ‘conjunct’, my interpretation of 6.4.14 applies here: bhavānt. Finally, we apply 8.2.23 saṁyogāntasya lopah and get the correct form: bhavān.

Admittedly, this is a weak explanation because, in order to facilitate the anuvṛtti of saṁyogasya in 1.4.14, I had to split the compound atvasantasya into two, the $at$ part, which is compatible with saṁyogasya, and the $vas$ part, which is not. Despite the helpful work done by Joshi and
Bhate (1983, 1984) on the subject of \textit{anuvṛtti}, this is still a hitherto poorly understood topic. As of now, we do not have sufficient evidence suggesting that it is acceptable to split a \textit{samāsa} in this manner to accommodate items continued by \textit{anuvṛti}. Further research needs to be done on this topic.

### 3.2 DOI in the Inflection of Taddhita, Samāsa and Krānta Nominal Bases

So far, we have looked at cases of DOI in the inflection of simple (i.e., underived) nominal bases (cf. 1.2.45 \textit{arthavad adhātur apratyayaḥ prātipadikam}). Now let us look at some cases of DOI in the inflection of complex (i.e., derived) nominal bases such as \textit{kṛt} ‘primary derivative’, \textit{taddhita} ‘secondary derivative’, and \textit{samāsa} ‘compound’ (cf. 1.2.46 \textit{kṛttaddhitasamāsāś ca}).

Generally speaking, as compared to the inflection of simple nominal bases, which we have seen in the previous chapter and in this chapter, and verbal inflection and primary derivatives, which we will see in the following chapters, we find a smaller number of examples of conflict in \textit{taddhita} derivations, and even fewer examples in \textit{samāsa} derivations. I will explain why this is the case towards the end of chapter 4.

We will see that the tradition manages to avoid dealing with conflict in the first four examples. However, it has to rely on certain external (post-Pāṇinian) metarules to correctly derive these four forms. I will show that my solution for DOI (my interpretation of 1.4.2) can help us perform these derivations without relying on such external metarules. In the following four examples, we do find cases of conflict. Here too, I use my solution for DOI (cf. my interpretation of 1.4.2) to get the correct answer and also mention the traditional solution where it is known.

(1) Consider the genitive singular form of \textit{prati-ac}\textsuperscript{11} ‘turned towards, facing’: \textit{pratīcas}. By 2.2.18 \textit{kugatiprādayaḥ}, \textit{prati-ac} is a \textit{tatpuruṣa} compound made of \textit{prati}, which takes the technical designation \textit{gati} by 1.4.60 \textit{gatiś ca} and \textit{ac}, which is derived as follows: \textit{aṅcU + KvIN}

\textsuperscript{11} I use the ‘+’ sign between a base and an affix. Since \textit{ac} is not an affix with respect to \textit{prati}, I put a ‘−’ instead of a ‘+’ between \textit{pratī} and \textit{ac}.
(3.2.59 rtvigadhrksragdiguṣṇigañcuyjikruṅcāṁ ca\textsuperscript{12}) \rightarrow ac + v (6.4.24 anidāṁ hala upadhāyāṁ kniti\textsuperscript{13}) \rightarrow ac (6.1.67 ver aprktasya\textsuperscript{14}).

The Siddhāntakaumudī (SK) completes all the operations within the base before adding the genitive singular affix Ṇas\textsuperscript{15}: prati-ac (2.4.71 supo dhātuprātipadikayoḥ) \rightarrow pratyac (6.1.77 iko yan aci). If the derivation is stopped at the addition of the genitive affix Ṇas to pratyac, that does not give the correct answer: pratyac + Ṇas \rightarrow *pratyacaḥ.

The tradition has found a way to work around this. In pratyac + Ṇas, pratyac takes the designation bha by 1.4.18 because it is followed by a non-sarvanāmasthāna affix beginning with a vowel. Then, 6.4.138 acaḥ teaches that the a of verbal base ac (from aṅc), when designated as bha, is replaced with LOPA: pratyc + Ṇas. To get the correct form, it takes recourse to the metarule nimitābhāve naimittikasyāpy abhāvah\textsuperscript{16}, which teaches that when the cause of an operation is lost, the impact or effect of that operation too is lost. In other words, if X causes A to change to B, upon the deletion of X, B becomes A again. Thanks to this paribhāṣā, since the cause of the operation 6.1.77 iko yan aci, namely a, has been deleted, the preceding y will go back to its original form i. Thus, we get pratic + Ṇas. At this step the tradition applies 6.3.138 cau, which teaches that, the final aN of the preceding pada in a compound is replaced with its dīrgha equivalent when c (from aṅc) follows. This gives the correct form: pratīcaḥ.

Another Pāṇinian paribhāṣā, which makes this very argument in terms of antaraṅga and bahiraṅga operations, is cited by the Siddhāntakaumudī\textsuperscript{17} when discussing this derivation: akṛtavyāhāḥ pāṇinīyāḥ ‘The Pāṇinīyas do not insist that a rule should take effect if its causes disappear’. Nāgeśa (Pbh 56, Paribhāṣenduśekhara), while discussing this paribhāṣā in antaraṅga and bahiraṅga terms, says: bahiraṅgenāntaraṅgasya nimitāvināśe paścāt

\begin{itemize}
\item \textsuperscript{12} Among other things, this rule teaches that KvIN occurs after the root aṅcU ‘to bend’ when this root co-occurs with a pada ending in sUP.
\item \textsuperscript{13} LOPA replaces the penultimate n of a verbal base ending in a consonant and not marked with I [in the Dhātupāṭha] when an affix marked with K or ṇ follows.
\item \textsuperscript{14} Affix V unaccompanied [by any other sound] is replaced with LOPA.
\item \textsuperscript{15} We know this because of a paribhāṣā it mentions, will I will discuss below.
\item \textsuperscript{16} Another version of this, which we occasionally find in paribhāṣā texts, is nimitāpāye naimittikasyāpy apāyaḥ.
\item \textsuperscript{17} SK 417 (6.3.138 cau).
\end{itemize}
sambhāvīte antaraṅgaṃ neti yāvat ‘An antaraṅga operation (here, 6.1.77 iko yaṋ aci) should not be undertaken if its cause would disappear later due to the bahiraṅga operation (here, 6.4.138 acaḥ)’.

These two paribhāṣās require one to go a step back into the derivation and undo a previous operation. This runs contrary to the idea that derivations should move in one direction, and that each operation should take us one step forward (rather than backward) into the derivation. Besides, if Pāṇini wanted us to use these metarules, he would have taught them explicitly in the Aṣṭādhyāyī. For these reasons, I do not accept these two paribhāṣās. Now I will derive this form using my method. Two rules are simultaneously applicable to prati - ac:

\[
\begin{array}{c}
\text{prati} - \text{ac} \\
\text{6.1.77} & \text{4.1.2}
\end{array}
\]

4.1.2 svaujasamaṭchaṣṭābhīṁbhisēbhīṁbhīṁhīṁnasībhyāṁhīṁnasīsūp

6.1.77 iko yaṋ aci: iK (i, u, r, l) is replaced with yaṋ (y, v, r, l) when aC (vowel) follows. This is a case of DOI. By my interpretation of 1.4.2, we apply the RHS rule 4.1.2 and get prati - ac + Ńas. Here two rules are applicable:

\[
\begin{array}{c}
\text{prati} - \text{ac} + \text{Ņas} \\
\text{6.1.77} & \text{6.1.38}
\end{array}
\]

6.1.77 iko yaṋ aci: same as above.

6.4.138 acaḥ: the a of ac which has taken the technical designation bha is replaced with LOPA. This is a case of DOI. By my interpretation of 1.4.2, the RHS rule 6.4.138 wins, and we get: praticaḥ → pratīcaḥ (6.3.138 cau), which is the correct form.

---

18 This rule teaches all the declensional affixes. The affix that is applicable here is the genitive singular Ńas.
(2) Let us derive the genitive singular of the perfect participle of sad ‘to sit’, namely sad + vas ‘one who had sat’. The Siddhānta-kaumudi attaches the declensional affix Ṅas to the base only after the base is fully ready.19 The base is derived by replacing LIṬ with KvasU: sad + LIȚ → sad + KvasU (3.2.108 bhāṣāyīṁ sadavasaśruvaḥ20). Now, (i) by 6.1.8 liṭi dhātor anabhyāsasya, (which teaches that the un-reduplicated root undergoes reduplication when followed by LIŢ), (ii) by 6.1.1 ekāco dve prathamasya (which teaches that the first syllable of the root undergoes reduplication) and (iii) by 1.1.56 sthānivad ādeśo‘nalvidhau (which teaches that the substitute should be treated like the substituendum except when an operation relative to the original sound is to be performed), we get sadsad + vas. By 7.4.60 halādiḥ śeṣah, which teaches that all but the first consonant of the abhyāsa (first half of sadsad) are deleted, we get sasad + vas. Now, by 6.4.120 atā ekahalmadhye ‘nādeśāder liṭi21, we get sed + vas. At this point, 7.2.67 vasv ekājādghasāṁ is applicable, which, according to the tradition22, teaches that the augment iṬ should be attached to vasU when it occurs after a root which, after doubling, consists of a single syllable, or a root ending in ā, or ghas ‘to eat’. By applying this rule, we get the base sedivas, but, if at the next step we add the genitive singular affix Ṅas, we get *sedivasaḥ, which is the incorrect answer.

Here, again, the tradition uses the two paribhāṣās discussed above to circumvent this problem. In sedivas + Ṅas, sedivas takes the designation bha because it is followed by a non-sarvanāmasthāna affix beginning with a vowel (cf. 1.4.18 yaci bham). To this, the tradition applies 6.4.131 vasoh samprasāraṇam, which teaches that the semivowel of the affix vasU in an item termed bha is replaced with the corresponding vowel u. This gives sediuas, and the augment i in sedivas, which is attached to vas by 7.2.67 vasv ekājadghasāṁ, is lost, because its cause v no longer exists (cf. akṛtvyaḥḥ pāṇinīyaḥ and nimittāpīye naimittikasyāpy apāyaḥ). Then, the a of sediuas is deleted by 6.1.108 samprasāraṇac ca which teaches that both the

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19 We know this because of the use of the paribhāṣā, akṛtvyaḥḥ pāṇinīyaḥ on SK 435 (6.4.131 vasoh samprasāraṇam). I will discuss this later in the example.

20 The affix LIŢ is optionally replaced with KvasU in classical Sanskrit after the roots sadA ‘to sit’, vasA ‘to inhabit’ and śru ‘to listen’ when the action has taken place in the past.

21 An a, which occurs in between two single consonants of a verbal base whose initial sound has not undergone replacement, is replaced with e, when a LIŢ affix marked with K or Ṅ follows. In such cases, the abhyāsa (i.e., the first of the two reduplicated syllables) is also deleted.

22 I interpret this rule differently. I will discuss my interpretation later in this example.
samprasāraṇa replacement and the vowel following it are together replaced with the former. This gives us *sedus + ṇas* → *seduṣaḥ*, which is the correct form.

Again, like in the previous example, I reject the use of these two anitya paribhāṣās. I perform this derivation as follows. I add the affix *LIṬ* to *sad* by the following rule:

3.2.115 **parokṣe liṭ:** affix *LIṬ* occurs after a verbal root when an unwitnessed (parokṣa) action which is not current (anadyatana) is denoted in the past (*bhūta*).

Then, the following rules become applicable:

\[
\text{sad} \quad + \quad \text{LIṬ} \\
6.1.8 \quad 3.2.108
\]

6.1.8 **liṭi dhātor anabhyāśasya:** an un-reduplicated root undergoes reduplication when followed by *LIṬ*.

3.2.108 **bhāṣāyāṁ sadavasaśruvah:** the affix *LIṬ* is optionally replaced with *KvasU* in classical Sanskrit after the roots *sada* ‘to sit’, *vasa* ‘to inhabit’ and *śra* ‘to listen’ when the action has taken place in the past.

This is a case of DOI. By my interpretation of 1.4.2, the RHS rule 3.2.108 wins and we get *sad + vas*. Multiple rules are applicable here:

\[
\text{sad} \quad + \quad \text{vas} \\
6.1.8 \quad 7.2.67 \quad 4.1.2
\]

6.1.8 **liṭi dhātor anabhyāśasya:** same as above.

7.2.67 **vasv ekājādghasāṁ:** (my interpretation) augment *īṬ* is introduced to *vasU* when it occurs after a root which either consists of a single syllable, or ends in *a*, or else, is constituted by *ghas* ‘to eat’.

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23 Note that, the whole base does not undergo reduplication. Instead, only one syllable does. See 6.1.1 ekāco dve prathamasya and 6.1.2 ajāder dvitiyasya.

24 The tradition interprets this rule as follows: augment *īṬ* is introduced to *vasU* when it occurs after a root which, after doubling, either consists of a single syllable, or ends in *a*, or else, is constituted by *ghas* ‘to eat’. Note that Pāṇini does not say ‘after doubling’ anywhere in his rule, and ‘after doubling’
4.1.2 svaujasamaćeṣṭābhyaṁbhiseṇbhyaṁbhyaṁbasibhyāṁbhyaṁbasosāṁnyossup
tis ca.

This is a case of DOI. By my interpretation of 1.4.2, the right-most rule 4.1.2 wins and we get 
\( \text{sad} + \text{vas} + \text{Nas} \). Multiple rules are applicable here:

\[ \text{sad} + \text{vas} + \text{Nas} \]

\[ \text{6.1.8} \quad \text{6.4.131} \quad \text{7.2.67} \]

6.1.8 liṭi dhātor anabhyaśasya: same as above.

7.2.67 vasv ekājādghasām: same as above.

6.4.131 vasoh samprasāraṇam: vasU of an item termed bha undergoes samprasāraṇa. The conditions highlighted in bold are relevant to this SOI. Since 6.4.131 has been taught specifically for a bha-samjñaka vas, it is more specific and thus wins.

Now let us consider the DOI relationship between 6.1.8 and 6.4.131. By my interpretation of 1.4.2, the RHS rule 6.4.131 wins and we get: \( \text{sad} + \text{uas} + \text{Nas} \). Here, again, two rules are applicable:

\[ \text{cannot be inferred by anuvṛtti either. The tradition takes the liberty to read this phrase into this rule purely on the basis of certain derivational considerations. I do not think we should make such assumptions and therefore I do not include ‘after doubling’ in my interpretation.} \]

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25 1.2.46 kṛttaddhitamāśāś ca.

26 1.4.18 yaci bham.
6.1.8 *liṭi dhātor anabhyāsasya*: same as above.

6.1.108 *samprasāraṇāc ca*: both the *samprasāraṇa* replacement and the vowel following it are together replaced with the former.

This is a case of DOI. By my interpretation of 1.4.2, the RHS rule 6.1.108 wins and we get *sad + us + Ńas*. Thereafter, the derivation proceeds as follows: *sadsad + us + Ńas* (6.1.8 *liṭi dhātor anabhyāsasya*) → *seduṣaḥ* (6.4.120 *ata ekahaladhye nādeśāder liṭi*), which is the correct form.

(3) Let us derive the nominative plural of ‘descendant of *garga*’, first through the traditional method and then through mine.

The tradition\(^{27}\) adds the declensional affix only after the base is ready. As per the traditional method, we first add the affix *yaṉ* to *garga* + Ńas by 4.1.105 *gargādibhyo yaṉ*\(^{28}\); then by 2.4.71 *supo dhātuprātipadikayoḥ*\(^{29}\), Ńas is deleted, which gives us *garga + yaṉ*. At this juncture, 7.2.117 *taddhiteṣv acām ādeḥ* prescribes the *vṛddhi* substitution of the first vowel of *garga* given that the following affix is marked with Ń. Thus, we get *gārga + yaṉ*. The a of *gārga* is deleted by 6.4.148 *yasyeti ca*, which teaches that the final i or a of a *bha* item is deleted when it is followed by ṛ or a *taddhita* affix. Thus, we get our base *gārgya*.

At this point, the tradition prescribes the addition of the affix *Jas* to the base *gārgya*: *gārgya + Jas*. This leads to the application of 2.4.64 *yaṉaṇōś ca*, which teaches that the *gotra* affixes *yaṉ* and aṉ are replaced with *LUK* when the following declensional affix denotes plural, except when the base is feminine. Stopping here gives us the incorrect form: *gārgaḥ*.

---

\(^{27}\) I give a reference later in the example.

\(^{28}\) The *taddhita* affix *yaṉ* is added to the syntactically related genitive form of any base included in the list starting with *garga* to construct a form which means *gotra*-descendant of that individual.

\(^{29}\) A *suP* undergoes *LUK* deletion when it occurs inside a *dhātu* ‘verbal base’ or a *prātipadika* ‘nominal base’.
On 2.4.64, the Bhaimi commentary on the Laghusiddhāntakaumudi suggests the metarule, nimittāpāye naimittikasyāpy apāyah, which we have discussed in the previous two examples, to solve this problem: because yaN is deleted, the vrddhi of the first vowel (cf. 7.2.117) and the deletion of the final a (6.4.148), which were caused by yaN, also must be undone, thereby giving us the correct form: garg + Jas → gargāḥ. However, I do not accept this metarule, as stated above. I perform this derivation as follows. Upon adding the affix yaN to garg, the following rules are applicable:

\[ \text{garg} + \text{yaN} \]

7.2.117 taddhiteṣv acām ādeḥ: the first vowel of the base undergoes vrddhi when an affix marked with Ń or ṇ follows in taddhita derivations.

6.4.148 yasyeti ca: the final i or a of a bha item is deleted when it is followed by ī or a taddhita affix.

4.1.2 svaujasamauṭchaṣṭābyāṁbhiseṁbhiseṁbhyasīṁbhyasīṁsosāṁniyossup

This is a case of DOI. By my interpretation of 1.4.2, the right-most rule 4.1.2 applies and we get gargya + yaN + Jas. Here multiple rules are applicable:

\[ [ \text{garg} + \text{yaN} ] + \text{Jas} \]

7.2.117 taddhiteṣv acām ādeḥ: same as above.

6.4.148 yasyeti ca: same as above.

2.4.64 yaṇaṇoś ca: LUK replaces the gotra affixes yaN and aN introduced after a nominal stem when that nominal stem ending in these affixes itself denotes plurality and is not followed by a feminine affix.

This is a case of DOI. By my interpretation of 1.4.2, we apply the right most rule 2.4.64 and get: garg + Jas → gargāḥ (6.1.102 prathamayoh pūrvasavarnaḥ30), which is the correct form.

30 The a, i or u at the end of the base and the following vowel, which constitutes the first sound of nominative and accusative affixes, are together replaced with the long equivalent of the former.
Note that, at this point, 7.2.117 and 6.4.148 no longer have a chance to apply. So, unlike the traditional solution, mine does not require us to go backwards to undo the application of rules like 7.2.117 and 6.4.148. Therefore, my solution is more acceptable than the one provided by the tradition.

4.1.168 janapadaśabdāt kṣatriyād aṇaḥ: the taddhita affix aÑ is added to a syntactically related base ending in the genitive which stands for both a janapada and its class of kṣatriyas, in order to denote the sense of apatya ‘descendent’.

The tradition starts by adding the affix aÑ to pañcāla + ām by 4.1.168: [pañcāla + ām] + aÑ. ām is deleted by 2.4.71 supo dhātuprātipadikayoḥ. At this juncture, 7.2.117 taddhiteśv acām ādeḥ teaches that the first vowel of pañcāla undergoes vṛddhi given that the following affix is marked with Ń. Upon applying this rule, we get: pāñcāla + aÑ. The a of pāñcāla is deleted by 6.4.148 which teaches that the final i or a of a bha item is deleted when it is followed by ĩ or a taddhita affix. Thus, we get our base pāñcāla.

At this point, the tradition prescribes the addition of the affix Jas to the base pāñcāla: pāñcāla + Jas. By 4.1.174 te tadrājāḥ, the taddhita affixes, including aÑ, which occur after a syntactically related genitive to indicate a ‘kṣatriya descendent of the kṣatriyas of a janapada’ take the technical designation tadrāja. Thus 2.4.62 tadrājasya bahuṣu tenaivāstriyām becomes applicable here: it teaches that LUK replaces a tadrāja affix introduced after a nominal stem when it denotes plurality if that plurality is expressed by the stem ending in that affix except when followed by a feminine affix.

If the derivation stops here, we get pāñcāl + Jas → *pāñcālaḥ, which is not the correct answer. On 2.4.62, the Bhaimī commentary on the Laghusiddhāntakaumudī suggests the metarule nimittāpāye naimittikasyāpy apāyah, which we have discussed above, to solve this problem: because aÑ is deleted, the vṛddhi of the first vowel (cf. 7.2.117) and the deletion of the final a (6.4.148), which were caused by aÑ, also must be undone, thereby giving us the correct form:

31 I give a reference later in the example.
pañcāla + Jas \(\rightarrow\) pañcālāḥ. However, I do not accept this metarule, as stated above. I perform this derivation as follows.

\[
\begin{array}{c}
p a \tilde{n}cāl a + a\tilde{N} \\
7.2.117 & 6.4.148 & 4.1.2
\end{array}
\]

7.2.117 \(taddhīteṣv acām ādeḥ\): same as above.

6.4.148 \(yasyeti ca\): same as above.

4.1.2 \(svaujasauṭchastābhīśeṣbhisbhiṣvṣbhiṣvṣbhiṣvṣbhiṣvṣbhiṣvṣbhiṣvṣbhiṣvṣ\)

This is a case of DOI. By my interpretation of 1.4.2, the right-most rule 4.1.2 applies and we get \(pañcāla + a\tilde{N} + Jas\). Here multiple rules are applicable:

\[
\begin{array}{c}
p a \tilde{n}cāl a + a\tilde{N} + Jas \\
7.2.117 & 6.4.148 & 2.4.62
\end{array}
\]

7.2.117 \(taddhīteṣv acām ādeḥ\): same as above.

6.4.148 \(yasyeti ca\): same as above.

2.4.62 \(tadrājasya bahuṣu tenaiṣṭriyām\): same as above.

This is a case of DOI. By my interpretation of 1.4.2, the right-most rule 2.4.62 wins and we get: \(pañcāla + Jas \rightarrow pañcālāḥ\) (6.1.102 \(prathamayoḥ pūrvasaṇaḥ\)) which is the correct form. As in the previous example, at this point 7.2.117 and 6.4.148 can no longer apply. This shows that my solution is better than the traditional one.

(5) Now let us derive the nominative plural of ‘the student of gārgya’, or in other words, the student of the descendent of garga’. To derive this form, \(cha\) is added to \([gārgya + ṇas]\) by the following rule:

4.2.114 \(vṛddhāt chah\): affix \(chā\) is added to a syntactically related item termed \(vṛddha\) (cf. 1.1.73 \(vṛddhir yasyācām ādis tad vṛddham\)) in the remaining senses.
In gārgya + ṇas + cha, ṇas is deleted by 2.4.71 supo dhātuprātipadikayoḥ and we get gārgya + cha.³² Let us look at my solution first. I will only highlight the cases of conflict here. The following rules are applicable:

\[
\begin{array}{c}
gārgya + cha \\
7.1.2 & 4.1.2 \\
\end{array}
\]

7.1.2 āyaneyīniyiyah phadhakkacaghāṁ prayayādināṁ: the sounds ph, dh, kh, ch and gh, when occurring at the beginning of the affix, are replaced with āyan, ey, īn, īy and iy respectively.

4.1.2 svaujasamauṭchastābhysāmbhisēbhysāmbhyasīsibhyāṁbhysāṁsosāmīnyossup

The two rules do not block each other.

By my interpretation of 1.4.2, we apply the RHS rule 4.1.2 and get: gārgya + cha + Jas. Here, multiple rules are applicable:

\[
\begin{array}{c}
gārgya + cha + Jas \\
2.4.64 & 7.1.2 \\
\end{array}
\]

7.1.2 āyaneyīniyiyah phadhakkacaghāṁ prayayādināṁ: same as above.

2.4.64 yañañoś ca: LUK replaces the gotra affixes yaN and aaN introduced after a nominal stem when that nominal stem ending in these affixes itself denotes plurality and is not followed by a feminine affix.

If we apply 2.4.64 at this step, 7.1.2 will be applicable at the following step. If we apply 7.1.2 at this step, thereby replacing ch of cha with īy (which gives us gārgya + īya), then 4.1.89 gotre’lug aci comes into play:

---
³² Note that, in all the derivations that I have performed using my method in this chapter, I apply 2.4.71 supo dhātuprātipadikayoḥ before actually starting the derivation. I do this to avoid making the derivations unnecessarily lengthy and to avoid monotony. I take this liberty because the correctness of the form we get at the end of the derivation does not depend on the step at which we apply 2.4.71. Ideally, one should apply this rule only when it ought to be applied.
4.1.89 gotre’lug aci: LUK does not replace a taddhita affix denoting a gotra descendant, when the following affix begins with a vowel and is introduced in the prāgdīvyatiya section.

Therefore, 2.4.64, which teaches LUK, will not be applicable at the following step. 7.1.2 blocks 2.4.64. This is a case of unidirectional blocking, and thus of Type 2a (DOI conflict).

By my interpretation of 1.4.2, the RHS rule 7.1.2 wins and we get gārgya + īya + Jas. Here by applying 6.4.148 yasyeti ca, we get gārgy + īya + Jas. At this stage, 6.4.151 applies:

6.4.151 āpatyasya ca taddhite’nāti: a y which occurs after a consonant and is part of a taddhita affix signifying an apatya ‘off-spring’ which is in turn part of an item termed bha, is replaced with LOPA, when a taddhita affix not beginning with a, follows.

This gives us the correct form: gārgīyāḥ.

Even though Patañjali does discuss this derivation in his commentary on vt. 2 on 4.1.89 gotre’lug aci, he does not discuss this conflict.

(6) Let us now derive the nominative singular of puṣya ‘a moon (which is) in conjunction with the constellation Puṣya’ of the sentence adya puṣyaḥ ‘today the moon is in conjunction with constellation puṣya. We start by adding the affix aṆ to puṣya + Ṭā by 4.2.3:

4.2.3 nakṣatreṇa yuktah kālāḥ: the taddhita affix aṆ is introduced after a nominal form which signifies a particular constellation (nakṣatra) and ends in trīyā ‘instrumental’, to denote the time when the moon is in conjunction with that constellation.

By 2.4.71 supo dhātuprātipadikayoḥ, Ṭā is deleted, leading to puṣya + aṆ. Here, the following rules are applicable:

\[
\begin{array}{cccc}
7.2.117 & 6.4.148 & 4.2.4 & 4.1.2
\end{array}
\]

33 4.1.83 prāgdīvyato’n - 4.4.2 tena dīvyati khanati jayati jītam.

34 Mbh II.240.14.

35 He focuses on the question: should the ya of gārgya be deleted by 2.4.64 yaṇaṇoś ca before a plural declensional affix is introduced to the derivation? I think this question is invalid because, in my view, 2.4.64 should only apply to a base when a plural affix is present.
7.2.117 *taddhiteṣv acām ādeḥ*: same as above.

6.4.148 *yasyeti ca*: same as above.

4.2.4 *lub aviseṣe*: a *taddhita* affix introduced after a nominal stem ending in *ṛtīyā* and denoting a constellation is replaced with *LUP* when the time of conjunction is not qualified with specifications.\(^{36}\)

4.1.2 *svaujasamaṭchaṣṭābyāṁbhisēbhāyāṁbhyaṅsibhyāṁbhyaṅsasōmīyassup*

Let us look at the relationship of 4.2.4 with the two rules 6.4.148 and 7.2.117. If we apply 4.2.4 at this step, thereby deleting the affix which triggers rules 7.2.117 and 6.4.148, neither of these two rules will be applicable at the following step. However, if we apply any of these two rules at this step, 4.2.4 will still be applicable at the following step. So, 4.2.4 unidirectionally blocks 6.4.148 and 7.2.117 and is thus in conflict with both of them.

By my interpretation of 1.4.2, the right-most rule 4.1.2 applies and we get *puṣya + aN + sU*.

Here multiple rules are applicable:

\[
\begin{array}{cccc}
  & p & u & sy & a + aN \\
7.2.117 & 6.4.148 & 4.2.4 & sU
\end{array}
\]

By my interpretation of 1.4.2, the right-most rule 4.2.4 applies and we get: *puṣya + sU* → *puṣyaḥ*, which is the correct form.

The *Bhaimī* commentary on the *Laghusiddhāntakaumudī* does not mention this conflict. However, after applying 4.2.4 at this step, it does say that by 1.1.63 *na lumatāṅgasya*, 7.2.117 and 6.4.148 fail to apply at the following step.

---

\(^{36}\) Note that our sentence is *adya puṣyaḥ* wherein the time mentioned is *adya* which is not specific (unlike for example, *rātri*, which is specific); thus 4.2.4 is applicable here.
Let us now derive the nominative singular form of ‘fifth’. We add $DaT$ to $pañcan + .Nombre$ by the following rule:

5.2.48 *tasya pūraṇe daṭ*; the *taddhita* affix $DaT$ occurs to denote the sense of *pūraṇa* ‘that by which something is brought to completion, ordinal number’ after a syntactically related nominal stem which signifies number and ends in *ṣaṣṭhī* ‘genitive’.

In $pañcan + .Nombre + DaT$, *Nombre* is deleted by 2.4.71 *supo dhātu-prātipadikayoḥ*, so we get $pañcan + DaT$. Thereafter, the following rules become applicable:

\[
\begin{array}{ccc}
\text{pañc} & \text{an} & DaT \\
6.4.143 & 5.2.49 & 4.1.2
\end{array}
\]

6.4.143 *ṭeh*: the *ṭi* (cf. 1.1.64 *aco ’ntyādi ṭi*) of an item termed *bha* is replaced with *LOPA* when an affix marked with *D* follows.

5.2.49 *nāntād asamkhyaṛder maṭ*: the augment $mAṬ$ is attached to the *taddhita* affix $DaT$ when used to denote its ordinal, after a *n*-final nominal stem which ends in *ṣaṣṭhī* ‘genitive’ and does not have a number as its initial constituent.

4.1.2 *svaujasamaucṣatsābhyyāmbhisiebhyāmbhyasyāsibhyāmbhyasyāsosāṃnyossup*

4.1.2 neither blocks nor is blocked by the other two rules.

Now let us look at the relationship between 5.2.49 and 6.4.143. If we apply 5.2.49 at this step, then $DaT$ will take the augment $mAṬ$. As a result, it will begin with a consonant. This implies that $pañcan$ is no longer followed by an affix beginning with a vowel or *y*, and therefore it cannot be called *bha*. Thus, 6.4.143, which applies only to items termed *bha*, will not be applicable to *an* at the following step.

If we apply 6.4.143 at this step, *an* gets deleted, so $DaT$ will no longer be preceded by an item ending in *n*. Therefore, 5.2.49 will not be applicable at the following step.

Both rules block each other. This is a case of mutual blocking, and of Type 2a (DOI conflict).

By my interpretation of 1.4.2, we apply the right-most rule 4.1.2 and get $pañcan + DaT + sU$. Here two rules are applicable:
6.4.143 ṭeh: same as above.

5.2.49 nāntād asāṁkhyāder maṭ: same as above.

This is a case of DOI. By my interpretation of 1.4.2, we apply the RHS rule 5.2.49 and get: \( \text{pañcan} + \text{ma} + sU \). By 1.4.17 svādiṣv asarvanāmāsthāne\(^{37} \), \( \text{pañcan} \) takes the technical designation \( \text{pada} \), and so by 8.2.7 nalopāḥ prātipadikāntasya, the \( n \) of \( \text{pañcan} \) gets deleted. Thus, we get the correct form: \( \text{pañcamah} \).

On 5.2.49, Nyāsa says that 5.2.49 is antaraṅga with respect to 6.4.143 and thus wins.

(8) Let us now look at the derivation of \( \text{kālimmanyā} \) ‘a woman who considers herself to be Kālī’. This is the feminine version of the upapada compound made of the two \( \text{padas} \) \( \text{kālī} \) and \( \text{many} \). \( \text{many} \) is derived by adding \( \text{KHaŚ} \) to the verbal root \( \text{man} \) ‘to consider’ by the following rule:

3.2.83 ātmamāne khaś ca: affixes \( \text{KHaŚ} \) and \( \text{ŅinI} \) are added to the verbal root \( \text{man} \) when the root co-occurs with a \( \text{pada} \) which ends in a \( sUP \) and the derivate denotes ātmamāna ‘thinking about one’s own self’.

Now, because \( \text{KHaŚ} \) is marked with Ś, it is a sārvadhātuka affix by 3.4.113 tiṇiṣit sārvadhātukam. Here, 3.1.69 divādibhyaḥ ŠyaN instructs us to add the affix ŠyaN between the root \( \text{man} \), which belongs to the fourth class of verbal roots, and \( \text{KHaŚ} \), which is a sārvadhātuka affix used in the active sense. This gives us \( \text{many}a + a \). By 6.1.97 ato guṇe, both \( a \) and the guṇa sound following it are replaced with the latter. This gives us \( \text{many} \).

---

\(^{37}\) A form is termed \( \text{pada} \) when a svādi (affixes enumerated under 4.1.2 svaujas... through 5.4.151 uraḥ prabhṛtibhyāḥ kap) affix which is not a sarvanāmāsthāna (\( sU, \text{au}, \text{Jas}, \text{am}, \text{auT} \); see 4.1.2 svaujas...) follows.
Now let us build the compound: \([kālī Īnas manya]\). By 2.4.71 \(supo dhāturṣtipadikayoh, Īnas\) is deleted. Here two rules are simultaneously applicable:

\[
\begin{array}{c}
kāl \\
6.3.66
\end{array} \quad \begin{array}{c}
ī \\
6.3.67
\end{array} \quad \begin{array}{c}
- \\
\text{manya}
\end{array}
\]

6.3.66 \textit{khity anavyayasya}: the final vowel of the first member of a compound, except indeclinables, is replaced with a short vowel, when a constituent marked with \(KH\) combines to follow.

6.3.67 \textit{arurdviṣadajantasya mum}: augment \(mUM\) is introduced to \(arus, dviṣat\) and word ending in a vowel, except indeclinables, when a constituent marked with \(KH\) combines to follow.

If we apply 6.3.66 at this step, 6.3.67 will be applicable at the following step. But if we apply 6.3.67 at this step, \(ī\) will no longer be the final sound of the \(pūrvapada\). Thus, 6.3.66 will not be applicable at the following step.

This is a case of unidirectional blocking and thus of Type 2a (DOI conflict).

By my interpretation of 1.4.2, the RHS rule 6.3.67 wins, and we get: \(*kālimmanyā\), which is the wrong form. To get the correct form, we first need to apply 6.3.66, thereby shortening \(ī\) or \(kālī\), and only then introduce the augment \(mUM\), which gives us the correct form: \(kālimmanyā\).

After this we add the feminine affix \(ṬāP\) by 4.1.4 \(ajādyatasya tāp\) to get \(kālimmanyā\).

On this topic, the \(Kāśikā\) says: \(mumā hrasvo na bādhyate, anyathā hi hrasvaśāsanam anarthakaṁ syat\) ‘shortening is not blocked by the \(mUM\). Otherwise, the instruction about shortening would be futile’.

Coming back to the problem, how do we explain this anomaly? Notice that these rules have been taught one after another. Let us look at them along with words that have been continued into them by \(anuvṛtti\).

6.3.66 \textit{khity anavyayasya (uttarapade hrasvaḥ)}

6.3.67 (\textit{khity anavyayasya uttarapade}) \quad \textit{arurdviṣadajantasya mum}

---

38 One could argue that this should be \([kālī īnas manya]\). For a detailed discussion on this topic, see Scharf (2016).
While the tradition continues *khity, anavyayasya* and *uttarapade* from 6.3.66 into 6.3.67 by *anuvṛtti*, it does not continue *hrasvah* into 6.3.67 by *anuvṛtti*. I think that Pāṇini intended for *hrasvah* too to be continued into 6.3.67 by *anuvṛtti*. To facilitate its case agreement with *anavyayasya, hrasvah* should be read not in the nominative but instead in the genitive, as *hrasvasya*, in 6.3.67. This gives us the following meaning of 6.3.67: ‘augment *mUM* is introduced to *arus, dviṣat* and a word ending in a short vowel, except indeclinables, when a constituent marked with *KH* combines to follow.’

Let us see how the derivation proceeds if we accept my interpretation of 6.3.67. At the step *kālī - manya*, only 6.3.66 is applicable. Upon its application, we get: *kāli - manya*. Now, 6.3.67 applies and we get *kālimmanyā*. Upon adding the feminine affix *ṬāP*, we get the correct form: *kālimmanyā*.

### 3.3 SOI in Taddhita derivations

The cases of SOI which we find in *samāsa* derivations are few and fairly simple. I will not be discussing them in this thesis. In *taddhita* derivations, we come across examples of SOI between rules teaching affixation. Consider the derivation of *autsa* ‘male offspring of *utsa*’ (cf. 4.1.92 *tasyāpatyam ‘his offspring’*). Three rules teach the addition of three different affixes:

1. **4.1.83 prāg dīvyato ‘n:** The *taddhita* affix *aN* is added to denote senses taught in rules from here up to 4.4.2 *tena dīvyati khanati jayati jītam*.

2. **4.1.86 utsādibhyo ‘n:** The *taddhita* affix *aÑ* is added to denote senses taught in rules from here up to 4.4.2 *tena dīvyati khanati jayati jītam* after forms of stem belonging to the list headed by *utsa*.

3. **4.1.95 ata iñ:** The *taddhita* affix *iÑ* is added to denote ‘his offspring’ after forms of nominal stems ending in *a*.

Now let us write down the conditions in which these rules apply. Remember that, as always, we write the sounds outside brackets and their characteristics inside brackets.
4.1.83

-ending in a

-ending in any other sound

4.1.86

-ending in a (utsādi class)

-ending in any other sound (utsādi class)

4.1.95

-ending in a

Upon comparing the conditions written in bold, we see that 4.1.86 is more specific that the other two rules, on account of the condition ‘utsādi class’. We get the correct form: [utsa + ēnas] + aṅ → autsa ‘offspring of utsa’ (2.4.71 supo dhātuprātipadikayoḥ, 7.2.117 taddhiteśv acām ādeḥ, 6.4.148 yasyeti ca).

On 4.1.86, the Kāśikā says anās tadapavādānāṁ ca bādhakah, implying that this rule is an exception of both 4.1.83 and exceptions of 4.1.83 such as 4.1.95.

The other examples in the taddhita section are quite similar to this one, so we shall not look at them.39

This brings us to the end of this chapter, and also to the end of our study of examples of conflict from sandhi, subanta, taddhita and samāsa derivations. In the following chapter, we shall look at examples from tiṅanta and kṛdanta derivations.

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39 For a detailed study, see Deo (2007).
Chapter Four

4.1 Aṅgādhikāra

Before I examine examples of rule interaction at the same step in tiṅ and kṛt derivations, I will examine rules 6.4.1 aṅgasya and 1.4.13 yasmāt pratyayavidhis tadādi pratyayeṅgam which play a pivotal role in running Pāṇini’s grammatical machine.

6.4.1 aṅgasya is an adhikāra (heading) sūtra, the jurisdiction of which continues all the way up to the end of 7.4. Pāṇini defines the term aṅga in 1.4.13 yasmāt pratyayavidhis tadādi pratyayeṅgam. Sharma translates this as follows: ‘a form beginning with that after which an affix is introduced is termed aṅga when the affix follows’.

I think that the tradition has not correctly understood these rules, as a result of which it faces multiple problems in performing certain derivations. In this section, I will present my interpretations of these rules, and show how my interpretations enable us to perform these derivations correctly.

In my opinion, only one item can be called an aṅga with respect to a certain pratyaya in a derivation. I must admit that I am unable to support this statement using Pāṇini’s rules. However, through the examples discussed in section 4.2 of this chapter, I will show that it is not possible to correctly perform certain derivations without accepting this assumption.

Let me discuss an example from verbal inflection to explain what I mean. Consider the derivation of the present-tense third-person singular form of cit ‘to think’: cit + LAṬ (3.2.123 vartamāne laṭ1) → cit + tiP (3.4.77 lasya, 3.4.78 tiptasjhi…2). According to the tradition3, cit is an aṅga with respect to tiP. Then, after we add the vikaraṇa ṢaP by 3.1.68 kartari śap4, we get cit + ŚaP + tiP. According to the tradition, cit + ṢaP too is an aṅga with respect to tiP.

---

1 Affix LAṬ occurs after a verbal root when the action is denoted at the current time (vartamāna).
3 Though the tradition does not explicitly state this, it becomes clear from the derivations we will examine below that such is indeed the case.
4 Affix ṢaP occurs after a verbal root when a sārvadhātuka affix which denotes kartṛ ‘agent’ follows.
Thereafter, we apply 7.3.86 *pugantalaghūpadhasya ca*\(^5\) to *cit* and get *cet + ŠaP + tiP* i.e., *ceta + tiP*. According to the tradition, *ceta* too can be called an *aṅga* with respect to *tiP*.

So, *cit, cit + ŠaP* and *ceta* can all be called *aṅga* with respect to *tiP*, in the tradition’s opinion. I disagree with the traditional perspective: in my opinion, we can have only one *aṅga* per affix per derivation\(^6\). So, which one of the three options, namely *cit, cit + ŠaP* and *ceta*, should be called an *aṅga* with respect to *tiP*? I think *ceta* alone can be called an *aṅga* with respect to *tiP*.

I will present my arguments to support this claim below. But before we proceed, I must admit that I am unable to provide any strong evidence from Pāṇini’s rules to justify the arguments I make below. Nonetheless, I will discuss some derivations in section 4.2 of this chapter which will prove that if we accept any other item but *ceta* as the *aṅga* with respect to *tiP*, we risk getting the wrong form at the end of the derivation. That said, now let us consider all three possibilities, namely *cit, cit + ŠaP* and *ceta*.

Let us first look at *cit*. If Pāṇini wanted us to treat *cit* as an *aṅga* with respect to *tiP*, he could have simply said *yasmāt pratyayavidhis tad pratyaye’ṅgam* ‘a form after which an affix is introduced is termed *aṅga* when the affix follows.’ Thus, I do not think that we should call *cit* an *aṅga* with respect to *tiP*. This leaves us with two options: *cit + ŠaP* and *ceta*. Let us closely consider 1.4.13 in the context of this derivation to decide which of the two should be called an *aṅga* with respect to *tiP*.

\begin{align*}
yasmāt &→ (lit. after) *cit* \\
pratyayavidhis &→ (upon the) addition of *tiP* \\
tadādi &→ that which begins with *cit* \\
pratyaye &→ when *tiP* follows \\
aṅgam &→ (is called) *aṅga*.
\end{align*}

\(^5\) *Guna* replaces the *iK* of a verbal base which ends in the augment *pUK* or which has a *laghu* ‘light’ vowel as its penultimate sound when a *sārvadhātuka* or *ārdhadhātuka* affix follows.

\(^6\) I must clarify that, in my view, the modified version of an *aṅga* too can be called an *aṅga*, thanks to 1.1.56 *sthānivad ādeśo ‘nalvidhau*, which teaches that the substitute is treated like the substituendum, except when an operation relative to the original sound is to be performed. So, for example, in *deva + bhyām, deva* is an *aṅga* with respect to *bhyām*. By applying 7.3.102 *supi ca*, we get *devā + bhyām*. *devā* too can be called an *aṅga* with respect to *bhyām* by 1.1.56 *sthānivad ādeśo ‘nalvidhau*. 

110
‘Upon the addition of tiP to cit, that which begins with cit is called aṅga when tiP follows.’

The form which begins with cit is an aṅga with respect to tiP. Can we say that cit + ŠaP begins with cit? I do not think so. I think cit + ŠaP is still just a string of two separate items, namely the root cit and the vikaraṇa affix ŠaP. Only when they are fused into a single form that begins with cit, that form can be called an aṅga with respect to tiP. When can we fuse cit and ŠaP into a single form? I think we can do that after applying all possible rules to cit and ŠaP, except those that are triggered by tiP.

So here, we apply 7.3.86 pugantalaghūpadhasya ca to cit (an operation triggered by ŠaP, not by tiP) and get cet + ŠaP + tiP. Note that cet and ŠaP cannot undergo any other operations which are not triggered by tiP, so we can fuse cet + ŠaP into a single form, i.e., ceta. Ceta begins with cet and is followed by tiP, so it can be called an aṅga with respect to tiP. I summarize this information in this table:

<table>
<thead>
<tr>
<th>Step</th>
<th>Question</th>
<th>Traditional opinion</th>
<th>My opinion</th>
</tr>
</thead>
<tbody>
<tr>
<td>cit + tiP</td>
<td>Is cit an aṅga w.r.t. tiP?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>cit + ŠaP + tiP</td>
<td>Is cit + ŠaP an aṅga w.r.t. tiP?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>ceta + tiP</td>
<td>Is ceta an aṅga w.r.t. tiP?</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

In my opinion, through 6.4.1 aṅgasya, Pāṇini teaches that, for any P + Q, a rule Rₚ taught in the aṅgādhikāra which is triggered by Q is applicable to its intended operand P only if P is an aṅga with respect to affix Q. Similarly, a rule Rₗ taught in the aṅgādhikāra which is triggered by P is applicable to its intended operand Q only if P is an aṅga with respect to affix Q.

Also, note that I agree with the tradition that cit is an aṅga with respect to ŠaP. So, at the step cit + ŠaP + tiP, 7.3.86 pugantalaghūpadhasya ca, which belongs to the aṅgādhikāra and which is triggered by ŠaP, is applicable to cit.

Before we go further, note that, we find vikaraṇas only in tiṅanta and kṛdanta derivations. So, in the rest of the derivations, it is very easy to determine what we should call an aṅga with respect to the affix. For instance, in deva + bhis (example 1 of section 2.7, chapter 2), deva is an aṅga with respect to bhis simply because the affix bhis has been added to deva. Similarly, in sad + vas + Ṇas (example 2 of section 3.2, chapter 3), sad + vas is an aṅga with respect to...
\( \text{\textit{N\text{\textsemi}}} \)as simply because the affix \( \text{\textit{N\text{\textsemi}}} \)as has been added to \( \text{\textit{sad + vas}} \). In derivations involving \( \text{\textit{vikara\text{\textsemi}nas}} \), because we add affix \( \text{\textit{C}} \) to base \( \text{\textit{A}} \) and then add another affix \( \text{\textit{B}} \) between base \( \text{\textit{A}} \) and affix \( \text{\textit{C}} \), the process of identifying the \( \text{\textit{a\text{\textsemi}\text{\textsemi}nga}} \) with respect to affix \( \text{\textit{C}} \) becomes somewhat complicated, as observed above.

### 4.2 Examples of Application of 1.4.13 and 6.4.1

Now I will discuss some examples through which I will show that my interpretation of 1.4.13 and 6.4.1 alone can help us derive the correct final form. But first, let me offer a clarification.

In many of the examples discussed in this chapter, the derivation should begin with: verbal base + \( \text{\textit{lak\text{\textsemi}ra}} \). At this stage, there are two possibilities:

(i) only one rule, i.e., the rule which teaches the replacement of the \( \text{\textit{lak\text{\textsemi}ra}} \) is applicable, and this rule applies.

(ii) multiple rules, including the rule which teaches the replacement of the \( \text{\textit{lak\text{\textsemi}ra}} \) are applicable.

\[
\begin{array}{ccc}
\text{verbal base} & + & \text{lak\text{\textsemi}ra} \\
M & N & O
\end{array}
\]

The rule \( O \), which teaches the replacement of the \( \text{\textit{lak\text{\textsemi}ra}} \) is the right-most. Thus, by my interpretation of 1.4.2, we apply rule \( O \).

Note that, in both cases (i) and (ii), the rule that replaces the \( \text{\textit{lak\text{\textsemi}ra}} \) applies at the first step. So, in order to simplify the presentation, in all the examples where the derivation should start with verbal base + \( \text{\textit{lak\text{\textsemi}ra}} \), I simply start it with verbal base + \( \text{\textit{ti\text{\textsemi}N}} \) (one of the eighteen finite replacements of the \( \text{\textit{lak\text{\textsemi}ras}} \)) instead. For instance, in the first derivation discussed in this section, technically the derivation should proceed as follows: \( \text{\textit{edh + LAT}} \) (3.2.123 \textit{vartam\text{\textsemi}ne la\text{\textsemi}t}) \( \rightarrow \) \( \text{\textit{edh + jha}} \) (3.4.77 \textit{lasya}, 3.4.78 \textit{tptas\text{\textsemi}jhi}...). However, I start with \( \text{\textit{edh + jha}} \), purely for the purpose of avoiding redundancy.
(1) edh + jha – ‘to grow’, present third-person plural

As stated in section 4.1 of this chapter, we cannot call edh an aṅga with respect to jha. Consequently, at this step, rules taught in the aṅgādhitkāra (6.4 – 7.4), such as 7.1.3 jho’ntaḥ (which teaches that a jh which is the initial sound an affix is replaced with ant) or 7.1.5 ātmanepadesv anataḥ (which teaches that a jh, which is the initial sound of an ātmanepadā affix preceded by a verbal base that does not end in a, is replaced with at) cannot apply to jh.

Here, only two rules are applicable:

```
edh  +   jh a
      3.1.68    3.4.79
```

3.1.68 kartari ūap: same as above.

3.4.79 tiśā ātmanepadānāṁ ter e: the part that begins with the last vowel (ti) of an ātmanepada replacement of a lakāra marked with ṭ is replaced with e.

By my interpretation of 1.4.2, we apply the RHS rule 3.4.79 and get: edh + jhe. At this stage too, we cannot call edh an aṅga with respect to jhe. Thus, 7.1.3 and 7.1.5 are not applicable here. Only one rule, namely 3.1.68 is applicable. Upon applying it, we get edh + ŠaP + jhe. At this step, edh and ŠaP cannot undergo any further operations which are not triggered by jhe, so we can simply write edh + ŠaP as edha. edha is an aṅga with respect to jhe. At this stage, of the two aforementioned rules which belong to the aṅgādhitkāra, 7.1.3 is applicable but 7.1.5 is not. We apply 7.1.3, and get edha + ante. By 6.1.97 ato guṇe, we get the correct form: edhante.

To the best of my knowledge, the tradition does not discuss this example. However, let us consider what would have happened if we had not accepted my interpretations of 1.4.13 and 6.4.1 respectively. At the step edh + jha, four rules would become applicable:

---

8 Unless I explicitly state that the form being derived is passive, it must be assumed that it is active.

9 1.1.64 aco’ntyādi ī.  

10 When a short a, that is not pada-final (word-final) is followed by a guṇa vowel i.e., a, e, or o, then both a and the following guṇa are replaced with the latter.
Note that all the DOI relationships here are of Type 2b (DOI non-conflict). As stated before, the tradition is not interested in non-conflict and mostly applies rules in a haphazard order in such cases.

There is an SOI between 7.1.3 jho’nthaḥ and 7.1.5 ātmanepadesv anataḥ. 7.1.5 is more specific than and thus wins against 7.1.3 jho’nthaḥ. If the tradition applies 7.1.5, which replaces jh with at first and applies 3.1.68 kartari śap at a later step, that gives *edhate, which is not the correct form.

My interpretations of 1.4.13 yasmāt pratyayavidhis tadādi pratyayeṅgam and 6.4.1 aṅgasya respectively ensure that jh replacement, which is taught in the aṅgādhikāra, takes place only after the application of 3.1.68 kartari śap, which is taught outside the aṅgādhikāra. After the application of 3.1.68, 7.1.5 ātmanepadesv anataḥ, which is an exception of 7.1.3 jho’nthaḥ, is no longer applicable to jh, and thus 7.1.3 jho’nthaḥ applies to jh. This gives the correct form, edhante.

(2) dhā + jhi – ‘to place’, present third-person plural

As stated before, dhā cannot be called an aṅga with respect to jhi. Consequently, rules taught in the aṅgādhikāra (6.4 – 7.4) cannot apply to dhā or jhi. For example, 7.1.3 jho’nthaḥ cannot apply here. The derivation proceeds as follows: dhā + ŠaP + jhi (3.1.68 kartari śap) → dhā + ŠLU + jhi (2.4.75 juhotyādibhyah śluḥ11) → dhāḍhā + ŠLU + jhi (6.1.10 ślau12) → dhadhā + ŠLU + jhi (7.4.59 hrasvah13). At this point, we notice that dhadhā and ŠLU cannot undergo any other operations which are not triggered by jhi. So, we can write dhadhā + ŠLU as dhadhā.

---

11 When the affix ŠaP is preceded by any verbal root belonging to the list headed by hu ‘to perform sacrifice’, it is replaced with ŠLU (cf. 1.1.61 pratyayasya lukślulupah).

12 A verbal base which has not already undergone reduplication undergoes reduplication when it is followed by ŠLU. (Note that, the whole base does not undergo reduplication. Instead, only one syllable does. See 6.1.1 ekāco dve prathamasya and 6.1.2 ajāder dvitīyasya. Unless necessary, I will not repeat this clarification in this chapter).

13 The vowel of the abhyāsa ‘first of two reduplicated syllables’ is replaced with its short counterpart.
In \textit{dhadhā + jhi}, \textit{dhadhā} can be called an \textit{aṅga} with respect to \textit{jhi}. Therefore, the following rules from the \textit{aṅgādhikāra} are applicable here:

\begin{align*}
\text{dh} & \quad \text{a} & \quad \text{dh} & \quad \tilde{a} & \quad + & \quad \text{jh} & \quad i \\
\end{align*}

6.4.112 \textit{śnābhystayor ātaḥ}: the \textit{ā} of the affix \textit{Śnā} or the \textit{ā} at the end of a reduplicated verbal base is replaced with \textit{LOPA} when a \textit{sārvadhātuka} affix marked with \textit{K} or \textit{Ṇ} follows.

7.1.3 \textit{jho 'ntaḥ}: a \textit{jh} which is the initial sound an affix is replaced with \textit{ant}.

7.1.4 \textit{ad abhyastā}: when preceded by a reduplicated base, a \textit{jh} which is the initial sound an affix is replaced with \textit{at}.

By my interpretation of 1.4.2, we perform the RHS operation. But there is an SOI between 7.1.3 and 7.1.4, both of which apply to the RHS operand. Because 7.1.4 has been taught for \textit{jh} when it is preceded by a reduplicated base, it is more specific and wins. Thus, we get: \textit{dhadhā + ati}. Here 6.4.112 \textit{śnābhystayor ātaḥ} applies and we get \textit{dhadh + ati}. Now that all the possible rules from the \textit{sapādasaptādhāyī} have applied, a rule from the \textit{tripādī} section applies:

8.4.54 \textit{abhyāse car ca}: in an \textit{abhyāsa} (first of two reduplicated syllables), \textit{jhaL} (a non-nasal stop or a fricative) is replaced with \textit{caR} (\textit{c, t, k, p, ś, s}) or \textit{jaŚ} (\textit{j, b, g, ḍ, d}).

Thus, we get \textit{dhadhati} \textit{→} \textit{dadhati}, which is the correct answer.

Let us now look at how the tradition tackles this problem. Like in the previous example, in this example too, there are no cases of DOI conflict, and so the tradition chooses to apply rules in a random order. But some sequences of rule application can give the wrong answer. For example: \textit{dhā + jhi} \textit{→} \textit{dhā + ŠaP + jhi} (3.1.68) \textit{→} \textit{dhā + ŠaP + anti} (7.1.3) \textit{→} \textit{dhā + ŠLU + anti} (2.4.75) \textit{→} *\textit{dadhanti} (6.1.10 \textit{ślaú} etc.). In sum, if \textit{jh} undergoes replacement before the reduplication of \textit{dhā}, we get the wrong answer. To address this issue, the tradition has come up

\begin{footnote}{8.2.1 \textit{pūrvatrāśiddham} teaches that from this rule onwards, a following rule is \textit{asiddha} ‘suspended’ with respect to a preceding rule. So, if 8.4.54 and any rule that precedes it in the \textit{Aṣṭādhyāyī}’s serial order are simultaneously applicable, then the latter will not acknowledge 8.4.54 and will thus apply at that step. 8.4.54 can apply only after this. I will demonstrate this more elaborately in the following chapter which is devoted to the concepts \textit{asiddha} and \textit{asiddhavat}.}

115
with the following ideas. Consider paribhāṣās 62 and 63 of the Paribhāṣenduśekhara and their translation by Kielhorn:

*pūrvaṁ hy apavādā abhiniviśante paścād utsargāḥ* (62).

‘apavādas, it is certain, are considered first (in order to find out where they apply); afterwards the general rules (are made to take effect in all cases to which it has thus been ascertained that the apavādas do not apply)’.

*prakalpya vāpavādaviṣayaṁ tata utsargo’bhiniviṣate* (63).15

‘Or (we may say that) first all (forms) which fall under the apavāda are set aside, and that subsequently the general rule is employed (in the formation of the remaining forms).’

Let us see what happens if we follow these paribhāṣās at the first step (dhā + jhi). At this step, 7.1.4 ad abhyastāt, which is the apavāda of 7.1.3 jho’ntaḥ, is not applicable. Since the apavāda is not applicable, we go ahead and apply the utsarga 7.1.3. But this gives us the wrong form *dadhanti*. Taking cognizance of this problem, the tradition has come up with the following metarule:

_upasamjanisyamāṇanimitto’py apavāda upasamjātanimittam apy utsargam bādhata iti* (64).

‘An apavāda supersedes, even though the causes of its (application) are still to present themselves, a general rule the causes (of the application) of which are already present.’

In other words, this paribhāṣā teaches that even though 7.1.3 is applicable to jh from the beginning of the derivation, one must not replace jh until the apavāda 7.1.4 becomes applicable. This gives the correct answer, dadhati.

As stated in the first chapter, the tradition often comes up with a new paribhāṣā to address individual problems like this one. Paribhāṣā 64 is a good case in point.

My method ensures that the replacement of jha, which is taught in the aṅgādhikāra, takes place after the reduplication of dhā, which is taught outside the aṅgādhikāra. Therefore, 7.1.3 jho’ntaḥ does not become applicable until 7.1.4 ad abhyastāt, its exception, also becomes applicable. 7.1.4 wins, thereby giving the correct form dadhati. My method is able to tackle

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15 Paribhāṣās 62 and 63 are found mentioned together on numerous occasions in the Mahābhāṣya (See Bronkhorst 2004: 18, footnote 11 for details).
this issue without relying on *paribhāṣās* like Pbh 64, which require us to look ahead into the derivation.

Before we move on to discussing other examples, note that Pāṇini teaches most substitutions and other operations pertaining to the eighteen finite affixes from 3.4.77 to 3.4.112. For example, 3.4.87 *ser hy apic ca*\(^{16}\), 3.4.101 *tasthamipāṁ tāṁtāṁmahā*\(^{17}\) etc. He teaches the substitution of *jhi* from 3.4.108 *jher jus* to 3.4.112 *dvīsa ca*. However, the three rules teaching the replacement of *jh*, i.e., 7.1.3 *jho’ntaḥ*, 7.1.4 *ad abhyastāḥ*, and 7.1.5 *ātmanepadeśv anataḥ* are found in the *aṅgādhikāra*, and not in the section 3.4.77-3.4.112. This strongly suggests that Pāṇini wants us to treat 7.1.3-7.1.5 differently, that is, he wants us to apply them only when *jh* is part of an affix which is preceded by what I define as an *aṅga*.

(3) *hā + tas* – ‘to abandon’, present third-person dual

*hā* is not an *aṅga* with respect to *tas*. So here, we cannot apply rules from the *aṅgādhikāra*, such as 6.4.116 *jahāteś ca* (see translation below). The derivation proceeds as follows: *hā + tas* → *hā + ŠaP + tas* (3.1.68 *kartari śap*) → *hā + ŠLU + tas* (2.4.75 *juhotyādibhyah śluḥ*) → *hāhā + ŠLU + tas* (6.1.10 *ślau*). Here, two rules are applicable, which are from the *aṅgādhikāra*, but which are not triggered by *tas*:

\[
\begin{array}{cccc}
    & h & ā & hā & + & ŠLU & + & tas \\
7.4.62 & 7.4.59
\end{array}
\]

7.4.62 *kuhoś cuḥ*: a consonant of the *k*-series (*kU*), or a *h*, that is part of the *abhyāsa* (first of two reduplicated syllables) is replaced with a consonant of the *c*-series (*cU*).

7.4.59 *hrasvah*: the vowel of the *abhyāsa* (first of two reduplicated syllables) is replaced with its short counterpart.

By my interpretation of 1.4.2, we apply the RHS rule 7.4.59 and get *hahā + ŠLU + tas*. To this, we apply 7.4.62 and get *jhahā + ŠLU + tas*. Now, *jhahā* and *ŠLU* cannot undergo any further operations which are not triggered by *tas*, so we can write *jhahā + ŠLU as jhahā*. Now,

---

16 A *siP replacement of *LOṬ* is replaced with *hi* and is treated as if not marked with *P*.

17 The *tas, thas, tha* and *miP* replacements for any *lakāra* marked with *ū*, are replaced with *tām, tam, ta* and *am*, respectively.
jhahā is an aṅga with respect to tas. Thus, the following rules from the aṅgādhikāra, which are triggered by tas, become applicable:

\[ jha + ṛ + tas \]

6.4.113 ṯ haly aghoḥ: the final ṛ of a base which ends in Śnā, or of a reduplicated stem (abhyasta) excluding those termed ghu, is replaced with ṯ when a sārvadhātuka affix beginning with a consonant and marked with K or Ṇ follows.

6.4.116 jahāteś ca: the final ṛ of hā 'to abandon', is optionally replaced with i, when a sārvadhātuka affix beginning with a consonant and marked with K or Ṇ follows.

There is an SOI relationship between 6.4.113 and 6.4.116. Since 6.4.116 has been taught specifically for hā, it wins, as a result of which we get jhahitas. Finally, since all rules from the sapādasaptādhyāyī have been applied, we apply 8.4.54 abhyāse car ca from the tripādī and get jhahitaḥ → jahitaḥ, which is the correct answer.

Note that 6.4.116 jahāteś ca is an optional rule. If we do not implement¹⁸ it, 6.4.113 ṯ haly aghoḥ applies, giving us jahītaḥ, which is also correct.

To the best of my knowledge, the tradition has not discussed this problem. But, since this derivation does not involve any DOI conflicts, the tradition would have applied rules in any haphazard order. Let us look at one of the possible paths this derivation would have taken if we had not accepted my interpretations of 1.4.13 and 6.4.1 respectively:

\[ hā + tas \rightarrow hā + ŠaP + tas (3.1.68 kartari śap) \rightarrow hā + ŚLU + tas (2.4.75 juhotyādibhyaḥ śluḥ) \rightarrow hi + ŚLU + tas (6.4.116 jahāteś ca) \rightarrow *jihitaḥ (6.1.10 ślau etc). \]

The possibility of getting such a wrong answer is completely eliminated by following my interpretations of 1.4.13 and 6.4.1 respectively. This is because, my method ensures that 6.4.116, which is taught in the aṅgādhikāra and replaces ṛ of hā with i, applies only after the reduplication of root hā by 6.1.10 ślau, which is taught outside the aṅgādhikāra.

¹⁸ Note that I will use the word ‘implement’ henceforth in relation with optionality.
Note that $vap$ is not an $aṅga$ with respect to $ta$, so rules like 6.4.71 $luṅlaṅlr̥ṅṣv ad udāttaḥ$ (see translation below) which are part of the $aṅgādhikāra$, cannot apply at this step. The following rules are applicable to $vap + ta$:

$$
vap + ta
$$

6.1.15 $vacisvapiyādīnām ca$: roots $vac$ ‘to speak’, $svap$ ‘to sleep’, and those headed by $yaj$ ‘to perform sacrifice’ undergo *samprasāraṇa* when an affix marked with $K$ follows.\(^{19}\)

3.1.67 $sārvadhātuke yak$: affix $yaK$ occurs after a verbal root when a $sārvadhātuka$ affix which denotes $bhāva$ or $karman$ follows. By my interpretation of 1.4.2, the RHS rule 3.1.67 applies, and we get: $vap + yaK + ta$. Thereafter the derivation proceeds as follows: $vap + yaK + ta \rightarrow uap + yaK + ta$ (6.1.15) $\rightarrow$ $up + yaK + ta$ (6.1.108 *samprasāraṇa* ca\(^{20}\)). Since $up$ and $yaK$ cannot undergo any other operations which are not triggered by $ta$, we can write $up + yaK$ as $upa$. In $upa + ta$, $upa$ is an $aṅga$ with respect to $ta$. Thus, the following rules from the $aṅgādhikāra$ which are triggered by $ta$ become applicable:

$$
upa + ta
$$

6.4.71 $luṅlaṅlr̥ṅṣv ad udāttaḥ$: the $udātta$ ‘high-pitched’ augment $aṬ$ is attached to a verbal base when affixes $LUṄ$, $LAṄ$ and $LRṄ$ follow.

6.4.72 āḍ ajādinām: the $udāttaḥ$ ‘high-pitched’ augment $āṬ$ is attached to a verbal base which begins with a vowel ($aC$) when affixes $LUṄ$, $LAṄ$ and $LRṄ$ follow.

\(^{19}\) Note that this rule is applicable because $ta$, by virtue of being an *apit sārvadhātuka*, can be treated as marked with $K$, by 1.2.4 *sārvadhātukam apit*.

\(^{20}\) A *samprasāraṇa* vowel and the following vowel, are together replaced with the former.
This is a case of SOI. 6.4.72 has been taught specifically for bases which begin with a vowel and thus wins, thereby giving us the correct form ā-upya + ta → aupyata (6.1.90 āṭaś ca\(^21\)).

Let us now consider how the tradition deals with this example. Like in the previous examples, here too, we do not find any instances of DOI conflict. Therefore, the tradition applies rules in a random order. If the attachment of the augment had been undertaken before samprasāraṇa, we would have got the incorrect form: a-vapyata (6.4.71 luṅlaṅlr̥ṅṣv aḍ udāttaḥ) → a-upyata (6.1.90 vacisvapiyajādīnām ca) → *opyata (6.1.108 samprasāraṇāc ca, 6.1.78 eco 'yavāyāvah). In order to overcome this problem, the Kāśikā, on 6.4.72 āḍ ajādīnām, suggests that there is a conflict between augment addition and processes such as replacement of LAṄ and introduction of the vikaraṇa yaK, and by nityatva and antaraṅgatva respectively these two processes defeat the addition of the augment aṬ.\(^22\)

We may conclude that the tradition comes up with a tailored solution to this problem. In contrast with this, my method eliminates the need to rely on post-पाणिनिन tools and paribhāṣās. My respective interpretations of 1.4.13 and 6.4.1 ensure that the addition of the augment, which is taught in the aṅgādhikāra, takes place only after samprasāraṇa, which is taught outside the aṅgādhikāra. As a result of this, 6.4.71 luṅlaṅlr̥ṅṣv aḍ udāttaḥ does not become applicable until 6.4.72 āḍ ajādīnām, which is its exception, also becomes applicable. 6.4.72 wins, thereby giving the correct form aupyata.

In sum, these four examples prove that my interpretations of 1.4.13 and 6.4.1 respectively are correct. In all four derivations, the tradition applies rules in a haphazard order, as a result of which it often gets the wrong form at the end of the derivation. It is forced to come up with individual solutions for each of these problems.

It is also noteworthy that in cases of the type ‘base + affix (1) + affix (2)’, Pāṇini teaches those processes which contribute towards the construction of the aṅga with respect to affix (2) before

\(^21\) A single vr̥ddhi vowel replaces both āṬ and the vowel following it.

\(^22\) Iha aijyata, aupyata, auhyata iti laṇi kṛte lāvasthāyām aḍāgamād antaraṅgatvāl lādeśāḥ kriyate, tatra kṛte vikaraṇo nityatvād aḍāgamāṁ bādhate ‘Here [with reference to the derivation of the forms] aijyata, aupyata, auhyata, after the addition of the affix LAṄ, in that state of the lakāra, by antaraṅgatva, the substitution of the lakāra is done [rather than] the addition of the augment aṬ, and thereafter, by nityatva, the [addition of] vikaraṇa defeats [the insertion of] augment aṬ.’

120
6.4.1, in the Aṣṭādhyāyī’s serial order. For example, he teaches the addition of vikaraṇas in pāda 3.1 and vowel sandhi, reduplication and samprasāraṇa in pāda 6.1.

4.3 Examples of DOI Conflict

Now I will discuss examples of DOI conflict, which are of interest to the tradition, and show how my interpretation of 1.4.2 is able to solve these cases. I will also consistently apply my interpretations of 1.4.13 and 6.4.1 respectively in all these examples.

In each example, I will prove the existence of DOI conflict and apply my interpretation of 1.4.2 to solve it. As stated in chapter 2, generally speaking, to deal with examples of DOI conflict, the tradition uses nityatva (for cases of unidirectional blocking), niravakāsatva or its interpretation of 1.4.2, as per convenience. To avoid repetition, I will not mention the traditional solution for each example below.

Note that almost all cases of DOI conflict in derivations of finite verbs and primary derivatives involve unidirectional, and not mutual blocking. We will investigate this further later in this chapter.

Lastly, also note that kṛdanta forms are prātipadikas by 1.2.46 kṛttaddhitasamāsāś ca and thus they can take suP affixes by 4.1.1 nyāpprātipadikāt. However, in the examples I have discussed in this section, I have not added suP affixes to kṛdanta forms. This is purely to avoid repetition and redundancy. This does not affect the derivations discussed in this chapter. For example, the first derivation śvi + Ktvā should actually begin in the following manner: śvi + Ktvā → śvi + Ktvā + sU (4.1.2 su-au-jas...) → śvi + Ktvā (1.1.40 ktvātosunkasunāḥ, 2.4.82 avyayād āpsupah). Here onwards, the derivation proceeds as follows:

---

23 I have included the kṛdanta derivation sad + KvasU + Ąas in the previous chapter because there, nominal inflection plays a crucial role in helping us obtain the correct form.
1. śvi + Ktvā – ‘to swell’, absolutive

\[
\begin{array}{c}
\text{śvi} \\
6.1.15
\end{array} + \begin{array}{c}
\text{Ktvā} \\
7.2.35
\end{array}
\]

6.1.15 vacisvapiyajādīnām kiti: roots vac ‘to speak’, svap ‘to sleep’, and those headed by yaj ‘to perform sacrifice’ undergo samprasārāna when an affix marked with K follows.

7.2.35 ārdhadhātukasyeḍ valādeḥ: augment iṬ is attached to an ārdhadhātuka affix beginning with vaL (any consonant except y).

If iṬ is attached to Ktvā by 7.2.35, then according to 1.2.18 na ktvā seṭ (which teaches that a Ktvā which has taken the augment iṬ is not treated as marked with K), itvā will no longer be treated as marked with K. And so, 6.1.15, which applies to certain roots which are followed by a K-marked affix, will not be applicable at the following step. So, 7.2.35 blocks 6.1.15. On the other hand, 7.2.35 will still be applicable after the application of 6.1.15. So, 6.1.15 does not block 7.2.35. This is a case of unidirectional blocking and thus of DOI conflict.

By my interpretation of 1.4.2, the RHS rule 7.2.35 wins and we get: śvi + itvā. Since itvā can no longer be treated as marked with K, 7.3.84 sārvadhātukārdhadhātukayoḥ24 causes guṇa of i, thereby giving us śve + itvā. By 6.1.78 eco ‘yavāyāvah, we get the correct form: śvayitvā.

2. han + Kta – ‘to kill’, past passive participle

\[
\begin{array}{c}
\text{h} \\
6.4.15
\end{array} a \begin{array}{c}
\text{n} \\
6.4.37
\end{array} + \begin{array}{c}
\text{Kta}
\end{array}
\]

6.4.15 anumāsikasya kvijhaloḥ kniti: the penultimate vowel of a base which ends in a nasal (anumāsika), is replaced with its long counterpart when affix KvI, or an affix beginning with jhal ‘a non-nasal stop or a fricative’ and marked with K or Ń follows.

6.4.37 anudāttopadeśavanatitanotyādīnām anunāsikalopo jhali kniti: the final nasal of a base marked with anudāṭta when taught in the Dhātupāṭha, as well as of vanA ‘to like’ and the roots


\[\text{Guṇa replaces the final sound } iK (i, u, r, ḷ) \text{ of a verbal base when a sārvadhātuka or ārdhadhātuka affix follows.}\]
headed by \text{tanU} ‘to extend’, is replaced with \text{LOPA} when an affix beginning with \text{jhaL} ‘a non-nasal stop or a fricative’ and marked with \text{K} or \text{N} follows.

If \text{han} is replaced with \text{LOPA} by 6.4.37, 6.4.15 will not be applicable at the following step. But if the vowel of \text{han} is lengthened by 6.4.15, 6.4.37 will still be applicable at the following step. This is a case of unidirectional blocking, and thus of DOI conflict.

By my interpretation of 1.4.2, we apply the RHS rule 6.4.37 and get the correct form \text{hata}.

3. \text{han + jhi} – ‘to kill’, present third-person plural

As per my interpretation of 1.4.13, \text{han} cannot be called an \text{aṅga} with respect to \text{jhi}. Thus, rules from the \text{aṅgādhikāra} are not applicable at this step. I will not repeat this clarification henceforth and will assume that the reader is by now familiar with it.

\text{han} + \text{jhi} \rightarrow \text{han} + \text{ŚaP} + \text{jhi} \quad (3.1.68 \text{ kartari śap}^{25}) \rightarrow \text{han} + \text{LUK} + \text{jhi} \quad (2.4.72 \text{ adiprabhṛtibhyaḥ śapah}^{26}). \text{Now han and LUK cannot undergo any other operations which are not triggered by jhi, so \text{han} + \text{LUK} can be written as \text{han}, which is an \text{aṅga} with respect to \text{jhi}. Here, the following rules from the \text{aṅgādhikāra} (6.4 to 7.4) are applicable:

\begin{align*}
\text{h} & \text{a} & \text{n} & + & \text{jhi} \\
6.4.15 & 6.4.37 & 7.1.3
\end{align*}

6.4.15 \text{anunāsikasya kvijhaloḥ kṇiti: same as above.}

6.4.37 \text{anudāttopadeśavanatitanotyādinām anunāsikalopo jhali kṇiti: same as above.}

7.1.3 \text{jho’ntaḥ: a jh which constitutes the initial sound of an affix is replaced with ant.}

We already know from the previous example that there is a Type 2a (DOI conflict) between 6.4.15 and 6.4.37, and that 6.4.37 wins. So now let us consider the relationship between 6.4.37 and 7.1.3.

\footnote{\text{Affix ŠaP occurs after a verbal root when a sārvadhātuka affix which denotes kartṛ ‘agent’ follows.}}

\footnote{\text{Affix ŠaP is replaced with LUK when it occurs after one of the roots headed by adA ‘to eat’ in the Dhātupāṭha.}}
If we apply 6.4.37 at this step, 7.1.3 will be applicable at the following step. But if we apply 7.1.3 at this step, the affix will no longer begin with a \textit{jhal} sound, and therefore 6.4.37 will not be applicable at the following step. This is a case of unidirectional blocking, and thus of DOI conflict. By my interpretation of 1.4.2, the RHS rule 7.1.3 wins, and we get \textit{han} + \textit{anti} \rightarrow \textit{hn} + \textit{anti} (6.4.98 gamahanajanakhanaghasāṁ lopāh knīty anānti\textsuperscript{27}) \rightarrow \textit{ghnanti} (7.3.54 ho hanter īninneṣu\textsuperscript{28}), which is the correct form.

4. \textit{kramU} + \textit{Ktvā} – ‘to stride’, absolutive

\[
\begin{array}{c}
\text{kramU} + \text{Ktvā} \\
6.4.18 \quad 7.2.56
\end{array}
\]

6.4.18 \textit{kramaś ca ktvī}: the penultimate vowel of \textit{kramU} ‘stride’, is optionally replaced with its long counterpart when affix \textit{Ktvā}, beginning with \textit{jhal} (a non-nasal stop or a fricative), follows.

7.2.56 \textit{udito vā}: augment \textit{iṬ} is, optionally, attached to affix \textit{Ktvā} when it follows a verbal root marked with \textit{U}.

If, by 7.2.56, the \textit{iṬ} augment is attached to \textit{Ktvā}, then 6.4.18, which requires the affix to begin a specific kind of consonant, will not be applicable at the following step. But if we apply 6.4.18, 7.2.56 will still be applicable at the following step.

This is a case of unidirectional blocking, and thus of DOI conflict.

By my interpretation of 1.4.2, we apply the RHS rule 7.2.56 and get the correct form: \textit{kramitvā}.

Note that both 6.4.18 and 7.2.56 are optional rules. So, for each of these rules we have a choice. We can either implement the rule or not do so. Let us consider what happens in different scenarios:

\textsuperscript{27} The penultimate sound of \textit{gam} ‘to go’, \textit{han} ‘to kill’, \textit{jan} ‘to be born’, \textit{khan} ‘to dig’ and \textit{ghas} ‘to eat’, is replaced with \textit{LOPA} when an affix beginning with a vowel and marked with \textit{K} or \textit{Ṇ}, except \textit{aṆ}, follows.

\textsuperscript{28} The \textit{h} of \textit{han} ‘to harm, kill’ is replaced with a velar stop when an affix marked with \textit{Ṇ} and \textit{Ṉ}, or simply \textit{n} (i.e., after \textit{LOPA} of \textit{a}) follows.
If we do not implement the optional rule 7.2.56, we get:

(i) krantvā, if we do not implement the optional rule 6.4.18; and
(ii) krāntvā, if we do implement the optional rule 6.4.18.

If we implement 7.2.56 but not 6.4.18, we get, again, krāntvā.

All three forms, krantvā, krāntvā and kramitvā are correct.

5. atikram + Ktvā – ‘to surpass’, absolutive

\[ \text{atikram} + \text{Ktvā} \]

6.4.18 kramaś ca ktvi: same as above.

7.1.37 samāse ‘naṅpūrve ktvo lyap: in a compound, the first member of which is not naṅ, the affix Ktvā in the second member of the compound is replaced with LyaP.

If we apply 7.1.37, LyaP replaces Ktvā and so 6.4.18 will not be applicable at the following step. But if we apply 6.4.18, 7.1.37 will still be applicable at the following step. This is a case of unidirectional blocking, and thus of DOI conflict.

By my interpretation of 1.4.2, we apply the RHS rule 7.1.37 and get the correct form: atikramya.

It is important to point out an anomaly here. Pāṇini’s rule 2.2.18 kugatiprādayah teaches that the particle ku, items termed gati (including ati) and items belonging to the group headed by pra (which also includes ati) combine with syntactically related padas to form tatpuruṣa compounds. We know, thanks to 2.1.4 saha supā, that a compound is composed of forms ending in sup. Since the three forms krantvā / krāntvā / kramitvā (see example 4 of this section)

---

29 Note that, here, an SOI takes place between 7.1.37 samāse ‘naṅpūrve ktvo lyap and 7.2.56 udito vā. 7.1.37 wins because it has been specifically taught for compounds. Here, since the focus is on DOI conflict, I have avoided mentioning this and other such SOI relationships where it was possible to avoid them.
end in suP (which is replaced with LUK by 2.4.82 avyayād āpsupah), ati can combine with any of these forms to construct a tatpuruṣa compound. Let us consider each of the three scenarios:

a. Compound between ati and krantvā.

By 7.1.37 samāse’naṁpūrve ktvo lyap, we replace Ktvā with LyaP and get *atiKranya, which is not the correct form.

b. Compound between ati and krāntvā.

By 7.1.37, we replace Ktvā with LyaP and get *atikrānya, which is also not the correct form.

c. Compound between ati and kramitvā.

By 7.1.37 samāse’naṁpūrve ktvo lyap, we replace Ktvā with LyaP and get atikramiya → *atikramitya (6.1.71 hrasvasya piti kṛti tuk), which is not the correct form.

To derive the correct form, we have to start the derivation by adding the verbal root kram to ati which constitutes the pūrvapada. To that, we add affix Ktvā: atikram + Ktvā. This alone gives us the correct answer.30 We see the same phenomenon in examples 6-8 below. But this runs contrary to how we generally construct compounds – by combining two or more subanta forms.

Thus, the following question arises: if it is difficult to derive atikramya correctly as a compound, why does Pāṇini want us to view atikramya as a compound in the first place? This likely has to do with accentuation, which is not the focus of this thesis. The distinction between atikramya and atikrāmati (where ati is only a morpho-syntactically bound particle cf. 1.4.8 te prāg dhātoḥ), the status of particles like ati in Vedic and the relationship between Ktvā and LyaP in Vedic can all shed more light on this matter, but we cannot delve into these topics here.

30 The tradition too takes cognizance of this. Vyāḍi suggests that an operation involving the upasarga and the verbal base is antaraṅga: dhātupasargayor antaraṅgāṁ kāryam bhavati (Pbh 37 of Paribhāṣāśāsācanam). We know that an antaraṅga operation gets precedence over a bahiraṅga operation.
6. *prasthā + Ktvā* – ‘to depart’, absolutive

\[
\begin{array}{c}
\text{prasthā} \\
\text{+} \\
\text{Ktvā}
\end{array}
\]

7.4.40 *dyatisyatimāsthām it ti kiti*: a short *i* replaces the final sound of *do* ‘to cut’, *so* ‘to end, terminate’, *mā* ‘to measure’ and *sthā* ‘to stay’, when a *t*-initial affix marked with *K* follows.

7.1.37 *samāse’naṅpūrve ktvo lyap*: same as above.

If we replace *Ktvā* with *LyaP* by 7.1.37, the affix no longer begins with *t* and thus 7.4.40 will not be applicable at the following step. On the other hand, if we apply 7.4.40, 7.1.37 will still be applicable at the following step.

This is a case of unidirectional blocking, and thus of DOI conflict.

By my interpretation of 1.4.2, we apply the RHS rule 7.1.37 which gives the correct form: *prasthāya*.

7. *āgam + Ktvā* – ‘to come’, absolutive

\[
\begin{array}{c}
\text{āgam} \\
\text{+} \\
\text{Ktvā}
\end{array}
\]

6.4.37 *anudāttopadeśavanatitanotyādīnām amuṃśikalopo jhali kṅiti*: the final nasal of a base marked with *anudātta* when taught in the *Dhātupāṭha*, as well as of *vanA* ‘to like’ and the roots headed by *tanU* ‘to extend’, is replaced with *LOPA* when an affix beginning with *jhal* (a non-nasal stop or a fricative) and marked with *K* or *Ṅ* follows.

7.1.37 *samāse’naṅpūrve ktvo lyap*: same as above.

If we replace *Ktvā* with *LyaP* by 7.1.37, the affix no longer begins with *jhal* and thus 6.4.37 will not be applicable at the following step. On the other hand, if we apply 6.4.37, 7.1.37 will still be applicable at the following step. This is a case of unidirectional blocking, and thus of DOI conflict.
By my interpretation of 1.4.2, we apply the RHS rule 7.1.37 and get: āgam + tvā → āgam + ya (7.1.37) → āga + ya (6.4.38 vā lyapi\(^{31}\)) → āgatya (6.1.71 hrasvya piti kṛśi tuk\(^{32}\)), which is the correct form. Note that the application of 6.4.38 is optional. If we do not implement this rule, we get āgamyā, which is also correct.

8. praveñ + Ktvā – ‘to weave’, absolutive

\[
\text{praveñ} + \text{Ktvā}
\]

6.1.15 7.1.37

6.1.15 vacisvapiyajādināṃ kiti: roots vac ‘to speak’, svap ‘to sleep’, and those headed by yaj ‘to perform sacrifice’ undergo samprasāraṇa when an affix marked with K follows.

7.1.37 samāse ‘naṃpurve ktvō lyap: same as above.

If we apply 6.1.15 at this step, 7.1.37 will still be applicable at the following step. But if we apply 7.1.37 at this step, then by 6.1.41 lyap ca (which teaches that veñ does not undergo samprasāraṇa when Lyap follows), 6.1.15, which teaches samprasāraṇa, will not be applicable at the following step. This is a case of unidirectional blocking, and thus of DOI conflict.

By my interpretation of 1.4.2, we apply the RHS rule 7.1.37 and get: prave + ya → pravāya (6.1.45 ād eca upadešeśiti\(^{33}\)), which is the correct form.

---

\(^{31}\) The final nasal of a root marked with anudātta when taught in the Dhātupāṭha (cf. upadeše), as well as of vanā ‘to like’ and the roots headed by tanU ‘to extend’, is optionally replaced with Lopa before the substitute Lyap.

\(^{32}\) Augment tUK is attached to a root ending in a short vowel when a kṛt affix marked with P follows.

\(^{33}\) The final sound of a verbal base ending in eC (e, o, ai, au) when taught in the Dhātupāṭha is replaced with ā, when an affix that is not marked with Š follows.
9. śās + siP – ‘to instruct’, imperative second-person singular

\[ \text{śās} + \text{siP} \]

3.1.68 kartari śap: affix ŚaP occurs after a verbal root when a sārvadhātuka affix which denotes kartṛ ‘agent’ follows.

3.4.87 ser hy apic ca: a siP replacement of LOT is replaced with hi and is treated as if not marked with P.

These two rules do not block each other. This is not a case of conflict.

By my interpretation of 1.4.2, we apply the RHS rule 3.4.87 and get śās + hi → śās + ŚaP + hi (3.1.68) → śās + hi (2.4.72 adiprabhṛtyah śapah\textsuperscript{34}). śās can now be called an aṅga with respect to hi (cf. my interpretation of 1.4.13). Thus, the following rules from the aṅgādhikāra become applicable:

\[ \text{śās} + \text{hi} \]

6.4.34 śāsa id anhaloḥ: the penultimate sound of śās, is replaced with short i when followed by aN, or an affix that begins with a consonant and is marked with K or Ṅ.\textsuperscript{35}

6.4.35 śā hau: śās is replaced with śā when affix hi follows.

7.1.35 tuhyos tātaṅ āśiṣy anyatarasyāṁ: affixes tu and hi are optionally replaced with tātAṄ, provided benediction (āśiḥ) is denoted.\textsuperscript{36}

\textsuperscript{34} Affix ŚaP is replaced with LUK when it occurs after one of the roots headed by adA ‘to eat’ in the Dhātupāṭha.

\textsuperscript{35} hi is an apit (cf. 3.4.87 ser hy apic ca) sārvadhātuka, and so by 1.2.4 sārvadhātukam apit, it can be treated as marked with K or Ṅ. Thus, 6.4.34 is applicable here.

\textsuperscript{36} For a discussion on how this rule should be interpreted using Pāṇini’s metarules, see Appendix A.
Here, we see that there is an SOI interaction between 6.4.34 and 6.4.35\textsuperscript{37} and a DOI interaction between them and 7.1.35. Let’s first deal with the SOI between 6.4.34 and 6.4.35. 6.4.35 is more specific because it pertains to the *hi* affix alone and thus wins\textsuperscript{38}. So now let us discuss the relationship between 6.4.35 and 7.1.35.

If we apply 6.4.35, 7.1.35 will still be applicable at the following step. But if we apply 7.1.35, *hi* will be replaced with *tātAṆ* and thus 6.4.35 will not be applicable at the following step. This is a case of unidirectional blocking, and thus of DOI conflict.

By my interpretation of 1.4.2, we apply the RHS rule 7.1.35 and get: *sās + tāt* $\rightarrow$ *śis + tāt* (6.4.34 *śāsa idaṅhaloh*) $\rightarrow$ *śiṣṭāt* (8.3.60 *śāsivasighasīnāṁ ca*, 8.4.41 *ṣṭunā ṣṭuḥ*), which is the correct form.

10. *han* + *siP* – ‘to hurt’, imperative second-person singular

3.1.68 *kartari śap*: same as above.

3.4.87 *ser hy apic ca*: same as above.

Neither of the two rules blocks the other. This is a case of DOI non-conflict.

By my interpretation of 1.4.2, we apply the RHS rule 3.4.87 and get *han* + *hi* $\rightarrow$ *han* + *ŚaP + hi* (3.1.68) $\rightarrow$ *han* + *hi* (2.4.72 *adiprabhṛtibhyah śapah*). *han* can now be called an *aṅga* with respect to *hi* (cf. my interpretation of 1.4.13). Thus, the following rules from the *aṅgādhikāra* become applicable:

\textsuperscript{37} The operand of 6.4.34 is a part of the operand of 6.4.35 and so, like in the previous chapters, here too, we classify such interactions as Type 1 (SOI).

\textsuperscript{38} Note that 6.4.35 is *asiddhavat* with respect to 6.4.34, but in my view, this does not affect the way in which we deal with SOI. I will discuss this further in the next chapter.
6.4.36 *hanter jah*: the root *han* is replaced with *ja* when the affix *hi* follows.

6.4.37 *anudāttopadeśavanatitanotyādīnām anunāsikalopo jhali knītī*: the final nasal of a base marked with *anudātta* when taught in the *Dhātupāṭha*, as well as of *vanA* ‘to like’ and the roots headed by *tanU* ‘to extend’, is replaced with *LOPA* when an affix beginning with *jhaL* (a non-nasal stop or a fricative) and marked with *K* or *Ṅ* follows.\(^{39}\)

7.1.35 *tuhyos tātāṅ āśiṣy anyatarasyām*: same as above.

There is an SOI relationship between 6.4.36 and 6.4.37. 6.4.36 is specifically taught for *han + hi* and so it is clearly more specific than 6.4.37. So, we put 6.4.37 aside. Now let us consider the relationship between 6.4.36 and 7.1.35.

If we apply 6.4.36 at this step, 7.1.35 will still be applicable at the following step. However, if we replace *hi* with *tātAṄ* by 7.1.35 at this step, then 6.4.36, which applies only when *han* is followed by *hi*, will not be applicable at the following step. This is a case of unidirectional blocking and thus of DOI conflict.

By my interpretation of 1.4.2, we apply the RHS rule 7.1.35 and get *han + tātAṄ → hatāt* (6.4.37 *anudāttopadeśavanatitanotyādīnām anunāsikalopo jhali knītī*), which is the correct form.

\(^{39}\) Since *hi* is an *apit sārvadhātuka*, it can be treated as marked with *K* by 1.2.4 *sārvadhātukam apit*. Thus 6.4.37 is applicable.
11. \textit{radh} + \textit{NiC}^{40} – ‘to subdue’, causative present third-person singular

\textit{radh} is an \textit{aṅga} with respect to \textit{NiC}. \textit{NiC} can trigger two operations from the \textit{aṅgādhikāra} on \textit{radh} namely 7.2.116 and 7.1.67.

\begin{align*}
    r & a & dh + \textit{NiC} \\
    7.2.116 & 7.1.61 & 3.2.123
\end{align*}

7.2.116 \textit{ata upadhāyāḥ}: a vowel termed \textit{vṛddhi} replaces the penultimate sound \textit{a} of a verbal base when an affix marked with \textit{N} or \textit{Ñ} follows.

7.1.61 \textit{radhijabhor aci}: augment \textit{nUM} is attached to \textit{radhA} ‘to subdue’ and \textit{jahA} ‘to gape’ when an affix beginning with a vowel follows.

3.2.123 \textit{vartamāne laṭ}: affix \textit{LAṬ} occurs after a verbal root when the action is denoted at the current time (\textit{vartamāna}).

3.2.123 neither blocks nor is blocked by the other two rules. Let us look at the relationship between 7.2.116 and 7.1.61.

If we apply 7.2.116, 7.1.61 will still be applicable at the following step. However, if we apply 7.1.61, that is, if we insert the augment \textit{nUM} before the final \textit{dh} (cf. 1.1.47 \textit{mid aco’ntyāt parah}), then \textit{a} is no longer the penultimate sound, and so 7.2.116 will not be applicable at the following step. This is a case of unidirectional blocking, and thus of DOI conflict.

By my interpretation of 1.4.2, we apply the right-most rule 3.2.123 get \textit{radh} + \textit{NiC} + \textit{LAṬ}.

Here, the following rules are applicable:

\begin{align*}
    r & a & dh + \textit{NiC} + \textit{LAṬ} \\
    7.2.116 & 7.1.61 & 3.4.78
\end{align*}

7.2.116 \textit{ata upadhāyāḥ}: same as above.

7.1.61 \textit{radhijabhor aci}: same as above.

3.4.78 \textit{tip-tas-jhi-sip-thas-tha-mib-vas-ta-ātām-jha-thās-āthām-dhvam-iḍ-vahi-maṁ}

\footnote{3.1.26 \textit{hetumāti ca}.}
We have already discussed the relationship between 7.2.116 and 7.1.61. 3.4.78 neither blocks nor is blocked by the other two rules.

By my interpretation of 1.4.2, we apply the right most rule 3.4.78 and get radh + ŅiC + tiP. At this step, multiple rules are applicable:

\[
\begin{array}{c}
7.2.116 \\
7.1.61 \\
3.1.68
\end{array}
\]

\[
\begin{array}{cccc}
r & a & dh & ŅiC & tiP \\
7.2.116 & 7.1.61 & 3.1.68
\end{array}
\]

7.2.116 _ata upadhāyāḥ_: same as above.

7.1.61 _radhijabhor aci_: same as above.

3.1.68 _kartari śap_: same as above.

We have already discussed the relationship between 7.2.116 and 7.1.61. 3.1.68 neither blocks nor is blocked by the other two rules.

By my interpretation of 1.4.2, we apply the right most rule 3.1.68 and get: radh + ŅiC + ŚaP + tiP. At this point, two rules are applicable:

\[
\begin{array}{c}
7.2.116 \\
7.1.61
\end{array}
\]

\[
\begin{array}{cccc}
r & a & dh & ŅiC & ŚaP & tiP \\
7.2.116 & 7.1.61
\end{array}
\]

We have already established that there is a DOI conflict between 7.2.116 and 7.1.61.

By my interpretation of 1.4.2, we apply the RHS rule 7.1.61 and get randh + ņiC + ŠaP + tiP. _randh_ and _ņiC_ cannot undergo any other operations which are not triggered by _ŚaP_, so we can write _randh + ņiC_ as _randhī_. _randhī_ is an _aṅga_ with respect to _ŚaP_. Thus by 7.3.84 _sārvadhātukārdhadhātukayoḥ_\(^\text{41}\), which belongs to the _aṅgādhikāra_ and is triggered here by _ŚaP_, is applicable to _randhī_. Upon its application, we get _randhe + a + ti_ → _randhayati_, which is the correct form.

\[^{41}\text{Guṇa replaces the final sound iK of a verbal base when a sārvadhātuka or ārdhadhātuka affix follows.}\]
12. *glai* + *tiP* – ‘to become tired’, present third-person singular

\[
\begin{array}{c}
glai \\
6.1.45 \\
\end{array} \quad + \quad \begin{array}{c}
tiP \\
3.1.68 \\
\end{array}
\]

6.1.45 *ād eca upadeśe śiti*: the final sound of a verbal root which ends in *eC* when taught in the *Dhātupāṭha* is replaced with *ā*, when an affix which is not marked with *Ś* follows.

3.1.68 *kartari śap*: same as above.

If we apply 6.1.45 at this step, 3.1.68 will be applicable at the following step. But if we add the affix *ŚaP* at this step by 3.1.68, then 6.1.45 will not be applicable at the following step.

This is a case of unidirectional blocking, and thus of DOI conflict.

By my application of 1.4.2, we apply the RHS rule 3.1.68 and get the correct form: *glai* + *a* + *ti* \(\rightarrow\) *glāya*ti (6.1.78 *eco’yavāyāvah*).

13. *dr̥ś* + *tumUN* – ‘to see’, infinitive

\[
\begin{array}{c}
d \\
7.3.86 \\
\end{array} \quad r \quad \begin{array}{c}
̥s \\
6.1.58 \\
\end{array} \quad + \quad \begin{array}{c}
tumUN \\
\end{array}
\]

7.3.86 *pugantalaghūpadhasya ca*: *guna* replaces *iK* (*i, u, r, l*) of a verbal base which ends in the augment *pUK* or which has a *laghu* ‘light’ vowel as its penultimate sound when a *sārvadhātuka* or *ārdhadhātuka* affix follows.

6.1.58 *sr̥jdr̥śor jhaly am akiti*: augment *aM* is attached to verbal roots *sr̥j* ‘to release, project’ and *dr̥śIR* ‘to look’ before an affix which begins with *a jhaL*, but is not marked with *K*.

If we apply 7.3.86 at this step, 6.1.58 will still be applicable at the following step. But if we apply 6.1.58 at this step, *r* will no longer be the penultimate vowel and so 7.3.86 will not be applicable at the following step.

This is a case of unidirectional blocking, and thus of DOI conflict. By my interpretation of 1.4.2, we apply the RHS rule 6.1.58 and get *dṛaś + tum* \(\rightarrow\) *draś + tum* (6.1.77 *iko yan aci*) \(\rightarrow\) *draś + tum* (8.2.36 *vraścabrasjasfrjambrajayarajabhrājacchaśaṁ saḥ*) \(\rightarrow\) *draṣṭum* (8.4.41 *śṭunā śṭuh*), which is the correct form.
14. bhū + tiP – ‘to be’, aorist third-person singular

![Diagram](bhū + ti)

3.1.43 cli luṅī: affix cli is added to a verbal root when LUÑ follows.

3.4.100 itaś ca: the i of a replacement of any lakāra marked with Ṛ, is replaced with LOPA.

There is no conflict between the two rules. By my interpretation of 1.4.2, we apply the RHS rule 3.4.100 and get: bhū + t. At this step, only one rule, namely 3.1.43 is applicable. On applying this rule, we get bhū + cli + tiP. Since bhū is an aṅga with respect to cli, 7.3.84 from the aṅgādhikāra is applicable here, and so is 3.1.44:

![Diagram](bhū + cli + t)

7.3.84 sārvadhātukārdhadhātukayoḥ: guṇa replaces the final sound iK of a verbal base when a sārvadhātuka or ārdhadhātuka affix follows.

3.1.44 cleḥ sic: cli is replaced with sIC.

There is no conflict between these two rules. By my interpretation of 1.4.2, we apply the RHS rule 3.1.44 and get bhū + sIC + t. Here three rules are applicable:

![Diagram](bhū + sIC + t)

7.3.84 sārvadhātukārdhadhātukayoḥ: same as above.

7.2.1 sici vṛddhiḥ parasmaipadeṣu: the final sound iK of a verbal base is replaced with its vṛddhi counterpart before a sIC that is followed by a parasmaipada affix.

2.4.77 gātisthāghupābhūbhyyah sicaḥ parasmaipadeṣu: affix sIC is replaced with LUK when it is located after gā ‘to go’, sthā ‘to stand’, ghu ‘a root termed ghu’, pā ‘to drink’, or bhū ‘to be, become’ and before a parasmaipada affix.
There is an SOI relationship between 7.3.84 and 7.2.1. Since 7.2.1 has been taught for bases followed by \textit{sIC}, it is more specific and thus wins. Now let us look at the relationship between 7.2.1 and 2.4.77.

If we apply 7.2.1 at this step, 2.4.77 will be applicable at the following step. But if we apply 2.4.77 at this step, 7.2.1 will not be applicable at the following step. This is a case of unidirectional blocking, and thus of DOI conflict.

By my interpretation of 1.4.2, we apply the RHS rule 2.4.77 and get $bhū + t$. $bhū$ can now be called an \textit{aṅga} with respect to $t$. Note that $t$ cannot trigger $guna$ of the $ū$ of $bhū$ due to the following rule:

7.3.88 $bhūsuvos tiṅi$: a \textit{guna} vowel does not replace the \textit{iK} of $bhū$ ‘to be’ and $sū$ ‘to give birth to’ when a \textit{sārvadhātuka} $tiṅ$ affix follows.

So only one rule from the \textit{aṅgādhikāra}, namely 6.4.71 $luṇaṁlṛṇṣy\ aḍ \ udāṭhaḥ$, which is triggered by $t$ is applicable. It teaches that the $udāṭa$ augment $aṬ$ is attached to a verbal base when affixes $LUṄ, LAṄ$ and $LRṄ$ follow. On applying this rule, we get the correct form: $abhūt$.

15. $grah + tiP$ – ‘to obtain’, aorist third-person singular

The first couple of steps of this derivation are similar to the previous one. I will mention them in brief here and focus on the step which involves conflict.

$grah + tiP \rightarrow grah + t$ (3.4.100 \textit{itaś ca}) $\rightarrow grah + cli + t$ (3.1.43 \textit{cli luṇi}) $\rightarrow grah + sIC + t$ (3.1.44 \textit{cleḥ sic}).

7.2.3 \textit{vadavrajahalantasyācaḥ}: a vowel termed \textit{vṛddhi} replaces the vowel of \textit{vad} ‘to speak’, \textit{vraj} ‘to wander’, and a verbal base ending in a consonant, before a $sIC$ which is followed by a \textit{parasmaipada} affix.

7.2.35 \textit{ārdhadhātukasyād valādeḥ}: augment $iṬ$ is attached to an \textit{ārdhadhātuka} affix beginning with $vaL$ (any consonant except \textit{y}).
If we apply 7.2.3 at this step, 7.2.35 will be applicable at the following step. But if we attach the augment $iṬ$ to sIC by 7.2.35 at this step, 7.2.3 will not be applicable at the following step, due to 7.2.5:

7.2.5 $hmyantākṣaṇaśvasajāgrāśvyeṣṭītām$: a vowel termed $vṛddhi$ does not come in place of the vowel of verbal bases (i) ending in $h, m, y$; or (ii) $kṣaṇa$ ‘to harm’, śvasA ‘to breathe’ and $jāgr$ ‘to wake up’; or (iii) ending in the affix $Ni$; or (iv) śvi ‘to swell’; or (v) marked with $E$; before an $īṬ$-initial sIC which is followed by a parasmaipada affīx.\[42\]

In conclusion, if we apply 7.2.35 at this step, 7.2.3 will not be applicable at the following step. This is a case of unidirectional blocking, and thus of DOI conflict.

By my interpretation of 1.4.2, we apply the RHS rule 7.2.35 and get $grah + is + t$. $grah$ and $is$ cannot undergo any other operations which are not triggered by $t$, thus we can write $grah + is$ as $grahis$. $grahis$ is an $aṅga$ with respect to $t$. The following rules from the $aṅgādhikāra$ become applicable:

\[
\begin{array}{c}
\text{grahis} \\
\uparrow \\
6.4.71 \\
\quad \\
7.3.96
\end{array}
\]

6.4.71 $luñkaññryṣy ad udāttaḥ$: same as above.

7.3.96 $astisico'pr̥kte$: augment $iṬ$ is attached to a consonant-initial $sārvadhātuka$ affīx which consists of only one sound ($apr̥kta$) and occurs after the verbal base $as$ or affīx $sIC$.

There is no conflict between these rules. By my interpretation of 1.4.2 we apply the RHS rule 7.3.96 and get $grahis + īt$. At this step, we apply 6.4.71 and get $agrahis + īt$. Now that all possible rules from the $sapādasaptādhyāyī$ have been applied, we apply 8.2.28 $iṭā iṭī$ from the

\[\text{One may ask: why did Pāṇini compose 7.2.5 if 7.2.4 neṭi already prohibits $vṛddhi$ in such cases? It is true that by 7.2.4 neṭi, when the consonant-final base is followed by an $iṬ$-initial sIC, $vṛddhi$ is prohibited. But 7.2.7 $ato halāder laghoḥ$ makes this optional for bases which start with a consonant and contain the light vowel $a$. Thus, Pāṇini has composed 7.2.5 to negate this optionality, or in other words, to prescribe the mandatory prohibition of $vṛddhi$ in the said circumstances.}\]
tripāṇī which replaces the s between īṬ and īṬ with LOPA. This gives us the correct form: \( \text{agrahiīt} \rightarrow \text{agrahiīt} \) (6.1.101 akaḥ savarṇe dīrghah).\(^{43}\)

16. \textit{gupU} + \textit{tiP} – ‘to hide’, aorist third-person singular\(^{44}\)

\[
gup \quad + \quad \text{tiP}
\]
\[
3.1.43 \quad 3.4.100
\]

3.1.43 \textit{cli luni}: same as above.

3.4.100 \textit{itaś ca}: same as above.

There is no conflict between these two rules. By my interpretation of 1.4.2, we apply the RHS rule 3.4.100 and get \( \text{gup} + t \). By my interpretation of 1.4.13, \textit{gup} is not an \textit{aṅga} with respect to \( t \), so rules like 7.3.86 \textit{pugantalaghūpadhasya ca} which are taught in the \textit{aṅgādhikāra} and which are triggered by \( t \) cannot apply here. By applying 3.1.43, we get \( \text{gup} + \text{cli} + t \). Here the following rules are applicable:

\[
gup \quad + \quad \text{cli} \quad + \quad t
\]
\[
7.3.86 \quad 3.1.44
\]

7.3.86 \textit{pugantalaghūpadhasya ca}: \textit{guna} replaces the \( iK \) (\( i, u, r, l \)) of a verbal base which ends in the augment \textit{pUK} or which has a \textit{laghu} ‘light’ vowel as its penultimate sound when a \textit{sārvadhātuka} or \textit{ārdhadhātuka} affix follows.

3.1.44 \textit{cleḥ sic}: same as above.

There is no conflict between the two rules. By my interpretation of 1.4.2, we apply the RHS rule 3.1.44 and get: \( \text{gup} + \text{sIC} + t \). Here multiple rules are applicable:

\(^{43}\) An important question arises here: how is it possible to apply 6.1.101, after applying 8.2.28, which belongs to the \textit{asiddha} section? Unfortunately, I have not been able to find a satisfactory explanation for this.

\(^{44}\) By 3.1.31 \textit{āyādaya ārdhadhātuke vā, āya} can be optionally added to \textit{gupU} here, but we will not discuss this option because it is not relevant to the present argument.
7.3.86 *pugantalaghūpadhasya ca*: same as above.

7.2.3 *vadavrajahalantasyācaḥ*: same as above.

7.2.44 *svarati-sūti-sūyati-dhūn-ūdito vā*: augment *iṬ* is introduced to an ārdhādātuka affix which begins with *vaL* (any consonant except *y*), provided the same occurs after *svṛ* ‘resound’, *śūN* (*adādi*) ‘give birth to’, *ṣūN* (*divādi*) ‘give birth to’, *dhūN* ‘to shake’, and roots marked with *Ū*.

There is an SOI relationship between 7.3.86 and 7.2.3. 7.2.3 has been taught specifically for a set of verbs followed by *sIC*, and thus wins. Now let us look at the DOI relationship between 7.2.44 and 7.2.3.

If we apply 7.2.3 at this step, 7.2.44 will be applicable at the following step. But if we apply 7.2.44 at this step, then 7.2.3 will not be applicable at the following step, because of 7.2.4 *neṭi* which prohibits *vṛddhi* of the vowel of a consonant-final base when the following *sIC* has taken the augment *iṬ*.

This is a case of unidirectional blocking and thus of DOI conflict. By my interpretation of 1.4.2, we apply the RHS rule 7.2.44 and get *gup + is + t*. By 7.3.86 *pugantalaghūpadhasya ca*, we get *gop + is + t*. Note that, *gop* and *is* cannot undergo any other operations which are not triggered by *t*. Thus, we can write *gop + is* as *gopis*. *gopis* is an *aṅga* with respect to *t*.

I will not go into the depth of the remaining steps of this derivation because we have seen these steps in a similar derivation above: *gopis + t* → *gopis + īt* (*7.3.96 astisico’prkte*) → *agopis + īt* (*6.4.71 luṇlaṅḷraṇv ad udāttah*) → *agopī + īt* (*8.2.28 īṭa īṭi*) → *agopīt* (*6.1.101 aṅaḥ savarṇe dīrghah*), which is the correct form.

If we do not implement the optional rule 7.2.44, we get: *gup + s + t* → *gaups + t* (*7.2.3 vadavrajahalantasyācaḥ*) → *gaups + īt* (*7.3.96 astisico’prkte*) → *agaupsīt* (*6.4.71 luṇlaṅḷraṇv ad udāttah*), which is also correct.
17. bhid + ta – ‘to break’, aorist third-person singular

\[ \text{bhid + ta} \rightarrow \text{bhid + cli + ta} \] (3.1.43 cli luṇi)

\[ \text{bhid + cli + ta} \]

7.3.86 3.1.44

3.1.44 *cleh sic*: same as above.

7.3.86 *pugantalaghūpadhasya ca*: same as above.

If we apply 7.3.86 at this step, 3.1.44 will be applicable at the following step. But, if we apply 3.1.44 at this step, 7.3.86 will not be applicable at the following step because of 1.2.11:

1.2.11 *liṅsicāv ātmanepadesa*: a *LIÑ* or *sIC* affix which begins with a *jhal* (a non-nasal stop or a fricative) and occurs after a consonant preceded by an *iK* (*i, u, r, l*) is treated as if marked with *K*, before *ātmanepada* endings.

By 1.2.11 *sIC* is treated as marked with *K*. So, if we apply 3.1.44 at this step, *sIC*, marked by *K*, will not trigger *guna* (here, 7.3.86), thanks to 1.1.5 *kñiti ca*, at the following step.

This is a case of unidirectional blocking, and thus of DOI conflict.

By my interpretation of 1.4.2, we apply the RHS rule 3.1.44 and get

\[ \text{bhid + s + ta} \rightarrow \text{bhids + ta} \rightarrow \text{abhids + ta} \] (6.4.71 luṇaṁluṇṣv aḍ udāttaḥ) \rightarrow \text{abhidta} (8.2.26 jhalo jhali) \rightarrow \text{abhitta} (8.4.55 khari ca), which is the correct form.

18. ûṛṇuN + tiP – ‘to cover’, simple future third-person singular

\[ \text{ûṛṇuN + tiP} \rightarrow \text{ûṛṇuN + sya + tiP} \] (3.1.33 syatāsi ṭṝṭuoḥ).

\[ \text{ûṛṇu} \quad + \quad \text{sya} \quad + \quad \text{tiP} \]

7.3.84 7.2.35

7.3.84 *sārvadhātukārdhadhātukayoḥ*: *guna* replaces the final *iK* (*i, u, r, l*) of a verbal base when a *sārvadhātuka* or *ārdhadhātuka* affix follows.

7.2.35 *ārdhadhātukasyed valādeḥ*: augment *iT* is attached to an *ārdhadhātuka* affix beginning with *vaL* (any consonant except *y*).
If we apply 7.3.84 at this step, 7.2.35 will be applicable at the following step. But if we apply 7.2.35 at this step, 7.3.84 will not be applicable at the following step due to 1.2.3:

1.2.3 vibhāṣaṇoḥ: an affix with initial augment *iṬ* is optionally treated as marked with *N* when it occurs after *ūrṇuN*.

So, if we apply 7.2.35, and treat the resultant *iṣya* as marked with *N*, then by 1.1.5 *kñiti ca*, 7.3.84 will not be applicable at the following step.

This is a case of unidirectional blocking, and thus of DOI conflict.

By my interpretation of 1.4.2, we apply the RHS rule 7.2.35 and get: *ūrṇu + iṣya + ti* → *ūrṇuviṣyati* (6.4.77 *aci śnudhātubhrvāṁ yvoor iyaṇuvaṇau*).

On the other hand, if we do not implement the optional rule 1.2.3, then the derivation proceeds as follows: *ūrṇu + iṣya + tP* (7.2.35 *ārdhadhātukasyaḥ valādēḥ*) → *ūrṇo + iṣya + tip* (7.3.84 *sārvadhātukārdhadhātukayoḥ*) → *ūrṇavisyati* (6.1.78 *eco ‘yavāyāvāḥ*).

19. *bhū + tP* – ‘to be’, *āśīrliṅ* (benedictive) third-person singular

Since no *vikaraṇa* is added between *bhū* and *tP* in *āśīrliṅ* forms, at this step, *bhū* can be called an *aṅga* with respect to *tP*.

\[
\begin{array}{ccc}
bhū & + & t & i \\
7.3.84 & 3.4.103 & 3.4.100 \\
\end{array}
\]

7.3.84 *sārvadhātukārdhadhātukayoḥ*: same as above.

3.4.103 *yāṣuṭ parasmaipadesūdātto nīc ca: udātta* ‘high-pitched’ augment *yāṣUṬ* is attached to *parasmaipada* substitutes of *LIṆ*, and is treated as marked with *N*.

3.4.100 *itaś ca*: the *i* of a replacement of any *lakāra* marked with *N*, is replaced with *LOPA*.

3.4.100 neither blocks nor is blocked by the other two rules. By my interpretation of 1.4.2, we apply the right most rule 3.4.100 and get *bhū + tP*. Here two rules are applicable:

---

45 The final *i* and *u* of *Śnu*, and of any verbal base, and of *bhrū* ‘brow’ are replaced with *iyAṆ* and *uvAṆ*, respectively, when an affix beginning with a vowel (*aC*) follows.
If we apply 7.3.84 at this step, 3.4.103 will be applicable at the following step. But if we apply 3.4.103 at this step, 7.3.84, which prescribes guṇa of ū, will not be applicable at the following step. This is because, yāsUṬ is marked with Ṅ and thus by 1.1.5 knītī ca, guṇa is blocked.

This is a case of unidirectional blocking, and thus of DOI conflict.

By my interpretation of 1.4.2, we apply the RHS rule 3.4.103 and get bhū + yāst. Here, again, two rules are applicable:

8.2.23 samyogāntasya lopah: the final sound of a conjunct which occurs at the end of a pada is replaced with LOPA.

8.2.29 skoḥ samyogādyor ante ca: the initial s and k of a conjunct which occurs at the end of a pada, or is followed by jhaL (a non-nasal stop or a fricative), is replaced with LOPA.

Note that both 8.2.23 and 8.2.29 belong to the tripādī section. So, 8.2.29 is asiddha with respect to 8.2.23. However, this does not impact our method of resolving the SOI between them. I will discuss this in chapter 5.

8.2.29 has been taught for a specific set of conjuncts and thus wins, thereby leading to the correct form: bhūyāt.
20. naš + tavyaT – ‘to perish’, optative passive participle

\[
na + š + tavyaT
\]

7.1.60 masjinašor jhali: augment nUM is attached to TÜmasjl ‘to sink, immerse’ and naš ‘to perish’ when an affix beginning with jhaL (a non-nasal stop or a fricative) follows.

7.2.45 radhādibhyaś ca: augment iT is optionally attached to ārdhadhātuka affixes beginning with vaL (any consonant except y) and occurring after the set of verbal roots beginning with radhA ‘to be subdued’.

If we apply 7.1.60 at this step, 7.2.45 will still be applicable at the following step. But if we apply 7.2.45 at this step, then the affix no longer begins with a jhaL sound, so 7.1.60 will not be applicable at the following step. This is a case of unidirectional blocking and thus of DOI conflict.

By my interpretation of 1.4.2, we apply the RHS rule 7.2.45 and get: našitavya, which is the correct form. If we do not implement the optional rule 7.2.45, we get: namštavya, which is also correct.

---

46 This set of roots includes naš.
21. \( trp + tumUN \) – ‘to be satisfied’, infinitive

\[
\begin{array}{c}
\text{t} & \text{r} & \text{p} & \text{tumUN} \\
\text{7.3.86} & \text{6.1.59} & \text{7.2.45}
\end{array}
\]

7.3.86 pugantalaghūpadhasya ca: guṇa replaces the \( iK \ (i, u, r, l) \) of a verbal base which ends in the augment \( pUK \) or which has a laghu ‘light’ vowel as its penultimate sound when a sārvadhātuka or ārdhadhātuka affix follows.

6.1.59 anudāttasya cardupadhasyānyatarasyām: augment \( aM \) is optionally introduced to a verbal root which is anudāta when taught in the Dhātupāṭha and has \( r \) as its penultimate sound when an affix beginning with \( jhaL \) (a non-nasal stop or a fricative) and not marked with \( K \), follows.

7.2.45 radhādibhyaś ca: same as above.

Let us first consider what happens if we implement both optional rules 6.1.59 and 7.2.45.

Let us first look at the relationship between 7.3.86 and 6.1.59. If we apply 7.3.86 at this step, that will change \( r \) to \( ar \), and so 6.1.59, which applies only when the penultimate sound is \( r \) will not be applicable at the following step. If we apply 6.1.59 at this step, \( r \) will no longer be the penultimate sound, so 7.3.86 will not be applicable at the following step. This is a case of mutual blocking, and thus of DOI conflict.

Now let us study the relationship between 6.1.59 and 7.2.45. If we apply 6.1.59 at this step, 7.2.45 will still be applicable at the following step. If we apply 7.2.45 at this step, the affix will no longer begin with \( jhaL \) and thus 6.1.59 will not be applicable at the following step. This is a case of unidirectional blocking, and thus of DOI conflict.

Lastly, 7.3.86 and 7.2.45 do not block each other.

By my interpretation of 1.4.2, we apply the right-most rule 7.2.45 and get: \( trp + itum \rightarrow tarpitum \) (7.3.86 pugantalaghūpadhasya ca), which is the correct form.

If we implement the optional rule 7.2.45 but not the optional rule 6.1.59, we get the same form: tarpitum. However, if we implement 6.1.59 but not 7.2.45, we get \( trap + tum \) (6.1.59) \( \rightarrow traptum \) (6.1.77 iko yan aci), which is also correct. If we do not implement both 7.2.45 and 6.1.59, we get tarptum (7.3.86), which is also correct.
22. \( \text{div}U + \text{Ktvā} \) – ‘to gamble’, absolutive

\[
\text{div}U \quad + \quad \text{Ktvā}
\]

6.4.19 chvoḥ śūḍ anunāsike ca: \( ch \) and \( v \) of a base are replaced with \( s \) and \( āTH \), respectively, when \( KvI \), or an affix beginning with \( jhaL \) (a non-nasal stop or a fricative) and marked with \( K \) or \( āN \), or beginning with a nasal, follows.

7.2.56 udito vā: augment \( iT \) is optionally attached to affix \( \text{Ktvā} \) when it follows a verbal root marked with \( U \).

If we apply 6.4.19 at this step, 7.2.56 will be applicable at the following step. If we attach augment \( iT \) to \( tvā \) by 7.2.56 at this step, then by 1.2.18 \( \text{na ktvā seṭ} \), \( \text{Ktvā} \) cannot be treated as marked with \( K \). Thus, 6.4.19 will not be applicable at the following step. This is a case of unidirectional blocking, and thus of DOI conflict.

By my interpretation of 1.4.2, we apply the RHS rule 7.2.56 and get: \( \text{div + itvā} \). Since \( \text{itvā} \) cannot be treated as marked with \( K \), it can no longer block \( guṇa \) and \( vr̥ddhi \) (i.e., 1.1.5 kṇiti ca does not hold). Thus, by 7.3.86 \( \text{pugantalaghūpadhasya ca} \), we get \( \text{devitvā} \), which is the correct form.

If we do not implement the optional rule 7.2.56, we get: \( \text{div + tvā} \rightarrow \text{diū + tvā} \) (6.4.19 chvoḥ śūḍ anunāsike ca) \( \rightarrow \text{dyūtvā} \) (6.1.77 iko yaṇ aci), which is also correct.

\[\text{Ktvā which has taken the } iT \text{ augment is not treated as marked with } K.\]
23. *khanU + Ktvā* – ‘to dig’, absolutive

\[
\begin{array}{ccc}
| & | \hline
\text{khan} & \text{+} & \text{Ktvā} \\
6.4.42 & & 7.2.56
\end{array}
\]

6.4.42 *janasanakhanāṁ sañjhaloh*: the final sound of *janA* ‘to generate’, *sanA* ‘to gain’, and *khanU* ‘to dig’, is replaced with ā when *saN* or an affix beginning with *jhal* (a non-nasal stop or a fricative) and marked with *K* or ڼ follows.

7.2.56 *udito vā*: same as above.

If we apply 6.4.42 at this step, 7.2.56 will be applicable at the following step. But if we apply 7.2.56 at this step, the affix will no longer begin with *jhal* and so 6.4.42 will not be applicable at the following step. This is a case of unidirectional blocking, and of DOI conflict.

By my interpretation of 1.4.2, we apply the RHS rule 7.2.56 and get *khanitvā*, which is the correct form.

If we do not implement the optional rule 7.2.56, we get *kha-ā + tvā* → *khātvā* (6.1.101 *akaḥ savarne dīrghah*), which is also correct.

24. *kṛ + siP* – ‘to make’, imperative second-person singular

\[
\begin{array}{ccc}
| & | \hline
\text{kṛ} & \text{+} & \text{siP} \\
3.1.79 & & 3.4.87
\end{array}
\]

3.1.79 *tanādikṛbhyā uḥ*: affix *u* is added after verbal roots belonging to the set headed by *tanU* ‘to stretch’ and also after *kṛ ȵ* ‘to make’ when a *sārvadhātuka* affix which denotes *kartṛ* follows.

3.4.87 *ser hy apic ca*: a *siP* replacement of *LOT* is replaced with *hi* and is treated as if not marked with *P*.

There is no conflict between these rules.

By my interpretation of 1.4.2, we apply the RHS rule 3.4.87 and get *kṛ + hi*. Thereafter, the derivation proceeds as follows *kṛ + hi* → *kṛ + u + hi* (3.1.79 *tanādikṛbhyā uḥ*) → *karu + hi* (7.3.84 *sārvadhātukārdhadhātukayoḥ*). *karu* is an *aṅga* with respect to *hi*, so the following rules from the *aṅgādhikāra* are applicable:
6.4.110 \textit{ata ut sārvadhātuke}: the $a$ of base which is constituted by $kṛ$, and ends in affix $u$, is replaced with $u$ when a sārvadhātuka affix marked with $K$ or $Ṅ$ follows.

6.4.106 \textit{utaś ca pratyayād asaṁyogapūrvāt}: $hi$ is replaced with $LUK$ when it is preceded by a base that ends in affix $u$, such that $u$ is not preceded by a conjunct.

Note that both these rules fall under the heading rule 6.4.22 \textit{asiddhavat atrābhāt}. I interpret this rule as: till 6.4.129 \textit{bhasya}, any rule will treat any other rule here (i.e., in this section) as \textit{asiddhavat}. In my opinion, if A treats B as \textit{asiddhavat}, A acknowledges the existence of B, but not the outcome of the application of B’. I will discuss this interpretation in detail in chapter 5.

Since 6.4.110 and 6.4.106 acknowledge each other’s existence, we can use 1.4.2 to deal with this case of DOI.

If we apply 6.4.110 at this step, 6.4.106 will be applicable at the following step. But if we replace $hi$ with $LUK$ by 6.4.106, 6.4.110 will not be applicable at the following step$^{48}$. This is a case of unidirectional blocking, and thus of DOI conflict.

By my interpretation of 1.4.2, we apply the RHS rule 6.4.106 and get $karu$. Since 6.4.106 is \textit{asiddhavat} with respect to 6.4.110, 6.4.110 does not acknowledge the outcome of the application of 6.4.106. Thus 6.4.110 applies, and we get the correct form: $kuru$.

\footnote{1.1.63 na lumatāṅgasya.}
25. $\text{as} + \text{siP}$ – ‘to be’, imperative (āśiṣi ‘benediction’) second-person singular

\[
\text{as} + \text{siP}
\]

3.1.68 kartari śap: affix ŠaP occurs after a verbal root when a sārvadhātuka affix which denotes kartṛ ‘agent’ follows.

3.4.87 ser hy apic ca: same as above.

There is no conflict between these rules.

By my interpretation of 1.4.2, we apply the RHS rule 3.4.87 and get $\text{as} + \text{hi}$. Then, the derivation proceeds as follows: $\text{as} + \text{hi} \rightarrow \text{as} + \text{ŚaP} + \text{hi}$ (3.1.68 kartari śap) $\rightarrow \text{as} + \text{hi}$ (2.4.72 adiprabhytibhyah śapah). Since as is an aṅga with respect to hi, the following rules from the aṅgādhikāra are applicable:

\[
a + s + \text{hi}
\]

6.4.111 śnasor allopaḥ: the a of affix ŠnaM and of root as, is replaced with LOPA when a sārvadhātuka affix marked with K or ṇ follows.

6.4.119 ghvasor ed dhāv abhyāsalopaś ca: the final sound of a verbal base termed ghu or of as, is replaced with e when affix hi follows, and abhyāsa (first of two reduplicated syllables) is replaced with LOPA.

7.1.35 tuhyos tātaṅ āśiṣy anyatarasyām: affixes tu and hi are optionally replaced with tātAṆ, provided benediction (āśiḥ) is denoted.

6.4.101 hujhalbhyo her dhiḥ: hi is replaced with dhi when it occurs after root hu or after a verbal base ending in jhaL (a non-nasal stop or a fricative).

There is no conflict between 6.4.111 and 6.4.119.

There is an SOI between 7.1.35 and 6.4.101. 7.1.35 is more specific because it has been taught with respect to benedictive forms.

So now let us look at the relationship between 6.4.119 and 7.1.35. If we apply 6.4.119 at this step, then 7.1.35 will be applicable at the following step. If we replace hi with tātAṆ by 7.1.35
at this step, 6.4.119 will not be applicable at the following step. This is a case of unidirectional blocking, and thus of DOI conflict.

By my interpretation of 1.4.2, we perform the right-most operation 7.1.35 (which defeats 6.4.101 in SOI, as seen above) and get: \( as + tāt \rightarrow stāt \) (6.4.111 ṣnasor allopaḥ), which is the correct form.

If we do not implement the optional rule 7.1.35, the derivation proceeds as follows:

\[
\begin{array}{ccc}
a & s & + & hi \\
6.4.111 & 6.4.119 & 6.4.101
\end{array}
\]

There is no conflict between 6.4.111 and 6.4.119. Let us look at the relationship between 6.4.119 and 6.4.101.

If we apply 6.4.119 at this step, then 6.4.101 will not be applicable at the following step. If we apply 6.4.101 at this step, then 6.4.119 will not be applicable at the following step. This is a case of mutual blocking.

Note that all three rules belong to the asiddhavat section. So, each rule can see the other two rules but not the outcome of the application of the other two rules. Since these rules can see one another, we can use 1.4.2 to solve the DOI between them.

By my interpretation of 1.4.2, we apply the right-most rule 6.4.101 and get \( as + dhi \). The other two rules cannot see the outcome of the application of 6.4.101. They are still applicable:

\[
\begin{array}{ccc}
a & s & + & dhi \\
6.4.111 & 6.4.119
\end{array}
\]

By my interpretation of 1.4.2, we apply the RHS rule 6.4.119 and get \( ae + dhi \). Here, 6.4.111 applies and we get the correct form \( edhi \).
26. *bhū + ta* – ‘to be’, passive aorist third-person singular

*bhū + ta* → *bhū + cli + ta* (3.1.43 *cli luṅi*\(^{49}\))

![Diagram](attachment:image.png)

7.3.84 *sārvadhātukārdhadhātukayoḥ: guna* replaces the final *iK (i, u, r, I)* of a verbal base when a *sārvadhātuka* or *ārdhadhātuka* affix follows.

3.1.66 *ciṅ bhāvakarmanoḥ: CiṆ* occurs in place of affix *cli* after a verbal base when the *LUṆ* substitute *ta* denoting *bhāva* ‘action’ or *karman* ‘object’ follows.

There is no conflict between these two rules. By my interpretation of 1.4.2, we apply the RHS rule 3.1.66 and get *bhū + CiṆ + ta*. Thereafter, the derivation proceeds as follows: *bhū + CiṆ + ta* → *bhaul + CiṆ + ta* (7.2.115 *aco ōṇiti*\(^{50}\)) → *bhāv + CiṆ + ta* (6.1.78 *eco ‘yavāyāvah*).

Since *bhāv* and *CiṆ* cannot undergo any other operations which are not triggered by *ta*, we can write *bhāv + CiṆ* as *bhāvi*. By my interpretation of 1.4.13, *bhāvi* is an *aṅga* with respect to *ta*.

Here, multiple rules from the *aṅgādhikāra* become applicable:

![Diagram](attachment:image.png)

6.4.71 *luṅlaṅlr̥ṅṣv aḍ udāttaḥ*: the *udātta* ‘high-pitched’ augment *aṬ* is attached to a verbal base when affixes *LUṆ, LAṆ* and *LR̥Ṇ* follow.

6.4.104 *ciṅo luk*: an affix which occurs after *CiṆ* is replaced with *LUK*.

Note that both these rules fall under the heading rule 6.4.22 *asiddhavad atrābhāt*. They are *asiddhavat* with respect to each other. That is, each rule acknowledges the existence of the other rule, but not the outcome of the application of the other rule.

---

\(^{49}\) Affix *cli* is added to a verbal root when *LUṆ* follows.

\(^{50}\) Note that, at this step, there is an SOI between 7.2.115 *aco ōṇiti* and 7.3.84 *sārvadhātukārdhadhātukayoḥ*. However, I have not drawn a diagram to show this in the main text for the sake of brevity. Since 7.2.115 is conditioned by affixes marked with *Ṇ* and *Ṇ*, it is more specific and thus wins.
Since 6.4.71 and 6.4.104 acknowledge each other’s existence, we can use 1.4.2 to deal with this case of DOI.

If we apply 6.4.71 at this step, 6.4.104 will be applicable at the following step. But if we apply 6.4.104 at this step, the affix will be replaced with \textit{LUK}, and so 6.4.71 will not be applicable at the following step\footnote{1.1.63 na lumatāṅgasya.}. This is a case of unidirectional blocking, and thus of DOI conflict.

By my interpretation of 1.4.2, we apply the RHS rule 6.4.104 and get: \textit{bhāvi}. Since 6.4.104 is \textit{asiddhavat} with respect to 6.4.71, 6.4.71 does not acknowledge the outcome of the application of 6.4.104. Consequently, 6.4.71 applies, and we get the correct form: \textit{abhāvi}.

\subsection*{krī + jhi – ‘to buy’, present third-person plural}

$\text{krī }+ \text{jhi }\rightarrow \text{krī }+ \text{Śnā }+ \text{jhi}$ (3.1.81 $\text{kryādibhyāḥ śnā}$) $\rightarrow \text{krīnā }+ \text{jhi}$. Now that \text{krīnā} is an \textit{aṅga} with respect to \textit{jhi}, the following rules from the \textit{aṅgdhikāra} become applicable:

\begin{align*}
\text{krīnā} & \quad + \quad \text{jhi} \\
6.4.112 & \quad 6.4.113 & \quad 7.1.3
\end{align*}

6.4.112 \textit{śnābhystayor ātaḥ}\footnote{Affix \textit{Śnā} occurs after verbal roots belonging to the class headed by \textit{ḌukrīN} ‘to buy, barter’ when a \textit{sārvadhātuka} affix which denotes \textit{kart} follows.}: the final $\tilde{a}$ of a base which ends in Śnā or of a reduplicated base (abhysta) is replaced with \textit{LOPA} when a \textit{sārvadhātuka} affix marked with \textit{K} or \textit{Ṅ} follows.

6.4.113 \textit{i haly aghoh}: the final $\tilde{a}$ of a base which ends in Śnā or of a reduplicated base (abhysta), excluding items termed \textit{ghu}, is replaced with $\tilde{i}$ when a \textit{sārvadhātuka} affix beginning with a consonant and marked with \textit{K} or \textit{Ṅ} follows.

7.1.3 \textit{jho’ntaḥ: jh} which is the initial sound of an affix is replaced with \textit{ant}.

There is an SOI between 6.4.112 and 6.4.113. First let us identify the more specific i.e., winning rule. Then we will examine the DOI between the winning rule and 7.1.3.
6.4.113 is more specific because it is applicable only when the affix begins with a consonant, and thus wins. Now let us look at the DOI relationship between 6.4.113 and 7.1.3.

If we apply 6.4.113 at this step, 7.1.3 will be applicable at the following step. However, if we apply 7.1.3 at this step, *jhi* will no longer begin with a consonant. Thus 6.4.113 will not be applicable at the following step.

This is a case of unidirectional blocking, and thus of DOI conflict.

By my interpretation of 1.4.2, we apply the RHS rule 7.1.3 and get: *krīnā+ anti*. Here, 6.4.112 applies and we get *krīṇanti* which is the correct form.

28. *udvij + ta* – ‘to fear’, simple future third-person singular

![Diagram](udvij + ta)

3.1.33 *syatāśi lṛṭuṭoh*: affixes *syā* and *tāsI* respectively occur after verbal bases when *LR* and *LUT* follow.

3.4.79 *ṭita ātmanepadānāṁ ṛe e*: the part that begins with the last vowel (*ṭi*) of an ātmanepada replacement of a lakāra marked with *Ṭ* is replaced with *e*.

There is no conflict between these rules.

By my interpretation of 1.4.2, we apply the RHS rule 3.4.79 and get *udvij + te*. Thereafter we apply 3.1.33 and get *udvij + sya + te*. Here two rules are applicable:

![Diagram](udvij + sya + te)

7.3.86 *pugantalaghūpadhasya ca*: *guna* replaces the *iK* (*i, u, r, l*) of a verbal base which ends in the augment *pUK* or which has a *laghu* ‘light’ vowel as its penultimate sound when a sārvadhātuka or ārdhadhātuka affix follows.

---

54 8.4.2 *aṭkupvānnumvyavāye’pi*.

55 1.1.64 *aco’ntyādi ṛi*. 
7.2.35 ārdhadhātukasyeṣaḥ valādeḥ: augment īṬ is attached to an ārdhadhātuka affix beginning with vaL (any consonant except y).

If we apply 7.3.86 at this step, 7.2.35 will be applicable at the following step. But if we apply 7.2.35 at this step, 7.3.86 will not be applicable at the following step, because of the following rule:

1.2.2 vija ṭ: an affix with initial augment īṬ is treated as if marked with Ň when it occurs after OvijI ‘to fear’.

So, if we apply 7.2.35 at this step, the resultant isya, by 1.2.2, will be treated as marked with Ň. Consequently, thanks to 1.1.5 knīti ca, 7.3.86 will not be applicable at the following step.

This is a case of unidirectional blocking, and thus of DOI conflict.

By my interpretation of 1.4.2, we apply the RHS rule 7.2.35 and get: udvijisya + te → udvijisyate (8.3.59 ādeśapratyayoḥ), which is the correct form.

29. bhī + jhi – ‘to be afraid’, present third-person plural

bhī + jhi → bhī + ŚaP + jhi (3.1.68 kartari śap) → bhī + ŚLU + jhi (2.4.75 juhotyādibhyah śluḥ) → bhībhī + ŚLU + jhi (6.1.10 ślau) → bhībhī + ŚLU + jhi (7.4.59 hrasvaḥ).

At this point, bhībhī and ŚLU cannot undergo any other operations which are not triggered by jhi. Thus, we can write bhībhī + ŚLU as bhībhī. In bhībhī + jhi, bhībhī can now be called an aṅga with respect to jhi. Thus, the following rules from the aṅgādhikāra become applicable:

\[
\begin{array}{c}
\text{bh} \quad i \quad \text{bh} \quad \ddot{i} \\
\text{6.4.115} \\
\text{7.1.3} \\
\text{7.1.4}
\end{array}
\]

6.4.115 bhīyo’nyatarasyām: the final ā of bhī is optionally replaced with i when an affix beginning with a consonant, and marked with K or Ň follows.\(^{57}\)

---

\(^{56}\) The vowel of the abhyāsa ‘first of two reduplicated syllables’ is replaced with its short counterpart.

\(^{57}\) By virtue of being an apit sārvadhātuka, jhi is treated as marked with K / Ň (cf. 1.2.4 sārvadhātukam apit).
7.1.3 jho’ntah: a jh which is the initial sound of an affix is replaced with ant.

7.1.4 ad abhyastāt: when preceded by a reduplicated base, a jh which is the initial sound of an affix is replaced with at.

There is an SOI relationship between 7.1.3 and 7.1.4. Since 7.1.4 has been taught specifically for reduplicated bases, it is more specific and thus wins.

Let us consider the relationship between 7.1.4 and 6.4.115. If we apply 6.4.115 at this step, 7.1.4 will be applicable at the following step. But if, by 7.1.4, we replace jh with at, which starts with a vowel, 6.4.115 will not be applicable at the following step. This is a case of unidirectional blocking, and thus of DOI conflict.

By my interpretation of 1.4.2, we apply the RHS rule 7.1.4 (which defeats 7.1.3 in SOI, as seen above) and get: bhībhī + ati → bhībhī + ati (6.1.77 iko yan acī). Now that all rules from the sapādasaptādhyāyī have applied, we can apply 8.4.54 abhyāse car ca from the tripādī. This gives us bibhyati, which is the correct form.

Note that the optional rule 6.4.115 bhiyo’nyatarasyām, despite being applicable, does not actually end up applying in this derivation. So even if we had not implemented the optional rule 6.4.115, we would still have got the same form, i.e., bibhyati.

30. niijIR + tiP – ‘to purify’, aorist third-person singular

\[
\begin{array}{ccc}
\text{niijIR} & + & \text{tiP} \\
6.1.65 & 3.1.43 & 3.4.100
\end{array}
\]

6.1.65 no naḥ: the initial n of a verbal root when taught in the Dhātupāṭha is replaced with n.

3.1.43 cli luṅ: affix cli is added to a verbal root when LUṆ follows.

3.4.100 itaś ca: the i of a replacement of any lakāra marked with /authentication, is replaced with LOPA.

There is no conflict between these rules. By my interpretation of 1.4.2, we apply the right most rule 3.4.100 and get: niijIR + t. Here the following rules are applicable:
There is no conflict between these rules. By my interpretation of 1.4.2, we apply the RHS rule 3.1.43 and get $nij + cli + t$. Here the following rules are applicable:

6.1.65 $no nah\$: same as above.

7.3.86 $pugantalahipadhasya ca\$: same as above.

3.1.44 $cleh sic\$: $cli$ is replaced with $sIC$.

3.1.57 irito vā\: affix $cli$ is optionally replaced with $aN$ after verbal roots marked with $IR$ when a $parasmaipada$ replacement of $LUaN$ which denotes $karti$ follows.

6.1.65 is not in conflict with the other rules. There is an SOI relationship between 3.1.44 and 3.1.57. Since 3.1.57 has been specifically taught for roots marked with $IR$, it wins.

Let us consider the DOI relationship between 7.3.86 and 3.1.57. If we apply 7.3.86 at this step, 3.1.57 will be applicable at the following step. But if we replace $cli$ with $aN$ by 3.1.57, then by 1.1.5 $kniti ca$, 7.3.86 will not be applicable at the following step. This is a case of unidirectional blocking and thus of DOI conflict.

By my interpretation of 1.4.2, we perform the right most operation 3.1.57 (which defeats 3.1.44 in SOI, as seen above). We get: $nij + aaN + t \rightarrow nij + aaN + t (6.1.65)$. $nij$ and $aN$ cannot undergo any other operations which are not triggered by $t$, so we can write $nij + aaN$ as $nija$. $nija$ is an $aṅga$ with respect to $t$. Thus, we apply 6.4.71 $luñlañlrñv aḍ udāttah$ and get $anijat$, which is the correct form.

If we do not implement the optional rule 3.1.57 irito vā, the derivation proceeds as follows: $nij + cli + t \rightarrow nij + sIC + t (3.1.44) \rightarrow naij + s + t (7.2.3 vadavrajahalantasyācāh) \rightarrow naij + s$
+ t (6.1.65 no nah) → naiṣ + īt (7.3.96 astīsco’prktē) → anaiṣṭīt (6.4.71 luṅlaṅṛṣv ad udāṭtāḥ)\textsuperscript{58}, which is also correct.

\[31. \text{sic} + tiP – ‘to sprinkle’, aorist third-person singular\]

This derivation is very similar to the previous one so I will simply focus on the part involving DOI conflict. In the rest of the steps, if two rules are simultaneously applicable, I choose the RHS rule in case of DOI and the more specific rule in case of SOI.

\[\text{sic} + tip \rightarrow \text{sic} + t (3.4.100 itaś ca) \rightarrow \text{sic} + \text{cli} + t (3.1.43 cli luṅi)\]

\[\begin{align*}
\text{sic} & \quad + \quad \text{cli} \\
7.3.86 & \quad + \quad 3.1.53
\end{align*}\]

\[7.3.86 \text{pugantalaghūpadhāsya ca: same as above.}\]

\[3.1.53 \text{lipisiciḥvaś ca: affix cli is replaced with aN after verbal roots lip ‘to coat, smear’, sic ‘to pour out, sprinkle’ or hveN ‘to call’ when LUÑ which denotes kartr follows.}\]

If we apply 7.3.86 at this step, 3.1.53 will be applicable at the following step. But if we apply 3.1.53 at this step, then by 1.1.5 kṅiti ca, 7.3.86 will not be applicable at the following step. This is a case of unidirectional blocking and thus of DOI conflict.

By my interpretation of 1.4.2, we apply the RHS rule 3.1.53 and get \(\text{sic} + aN + t. \text{sic}\) and \(aN\) cannot undergo any other operations which are not triggered by \(t. \text{Thus sic} + aN\) can be written as \(\text{sica}.\) Thereafter 6.4.71 luṅlaṅṛṣv ad udāṭtāḥ from the aṅgādhikāra applies, leading to the correct form, asicat.

\[\text{\textsuperscript{58} In the interest of brevity, I have omitted to mention certain phonological processes here, which lead us from naiṣ to naiṣ.}\]
32. \textit{vanU + Ktvā} – ‘to desire’, absolutive

\[
\begin{array}{ccc}
\text{v} & \text{a} & \text{n} \\
6.4.15 & 6.4.37 & \text{Ktvā} \\
7.2.56
\end{array}
\]

6.4.15 \textit{anunāsikasya kvijhaloh kniti}: the penultimate vowel of a base which ends in a nasal (\textit{anunāsika}), is replaced with its long counterpart when affix \textit{KvI}, or an affix beginning with \textit{jhaL} ‘a non-nasal stop or a fricative’ and marked with \textit{K} or \textit{Ṅ} follows.

6.4.37 \textit{anudāttopadeśavanatitanotyādīnām anunāsikalopo jhali kniti}: the final nasal of a base marked with \textit{anudāttā} when taught in the \textit{Dhātupāṭha}, as well as of \textit{vanA} ‘to like’ and the roots headed by \textit{tanU} ‘to extend’, is replaced with \textit{LOPA} when an affix beginning with \textit{jhaL} ‘a non-nasal stop or a fricative’ and marked with \textit{K} or \textit{Ṅ} follows.

7.2.56 \textit{udito vā}: augment \textit{iṬ} is optionally attached to affix \textit{Ktvā} when it follows a verbal root marked with \textit{U}.

Let us consider the relationship of 7.2.56 with the other two rules. If we apply 6.4.15 or 6.4.37 at this step, 7.2.56 will be applicable at the following step. But if we apply 7.2.56 at this step, then both 6.4.14 and 6.4.37 will not be applicable at the following step. Thus, 7.2.56 unidirectionally blocks both 6.4.15 and 6.4.37 and is in a DOI conflict with both of them.

By my interpretation of 1.4.2, we apply the right most rule 7.2.56 and get \textit{vanitvā}, which is the correct form.

If we do not implement the optional rule 7.2.56, the derivation proceeds as follows:

\[
\begin{array}{ccc}
\text{v} & \text{a} & \text{n} \\
6.4.15 & 6.4.37 & \text{Ktvā}
\end{array}
\]

If we apply 6.4.15 at this step, 6.4.37 will be applicable at the following step. But if we apply 6.4.37 at this step, 6.4.15 will not be applicable at the following step. This is a case of unidirectional blocking and of DOI conflict.

By my interpretation of 1.4.2, we apply the RHS rule 6.4.37 and get \textit{vatvā}, which is also correct.
33. āhan + iṬ – ‘to hit’, optative first-person singular

3.1.68 *kartari śap*: affix ŠaP occurs after a verbal root when a sārvadhātuka affix which denotes kartṛ ‘agent’ follows.

3.4.102 *liṅa sīyut*: a substitute of LIṆ receives the augment sīyUṬ.

3.4.106 *ito’t*: iṬ, which is the first-person singular ātmanepada substitute of LIṆ, is replaced with aT.

3.1.68 neither blocks nor is blocked by the other rules. There is an SOI relationship between 3.4.106 and 3.4.102, and 3.4.106 wins because it has been specifically taught for iṬ.

By my interpretation of 1.4.2, we apply the RHS rule 3.4.106 (which defeats 3.4.102 in SOI, as stated above) and get āhan + aT. Here two rules are applicable:

\[
\begin{array}{c}
\text{āhan} \\
\uparrow \\
3.1.68 \\
\text{3.4.102} \\
\text{aT}
\end{array}
\]

As stated before, there is no conflict between these two rules. By my interpretation of 1.4.2, we apply the RHS rule 3.4.102 and get āhan + sīya. Thereafter the derivation proceeds as follows: āhan + sīya → āhan + ŠaP + sīya (3.1.68 *kartari śap*) → āhan + sīya (2.4.72 adiprabhrītyah āyhash). Now āhan can be called an aṅga with respect to sīya. Thus, the following rules from the aṅgādhikāra are applicable:

\[
\begin{array}{c}
\text{āha} \\
\uparrow \\
6.4.37 \\
\text{7.2.79} \\
\text{n} \\
\text{s} \\
\text{īya}
\end{array}
\]

6.4.37 *anudāttopadeśavanatitanotyādīnām anunāsikalopto jhali khitī*: same as above.

7.2.79 *liṅaḥ salopo’nantyasya*: the non-final s of a sārvadhātuka substitute of LIṆ is replaced with LOPA.

If we apply 6.4.37 at this step, 7.2.79 will still be applicable at the following step. But if we apply 7.2.79 at this step, āhan will no longer be followed by a jhaL sound and thus 6.4.37 will
not be applicable at the following step. This is a case of unidirectional blocking, and thus of DOI conflict.

By my interpretation of 1.4.2, we apply the RHS rule 7.2.79 and get āhan + īya. Thereafter, the derivation proceeds as follows: āhn + īya (6.4.98 gamahanajanakhanaghasāṁ lopah knity anaṅī) → āghṇīya (7.3.54 ho hanter ṇṇinnesu)⁵⁹, which is the correct form.

34. vyadh + Ktvā – ‘to hurt’, absolutive

\[
\begin{array}{ccc}
& v & \\
6.1.16 & & 6.1.16
\end{array}
\]

6.1.16 grahiyāvayivyadhivaṣṭivicāryatīnāṁ niṭi ca: verbal roots graḥA ‘to grab, seize’, jyā ‘to decay, grow old’, vay (a substitute of veṅ ‘to weave’ by 2.4.41 veṅo vayih), vyadhA ‘to pierce, hurt’, vaśA ‘to shine’, vyacA ‘to deceive’, OvraśCU ‘to cut’, pracchA ‘to ask’ and bhrasjA ‘to roast’ undergo samprasāraṇa when an affix marked with K and Ṇ follows.

Note that both v and y can potentially undergo samprasāraṇa by 6.1.16. If we apply 6.1.16 to v at this step, 6.1.16 will be applicable to y at the following step. But if we apply 6.1.16 to y at this step, then by 6.1.37 na samprasāraṇe samprasāraṇaṁ, 6.1.16 will not be applicable to v at the following step. This is a case of unidirectional blocking and thus of DOI conflict.

By my interpretation of 1.4.2, we apply the RHS rule 6.1.16 to y and get viadh + tvā. Thereafter, the derivation proceeds as follows: vidh + tvā (6.1.108 samprasāraṇaṁ ca) → viddhvā (8.2.40 jhaṣas tathor dho’ḍhaḥ) → viddhvā (8.4.53 jhalāṁ jaś jhaśi), which is the correct form.

⁵⁹ See translation in example 3.
⁶⁰ See translation in example 3.
4.4 Examples of SOI

We have already looked at several examples of SOI while discussing examples of DOI conflict. Here I will present a few more examples. As I have done earlier, I will spell out and examine the conditions in which the rules apply and then determine which of the two rules is more specific.

(1) cal + tiP – ‘to walk’, simple future third-person singular

\[
\text{cal} + \text{tiP}
\]

3.1.33 syatāsī ḷḷutoh: affixes sya and tāṣI respectively occur after verbal roots when LR and LUṬ follow.

3.1.68 kartari śap: affix ŚaP occurs after a verbal root when a sārvadhātuka affix which denotes kartṛ ‘agent’ follows.

3.1.33

(when LR and LUṬ follow)

3.1.68

(when LR and LUṬ follow)

(when other sārvadhātuka affixes follow)

The conditions highlighted in bold are exactly the same. This is a case of SOI-M. Thus, we compare the two rules themselves. 3.1.33 has been taught specifically for LR and LUṬ. So, it is more specific and thus wins. We get \[\text{cal} + \text{sya} + \text{ti} \rightarrow \text{caliṣyati} (7.2.35 ārdhadhātukasyeḍ valādeḥ),\] which is the correct form.
(2) \textit{vad} + \textit{miP} – ‘to speak’, imperative first-person singular

\begin{equation}
\begin{array}{c}
vad \\
+ \\
\text{miP}
\end{array}
\end{equation}

3.1.68 \textit{kartari śap}: same as above.

3.4.89 \textit{mer niḥ}: a \textit{miP} substitute of \textit{LOṬ} is replaced with \textit{ni}.

3.4.92 \textit{āḍ uttamasya pic ca}: a first-person substitute of \textit{LOṬ} receives the initial augment \textit{āṬ} which is treated as marked with \textit{P}.

3.1.68 is not in conflict with 3.4.89 or 3.4.92. By my interpretation of 1.4.2 we should perform the RHS operation. But which one of the two RHS rules, namely 3.4.89 and 3.4.92, should we apply? Let us examine the SOI between 3.4.89 and 3.4.92.

3.4.89

\textit{miP} (replacement of \textit{LOṬ})

3.4.92

\textit{miP} (replacement of \textit{LOṬ})

other first-person affixes (replacements of \textit{LOṬ})

The conditions highlighted in bold are exactly the same. This is a case of SOI-M. Thus, we compare the two rules themselves. 3.4.89 has been taught specifically for \textit{miP}. So, it is more specific and thus wins. Thus, we get \textit{vad} + \textit{ni}. Thereafter, the derivation proceeds as follows: \textit{vad} + \textit{ni} \rightarrow \textit{vad} + \textit{āni} (3.4.92 \textit{āḍ uttamasya pic ca}) \rightarrow \textit{vad} + \textit{ŚaP} + \textit{āni} (3.1.68 \textit{kartari śap}) \rightarrow \textit{vadāni} (6.1.97 ato guṇe), which is the correct form.
(3) \( t\bar{r} + tiP \) – ‘to cross’, present third-person singular

\[ t\bar{r} + tiP \rightarrow t\bar{r} + \bar{\tilde{S}}aP + tiP \] (3.1.68 kartari šap)

7.3.84 sārvadhātukārdhadhātukayoh: guṇa replaces the final sound \( iK \) \( (i, u, r, l) \) of a verbal base when a sārvadhātuka or ārdhadhātuka affix follows.

7.1.100 ṛta id dhātoḥ: \( \bar{r} \) which occurs at the end of a verbal base is replaced with \( i \).

Note that, we have to take into account rules like 1.1.5 kniṭi ca [which prohibits guṇa and vṛddhi of the iK \( (i, u, r, l) \) of a verbal base when the following affix is marked with \( K, G \) or \( \bar{N} \)] when determining the exact conditions in which the aforementioned rules are applicable. Because of 1.1.5, 7.3.84 is applicable only when the affix is not marked with \( K, G \) or \( \bar{N} \).

7.3.84

\( \bar{r} + \text{affix (sārvadhātuka or ārdhadhātuka) (not marked with } K, G, \bar{N}) \)

other iK sounds + affix (sārvadhātuka or ārdhadhātuka) (not marked with \( K, G, \bar{N} \))

7.1.100

\( \bar{r} + \text{affix (sārvadhātuka or ārdhadhātuka)} \)

The conditions highlighted in bold are not the same. Thus, this is a case of SOI-L. 7.3.84 is more specific because it is applicable only if the affix is not marked with \( K, G \) or \( \bar{N} \) whereas 7.1.100 is applicable regardless of whether the affix is marked with \( K, G \) or \( \bar{N} \). Thus, 7.3.84 wins, giving the correct form tarati (cf. 1.1.51 ur an ṛaparaḥ).

Let us now consider Cardona’s (1970: 57-58) method of deriving this form. He uses a principle that he calls ‘limited blocking’ to deal with this aforementioned SOI. He explains it as follows: “though a rule R₂ as a whole does not state an apavāda of an R₁, as a whole, it can do so for some operands or environments common to both”. Further, he says: “(Consider) rules: 7.3.84 sārvadhātukārdhadhātukayoh and 7.1.100 ṛta id dhātoḥ. By the latter, the \( \bar{r} \) of an āṅga which is a verb root is replaced with \( i \). The rules are not related as utsarga and apavāda in their entirety: the operands of 7.3.84 are \( i, u, r \) while that of 7.1.100 is \( \bar{r} \). Nor are the contexts identical. Although 7.1.100 operates when the root is followed by any affix introduced after it
and sārvadhātuka and ārdhadhātuka affixes, the contexts for 7.3.84, include all post-radical affixes, the context of 7.3.84 is restricted by 1.1.5 (knīti ca). In the case of the single shared operand (ṝ), then, 7.1.100 will counter 7.3.84 (sic)\textsuperscript{61}, since all the contexts of the former are included in those of the latter. Thus, given the root stṝ followed by the affix anā, one obtains the desired form starāṇa- ‘spreading’ without recourse to paratva.”

Kiparsky (1991: 350-351) criticizes this solution, saying that using such arguments, one could have arrived at exactly the opposite conclusion. He says, “So (Cardona’s statement) is compatible with two different procedures yielding opposite results:

“If the environments of R₂ are properly included in the environments of R₁, and the operands of R₁, are properly included in the operands of R₂, then

a. R₂ blocks R₁, (for the environments of R₂ are properly included in the environments of R₁, in the shared operand domain).

b. R₁ blocks R₂ (for the operands of R₁ are properly included in the operands of R₂ in the shared environment domain).

“In case (a) of Cardona 1970 (p. 57) the two rules are: 7.3.84 sārvadhātukārdhadhātukayoḥ (guṇah) and 7.1.100 ṭītā id dhātoḥ. So, Cardona applies procedure a: “in the case of the single shared operand (ṝ) then, 7.1.100 will counter 7.3.84 [sic – this is evidently a slip and he must have meant to say ‘7.3.84 will counter 7.1.100’], since all the contexts of the former are included in those of the later”. If the facts were the other way round (i.e., if the outcome was *stirāṇa), he would have said “in the case of the single shared context (non-kit suffixes), 7.1.100 will counter 7.3.84, since all the operands of the former are included in those of the latter (procedure b)”.

I think that Cardona’s limited blocking principle is similar to my method of dealing with SOI. However, Kiparsky correctly points out that the explanation offered by Cardona is ambiguous. On the other hand, my solution overcomes such ambiguity by following the clearly defined procedure which I have developed and used to tackle all examples of SOI in this thesis.

This brings us to the end of our survey of SOI and DOI examples from derivations of finite verbs and primary derivatives.

\textsuperscript{61} As pointed out by Kiparsky, Cardona means the exact opposite, that is, ‘7.3.84 will counter 7.1.100’.
4.5 Selection of Examples

I have presented examples of both SOI conflict and DOI conflict in chapters 2, 3 and 4, of this thesis. Instead of focusing on only those steps that involve conflict, I have performed entire derivations, right from the first step to the last one – drawing diagrams for each step where two or more rules are simultaneously applicable. Before closing this chapter, I must discuss the process through which I conducted my searches for examples, the rationale behind the choice of these examples and also the distributional patterns I noticed in this process.

I performed numerous derivations from the *Laghusiddhāntakaumudī* and chose those which involve examples of conflict. Having studied the various prakaraṇas ‘chapters’ of this text, namely those on sandhi, subanta, taddhitānta, samāsa, tiṅanta and kṛdanta, I have selected a diverse and representative set of examples to the best of my abilities. In order to avoid redundancy, I have excluded those examples which are only superficially different from those included in this thesis.

To show that my method can tackle all kinds of conflicts in various derivational contexts, I have tried to strike a balance:

(i) between short derivations which involve only two or three steps and fewer cases of same-step interaction, and long ones which involve many steps and several cases of same step interaction;

(ii) between simple examples which help the reader gain conceptual clarity and complex ones which demonstrate the potency of my solution; and

(iii) between examples which have been extensively discussed in traditional literature and examples which I have newly spotted during my research.

To underscore the far-reaching impact of my research:

(i) I have given precedence to derivations which involve popular, broad, general and widely-applicable rules, whilst also ensuring the inclusion of derivations which involve rarely applicable and highly specific rules.

(ii) I have prioritized the exposition of those examples which highlight the contrast between my method and the traditional method.

(iii) I have paid special attention to certain challenging examples discussed in the *Mahābhāṣya*, the *Kāśikā*, Cardona (1970), Kiparsky (1982), Pataskar (1985), Bronkhorst (2004), Joshi and
Kiparsky (2005) etc., with the aim of showing that my method is singlehandedly able to overcome a wide variety of problems associated with this topic. In Appendix D, I provide more information on the examples which are present in some of these sources and have also been discussed by me.

4.6 Distribution of Examples of Conflict

Now let us examine the distribution of examples of conflict across various kinds of derivations (e.g., subanta, kṛdanta etc.). Since Pāṇini uses the general-exception framework throughout the Aṣṭādhyāyī, we find cases of SOI conflict in all kinds of derivations. And while we might find more examples of SOI conflict in some kinds of derivations than others, we do not come across any unique or peculiar patterns that merit discussion here.

So, I will focus on the distribution of DOI conflicts in Pāṇinian derivations in this section. Let us inquire why, on the whole, DOI conflicts, and especially certain kinds of DOI conflicts (e.g., mutual blocking), are found more frequently in certain kinds of derivations than others. I request the reader to bear in mind that I will be making some broad generalizations here in order to paint an overarching picture. Therefore, my statements will not be entirely accurate. Since we are talking about DOI-conflict here, I will not touch upon those instances of DOI which do not involve conflict.

To start with, let us consider subanta derivations.

A                          B
‘nominal base + declensional affix’

We will focus on cases where the application of A to the base is triggered by the first sound of the affix, and the application of B to the affix is triggered by the last sound of the base. If the first sound of the affix changes, A is not applicable to the base anymore and if the last sound of the base changes, B is not applicable to the affix anymore. Therefore, when two such rules are simultaneously applicable in subanta derivations, A to the base and B to the affix, both rules block each other, leading to a situation of DOI conflict. See examples 1-5 and 9 of section 2.7, chapter 2.

In other cases, we find that the application of B to the affix is triggered simply by the grammatical gender, word category (e.g., pronoun) etc. of the base. In such a case, even if the
base undergoes phonological change, B will still be applicable at the following step. On the contrary, we observe that the application of A to the base is triggered by the first sound or the mere presence of an affix. So, if the affix is deleted, for example, by LUK, or if its first sound changes, then A will no longer be applicable at the following step. These are cases of unidirectional blocking. See examples 6-8 and 13 of section 2.7, chapter 2.

Thus, we see both kinds of examples of DOI conflict, namely those of mutual blocking and those of unidirectional blocking, in subanta derivations. Note that I have overlooked, for the sake of simplicity, examples of DOI conflict where both rules apply to two different parts of the base or to two different parts of the affix respectively.

Let us contrast this with tinanta derivations. One of the early steps of these derivations looks like this:

\[
\text{‘verbal base + vikarana + finite ending’}
\]

\[
\begin{array}{ccc}
C & D & E \\
\end{array}
\]

Vikaranas on the whole do not undergo many changes. Even when they do, the application of D (which may teach replacement with LUK or other substitutes, augmentation, etc.) is not triggered by the last sound of the verbal root. So even if the verbal root undergoes some changes, D will still be applicable to the vikarana at the following step. On the other hand, the application of C (which may entail guña, samprasārana, augmentation, lengthening of the penultimate vowel, deletion of nasal etc.) is dependent on the existence of the vikarana, its being marked with K or Ā, etc. So, if the vikarana undergoes certain changes, such as replacement with LUK or attachment of certain augments like iṬ which annul the effect of K/Ā (cf. 1.2.18 na ktvā seṭ), C will not be applicable to the base at the following step. These are cases of unidirectional blocking.

Most rules (E) which are applicable to finite endings at this stage, are triggered by the type of lakāra that the ending has replaced, whether that lakāra is marked with Ṭ or Ā, the number and person of the ending, whether the ending is parasmaipada or ātmanepada etc. They do not block and are not blocked by other rules (for example, see rules 3.4.77 – 3.4.112 of the Aṣṭādhyāyī). So, we will not focus on them here.
Once the *aṅga* is ready, we get:

\[
\begin{array}{c}
aṅga \\
F
\end{array} + \begin{array}{c}
\text{finite ending} \\
G
\end{array}
\]

The application of F (such as *guna, vṛddhi, samprasāraṇa* etc.) is triggered by the existence of the affix, the first sound of the affix, whether or not it is marked with \( K / Ṉ \) etc. Thus, if the affix undergoes certain changes, F is not applicable at the following step. But G is not triggered by the last sound of the *aṅga*. Thus, even if the *aṅga* undergoes certain changes, G is still applicable at the following step. This is a case of unidirectional blocking.

Let us now look at *kṛdanta* derivations.

\[
\begin{array}{c}
\text{verbal base} \\
H
\end{array} + \begin{array}{c}
kṛt \\
I
\end{array}
\]

The application of H (such as *guna, samprasāraṇa* etc.) is triggered by / depends on the first sound of the affix, whether it has taken the augment \( iʔ \), whether it is marked with \( K / Ṉ \) etc. Thus, if the affix undergoes certain changes, H is not applicable at the following step. Let us call H the dependent rule. On the other hand, I is triggered by the first sound of the affix itself (e.g., 7.2.35 ārdhadhātukasyeḍ valādeḥ) and other factors. Essentially, the application of I is not dependent on the final sound of the base. So even if the base changes, I is still applicable at the following step. Let us call I the independent rule. This is a case of unidirectional blocking, where the independent rule blocks the dependent rule.

Before we proceed further, notice that, in almost all cases of unidirectional blocking in DOI discussed in the thesis, it is the RHS rule which unidirectionally blocks the LHS rule, and not vice-versa.⁶² This is because, it is the RHS rule which is independent and it is the LHS rule which is dependent. In other words, in almost all cases of unidirectional blocking, the applicability of the RHS rule does not depend on whether the penultimate or last sound of the

---

⁶² This is exactly why the traditional *nītya* tool which teaches that the *nītya* rule defeats the *anītya* rule, always correctly resolves cases of DOI conflict involving unidirectional blocking: the *nītya* rule is applicable to the RHS operand and the *anītya* rule to the LHS operand. By (my interpretation of) 1.4.2, the RHS rule (which is also the *nītya* rule) defeats the LHS rule (which is the *anītya* rule).
base changes, but the applicability of the LHS rule does depend on whether the affix is marked with $\bar{K}$ / $\bar{N}$, whether it starts with a vowel, whether it has taken the augment $i\bar{T}$ etc.

Coming back to the larger theme of this section, we see that almost all cases of DOI conflict in both $\text{ti}ṇanta$ and $kṛḍanta$ derivations involve only unidirectional blocking. This can be observed in the examples discussed in section 4.3. We rarely come across examples of DOI conflict that involve mutual blocking. One such exception is example 21 of section 4.3 of this chapter, which does involve mutual blocking.

To sum up my observations, we find examples of both mutual and unidirectional blocking in $\text{subanta}$ derivations, but of unidirectional blocking alone in $\text{ti}ṇanta$ and $kṛḍanta$ derivations.

As seen in this thesis, we find relatively fewer examples of DOI conflict in $\text{taddhitānta}$ and $\text{samāsa}$ derivations than we do in $\text{subanta}$, $\text{ti}ṇanta$ and $kṛḍanta$ sections. How can we explain this phenomenon?

Let us first answer this question in the context of $\text{samāsa}$ derivations. The $\text{samāsa}$ template is ‘[(base$_1$ $suP_1$) (base$_2$ $suP_2$)] + $suP_3$’. $suP_1$ and $suP_2$ are replaced with $LUK$ by 2.4.71 $\text{supo dhātuprātipadikayoḥ}$. Thus, we are left with ‘base$_1$ base$_2$ + $suP_3$’. Given that the only remaining affix, i.e., $suP_3$ is also a $suP$ affix, there is almost no scope for any other conflicts to arise apart from those that can potentially arise in $\text{subanta}$ derivations. The only exceptions to this are those cases wherein the $\text{uttarapada}$ can potentially trigger changes in the $\text{pūrvapada}$ (see examples 1 and 8 of section 3.2, chapter 3). This explains why we find very few examples of DOI conflict which are exclusive to $\text{samāsa}$ derivations, i.e., which are not already found in $\text{subanta}$ derivations.

In $\text{taddhitānta}$ derivations too, we find very few examples DOI conflict. Even these examples are quite similar to each other (see examples 3-7 of section 3.2, chapter 3) and arise because of the nominal inflection of $\text{taddhitānta}$ forms. Why is this the case? The majority of $\text{taddhita}$ rules actually teach addition of $\text{taddhita}$ affixes, and not any substitutions or modifications. The $\text{taddhita}$ template is ‘(nominal base + $suP$) + $\text{taddhita}$ affix’. $suP$ is replaced with $LUK$ by 2.4.71 $\text{supo dhātuprātipadikayoḥ}$. Thus, we are left with ‘nominal base + $\text{taddhita}$ affix’.
Taddhita affixes undergo very few, generic changes by rules (L) like by 7.1.2 āyaneyīniyiyah phadhakhacchaghām prayayādinām, which are independent of the final sound of the nominal base. So, any change in the base by rule J cannot block these operations (L) on taddhita affixes.

The nominal bases preceding taddhita affixes can also undergo certain general changes by rules (J) such as 7.2.117 taddhiteṣv acām ādeḥ, 7.2.118 kiti ca etc. which do not depend on the first sound of the taddhita affix for their application, and thus are not blocked by L in case of DOI. And even those operations (J) such as 6.4.146 or guṇah and 6.4.148 yasyeti ca, which are triggered by the first sound of the following taddhita affix, are seldom blocked, simply because the following taddhita affixes themselves undergo very few changes. So, barring replacement with LUK (see examples 3-7 of section 3.2, chapter 3), most changes in the taddhita affix cannot block these operations (J) on the nominal base. Since there is little scope for DOI blocking between J and L, we come across very few examples of DOI conflict in taddhita derivations.
5.1 Traditional Views on Asiddha and Asiddhavat

In the previous chapters, I have shed light on how I think Pāṇini perceives the interactions between simultaneously applicable rules and more specifically, how he resolves cases of SOI and DOI. In this process, I have also discussed my interpretation of 1.4.2 vipratiṣedhe param kāryam.

In this chapter, I will dwell on three very important rules of the Aṣṭādhyāyī, which deal with the concepts of asiddha and asiddhavat. 6.1.86 ṣatvatukor asiddhaḥ and 8.2.1 pūrvatrāsiddham teach the former and 6.4.22 asiddhavad atrā bhāt the latter. I will discuss both the traditional interpretation of these rules and my own interpretation of them. I will also demonstrate how these rules impact SOI and DOI, if at all they do, and how they interact with (my interpretation of) 1.4.2.

Let me start by presenting the English translation of these three rules as per the traditional interpretations. To highlight the differences of opinion within the tradition, I will make relevant comments on what texts like Mahābhāṣya, Kāśikā, Siddhāntakaumudī and Nyāsa say about these rules.

6.1.86 ṣatvatukor asiddhaḥ (ekah pūrvaparayoḥ sanhitayām): a single replacement (ekah) in place of the preceding and the following sound segments (pūrvaparayoḥ) in continuous utterance (saṁhitayām) is suspended1 (asiddhaḥ) with respect to any potential replacement with s or insertion of augment tUK (ṣatva-tuk-or).

Here, should the kārya (i.e., ‘operation’, or more aptly, ‘outcome of application of the rule’) be suspended or the śāstra (i.e., the rule) itself? In traditional literature, if the kārya is suspended, this is called kāryāsiddhi, whereas if the śāstra is suspended, this is called śāstrāsiddhi. According to the Kāśikā, asiddha implies kāryāsiddhi2, but according to the Siddhāntakaumudī, asiddha stands for śāstrāsiddhi3.4

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1 When A is suspended with respect to B, B cannot acknowledge A.
2 satve tuki ca kartavye ekādeśo’siddho bhavati, siddhakāryaṁ na karoti ity arthaḥ.
3 satve tuki ca kartavye ekādeśaśāstram asiddham syāt.
4 In his commentary on 8.2.1, Rama Nath Sharma (2003, Vol. 6, p. 476) says, “The asiddhatva of 8.2.1 pūrvatrāsiddham is thus accepted as suspension of rules (śāstrāsiddhatva). Neo-grammarians such as
8.2.1 *pūrvatrāsiddham*: that which is taught from here onwards is suspended (*asiddham*) with respect to what precedes it (*pūrvatra*).

As per the tradition’s interpretation, 8.2.1 can be rewritten as follows:

Q is suspended with respect to P if:

(i) Q is taught after P in the serial order of the *Āṣṭādhyāyī*, and

(ii) Q is taught after 8.2.1 in the serial order of the *Āṣṭādhyāyī*.

Here, again, the *Kāśikā* favours the *kāryāsiddhi* interpretation, whereas the *Siddhāntakaumudī* prefers the *śāstrāsiddhi* interpretation. There is some discussion in *Nyāsa* on 8.2.1 about whether *asiddha* stands for *kāryāsiddhi* or for *śāstrāsiddhi*.

6.4.22 *asiddhavad atrā bhāt*: that which is taught in the section starting here and extending up to *bh* (*ā bhāt*) is suspended (*asiddhavat*) if both rules have a *samānāśraya* ‘common substratum’ (*atra*).

According to the *Kāśikā* on 6.4.22, we must infer *samānāśrayatva* from the presence of word *atra*. The *Nyāsa* glosses *āśraya* as *nimitta* ‘cause’. If this is the case, *samānāśraya* would mean ‘common cause’. However, I do not think this is the correct interpretation. I will explain my understanding of the meaning of *samānāśraya* later in this chapter, when discussing a germane example.

On 6.4.22, Kātyāyana presents two different views on the meaning of the word *atra*. One view is that it stands for *samānāśrayatva*. The other opinion is that *atra* has been used to indicate

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Nāgėśa and Bhaṭṭoḷi Dīksita accept this view. Earlier grammarians, which also includes authors of the *Kāśikāvyṛtti*, accept the *kāryāsiddhatva* view.”

5 There is some controversy about the meaning of *ā bhāt*. We will examine this topic later in this chapter.

6 *Kāśikā*’s interpretation alludes to the rules which are *asiddhavat*, but does not mention the rules with respect to which these rules are *asiddhavat*. We are left to answer the ‘with respect to what?’ question on our own.

7 *atreti samānāśrayatvapratipattyartham*.

8 Explaining why *asiddhavat* is not applicable in a certain context, Kātyāyana says (vt. 12) *samānāśrayavacanāt siddham* ‘[despite being placed in the section headed by 6.4.22] it (i.e., this rule) is *siddha* [and not *asiddhavat*] because [*asiddhavat* has been taught only in regard with] *samānāśrayatva*, [and here the *samānāśrayatva* condition has not been met]’ (Mbh III.190.22).
that it is with respect to the rules taught *atra* ‘here’ (in the section headed by 6.4.22) that the rules of this section (i.e., those rules headed by 6.4.22) are *asiddhavat*. In other words, if *atra* had not been mentioned, the rules taught in this section would have become *asiddhavat* even with respect to rules lying outside this section, such as 7.2.116 *ata upadhāyāḥ*, which is not desirable, hence the need to state ‘*atra*’. We can say that *atra*, according to this view, stands for ‘with respect to the rules taught here (i.e., in the section headed by 6.4.22)’.

Both the *Kāśikā* and the *Siddhāntakaumudī* interpret ā bhāt, not as ‘up to 6.4.129 bhasya’, but instead as ‘up to the end of the section headed by 6.4.129 bhasya’. The jurisdiction of 6.4.129 continues up to 6.4.175, which is the end of 6.4. Thus, according to the *Kāśikā*, ā bhāt implies ‘up to the end of 6.4’. On the other hand, Kātyāyana and Patañjali discuss both possibilities: one, that the jurisdiction of 6.4.22 ends at 6.4.129, and the other, that it continues up to the end of 6.4. We will study this later in this chapter.

From what both the *Kāśikā* and the *Siddhāntakaumudī* say about 6.4.22, the traditional interpretation of this rule can be rewritten as follows:

A is suspended with respect to B if:

(i) both A and B are taught in 6.4.22 – 6.4.175, and

(ii) both A and B have a *samānāśraya*

Note that the tradition does not make any actual distinction between *asiddha* and *asiddhavat*, which is why I have translated both terms as ‘suspended’.

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9 See Vt. 2 *atra grahaṇam viṣayārtham* (Mbh III.187.11) and Patañjali’s commentary on it.

10 For example, consider the form *rāga* ‘colour’ which is derived from the root *raṇjī ‘to colour’. The derivation proceeds as follows: *raṇj + GHaÑ* (3.3.18 bhāve) → *raj + a* (6.4.27 ghaṇī ca bhāvakaraṇayoḥ) → *rāj + a* (7.2.116 *ata upadhāyāḥ*) → *rāga* (7.3.52 cajoh ku ghinnyatoḥ). Here, if 6.4.27 is *asiddhavat* with respect to 7.2.116, then 7.2.116 will not apply after the application of 6.4.27.

11 On vt. 2, Patañjali says: *viṣayaḥ pratinirdiṣyate. atraitasminm ābhāc chāstra ā bhāc chāstram asiddhaṁ yathā syāt. iha mā bhūt. abhāji rāgaḥ upabarhaṇam iti.*

12 *yat ita ūrdhvam anukramisyāmaḥ ā adhyāyaparisamāpteḥ tad asiddhavat bhavati ity evaṁ veditavyam* (Kāśikā on 6.4.22).

13 Mbh III.192.10-193.19.
5.2 My Interpretation of These Three Rules

In this section, I will present my interpretation of the three rules and support the same with evidence and examples. I will also show how SOI and DOI function in these sections.

Let us first examine 6.1.86 ṣatvatukor asiddhaḥ and 8.2.1 pūrvatrāsiddham respectively. I think that asiddha in these two rules denotes śāstrāsiddhi: rule X is asiddha with respect to rule Y. However, when rule X (śāstra) is asiddha with respect to rule Y, the outcome of the application of rule X (kārya) too will automatically be asiddha with respect to rule Y. In other words, I think that śāstrāsiddhi always entails kāryāsiddhi. Thus, we conclude that 6.1.86 and 8.2.1 teach śāstrāsiddhi, and therefore, also teach kāryāsiddhi.\textsuperscript{14}

What impact does the fact that one rule is asiddha with respect to the other rule have on 1.4.2? We cannot use 1.4.2 to resolve a case of DOI unless both rules involved in the DOI acknowledge each other’s existence. How do we resolve cases of DOI where one rule does not acknowledge the existence of the other? In such cases of DOI, the rule which does not acknowledge the existence of the other rule prevails. This will become clearer through the examples discussed later in this chapter.

Consider the following examples:

1) adhī + Ktvā – ‘to study’, absolutive

Note that adhī is formed by applying rule 6.1.101 akāh savarṇe dīrghaḥ (which teaches that a long vowel replaces both aK ‘a, i, u, r or l’ and the immediately following savarṇa ‘homogeneous’ vowel) to adhi + i. I have explained why we need to begin the derivation with adhī + Ktvā when discussing example 5 of section 4.3, chapter 4.

To adhī + Ktvā, we apply the rule 7.1.37 samāse’naṅpūrve ktvo lyap which teaches that, in a compound, the first member of which is not naṅ, the affix Ktvā in the second part of the compound is replaced with LyaP. Thus, we get adhīya. 6.1.86 teaches that a rule prescribing a single replacement in place of the preceding and the following sound segments is asiddha with respect to rules teaching replacement with s or attachment of augment tUK. Thus, we deem both 6.1.101 akāh savarṇe dīrghaḥ and the outcome of its application (because, remember,

\textsuperscript{14} The Nyāsa on 8.2.1 too says so: śastraśāsiddhau ca kṛtyāṁ arthataḥ kāryāsiddhatvam kṛtam eva bhavati tasya tannibandhanatvāt.
śāstrāsiddhi always entails kāryāsiddhi) to be suspended with respect to the rule 6.1.71 hrasvasya piti kṛṛi tuk, which teaches that augment tUK is attached to a verbal base ending in a short vowel when a kṛṛi affix marked with P follows. Therefore, we consider adhiya to be adhi-i-ya, apply 6.1.71 to it, and get the correct form adhīya.

If Pāṇini had not taught 6.1.86, 6.1.71 would not have applied here, leading to the incorrect form *adhīya.\(^\text{15}\)

\[\text{2) kas + asiñcat 'Who sprinkled?'}\]

The derivation proceeds as follows: kas + asiñcat \(\rightarrow\) kar + asiñcat (8.2.66 sasajuśoḥ ruḥ\(^\text{16}\)) \(\rightarrow\) ka-u + asiñcat (6.1.113 ato ror aplutād aplute\(^\text{17}\)) \(\rightarrow\) ko asiñcat (6.1.87 ād guṇah) \(\rightarrow\) ko'siñcat (6.1.109 eṇah padāntād ati), which is the correct phrase.

We have derived ko'siñcat by applying 6.1.109 eṇah padāntād ati which teaches pūrvarūpa ekādeśa, i.e., the replacement of o + a in ko + asiñcat with the LHS sound o. By 6.1.86 śatvatukor asiddhah, 6.1.109 and the outcome of its application (o) are asiddha with respect to the following rule teaching śatva:

8.3.59 ādeśapratyayoḥ: s replaces non-pada-final s of a substitute or of an affix occurring after iṆ (any vowel except a; h, y, v, r and l) or a velar stop, even when there is intervention of nUM, visarjanīya, or śaR (s, ş, s).

\(^{15}\) Note that, if we had started the derivation with adhi + itvā, the derivation would have proceeded as follows. Two rules are applicable here, namely 6.1.101 akaḥ savarṇe dīrgahā and 7.1.37 samāśe’naṁpūrve kṭvo iyap. This is a case of DOI. By 1.4.2, the RHS rule wins and we get adhi + iya. Here, two rules are applicable: 6.1.101 and 6.1.71 hrasvasya piti kṛṛi tuk. This is a case of SOI. 6.1.71 is more specific and thus wins. This gives us adhi + iya. Now 6.1.101 applies, giving the correct form adhīya. Notice that, if we start the derivation with adhi + itvā, we get the correct form without applying 6.1.86. But the fact that Pāṇini composed 6.1.86 confirms the fact that the derivation of this compound begins with adhī + tvā and not with adhi + itvā, even though the compound itself is being formed from adhi and itvā by 2.2.18 kugatiprādayah. I have discussed this in some detail in example 5 of section 4.3, chapter 4.

\(^{16}\) The s at the end of a pada and the final s of sajus ‘companion, together with’ are replaced with rU.

\(^{17}\) An uT replaces a rU when it is both preceded and followed by a non-pluta a.
Thus 8.3.59 is not able to apply to *kośiñcat. If Pāṇini had not composed 6.1.86, then 8.3.59 would have applied to *kośiñcat, giving us the incorrect form: *ko ’sīñcat.

However, there is a problematic aspect of this derivation that merits discussion: we know that 8.2.66 sasajuṣoḥ ruḥ is asiddha with respect to 6.1.113 ato ror aplutād aplute by 8.2.1 pūrvatrāsiddham. Therefore, 6.1.113 cannot acknowledge 8.2.66 and the outcome of its application and consequently cannot apply there. But this contradicts what we observe in the derivation of *kośiñcat where, in order to get the correct final form, we ought to apply 6.1.113 to kar + asiñcat which is the direct outcome of the application of 8.2.66.

Nyāsa on 6.1.113 acknowledges this problem but is unable to solve it. It says: the only rU that we find in the Aṣṭādhyāyī results from the application of 8.2.66. So Pāṇini would not have composed 6.1.113 which applies to rU if he intended for the outcome of the application of 8.2.66 (i.e., rU) to be asiddha with respect to 6.1.113. Buiskool (1939: 101) thinks that Pāṇini has placed 6.1.113 in 6.1 only because of its similarity with the rules that precede and follow it.

Here is a possible solution to this problem: I think that, in the Pāṇinian system, all possible rules that can be applied while constructing a word ought to be applied before the word enters a sentence. Let us call them word-level rules. Let us call those rules which apply after the word enters the sentence, sentence-level rules. I think Pāṇini does not consider word-level rules to be asiddha with respect to sentence-level rules. 8.2.66 is a word-level rule simply because it can be applied before the word enters the sentence, and thus is not asiddha with respect to 6.1.113, which by virtue of applying at the boundary between two words is a sentence-level rule.

We do not find any examples of SOI or DOI involving 6.1.86 satvatukor asiddhaḥ. Let us now look at some derivations involving 8.2.1 pūrvatrāsiddham, and also how this rule interacts with SOI and DOI.

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18 Yadi rutvam asiddhaṁ syāt tadā sthānitvena ror āśrayaṇam anarthakaṁ syāt. kasyacid ukārānubandhaviśiṣṭasya ror asambhavāt.

19 However, I must admit that there exist other cases of this kind which remain intractable or unexplainable. For example, see example 15 of section 4.3, chapter 4 where 6.1.101 applies after the application of 8.2.28.
3) rājan + bhis – ‘king’, instrumental plural

Here, we apply 8.2.7 nalopah prātipadikāntasya (which teaches that the final n of a nominal stem termed pada is replaced with LOPA) and get rāja + bhis. By 8.2.1 pūrvatrāsiddham, rules like 7.1.9 ato bhisa ais, 7.3.102 supī ca and 7.3.103 bahuvacane jhaly et which are applicable when deriving the instrumental plural of a-final stems, do not acknowledge the existence of 8.2.7. Consequently, they cannot acknowledge the outcome of its application either. Therefore, they are not applicable here. The correct form is rājabhiḥ.

If Pāṇini had not taught 8.2.1, we would have got the incorrect form *rājaiḥ (cf. 7.1.9 ato bhisa ais).

4) asmai + uddhara ‘lift (it) for him’

The derivation proceeds as follows: asmai + uddhara → asmāy + uddhara (6.1.78 eco’yavāyāvah) → asmā + uddhara (8.3.19 lopah śākalyasya). By 8.2.1, 8.3.19 is asiddha with respect to 6.1.87 ād gunah, which teaches that guṇa (a, e, o) replaces both a and the vowel immediately following it. Thus, the outcome of the application of 8.3.19 (i.e., asmā + uddhara) too is asiddha with respect to 6.1.87. Therefore, 6.1.87 is not applicable here. The correct phrase is asmā uddhara.

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20 Technically, there is a rule more specific than 8.2.1 pūrvatrāsiddham which teaches this asiddhatva. This rule is 8.2.2 nalopaḥ supsvarasāṃjñāntugvidhiṣu kṛti, which teaches that the rule teaching n-deletion is suspended with respect to rules pertaining to declension (suP), accent (svara), technical designations (saṃjñā) and introduction of augment tUK before a kṛt affix. 8.2.2 is a niyama sutra, which allows n-deletion to be asiddha only in the aforementioned circumstances.

21 Ais replaces bhis when bhis occurs after an a-final base.

22 The a at the end of a nominal base is replaced with its long equivalent when followed by a declensional affix starting with yañ (i.e., y, v, r l, jh, bh or any nasal).

23 The a at the end of a nominal base is replaced with e when followed by a plural declensional affix starting with jhaL (a non-nasal stop or a fricative).

24 An eC (e, o, ai, au) is replaced with ay, av, āy, āv respectively, when a vowel follows.

25 A pada-final v or y which occurs after a or ā is, in the opinion of Śākalya, replaced with LOPA when aŚ (any voiced sound) follows.
If Pāṇini had not taught 8.2.1, we would have got the incorrect phrase *asmoddhara (cf. 6.1.87 āḍa guṇaḥ).

Derivations 3 and 4 involve 8.2.1 but do not involve any cases of DOI or SOI. Now let us look at examples 5 and 6 which, alongside 8.2.1, also involve cases of DOI and SOI respectively.

5) bhujO + Kta – ‘to bend’, past passive participle

\[
\begin{array}{ccc}
bhu & j & + & ta \\
8.2.30 & 8.2.45
\end{array}
\]

8.2.30 coḥ kuh: a sound denoted by cU (palatals) is replaced with a corresponding sound denoted by kU (velars) when cU occurs at the end of a pada or is followed by jhal (a non-nasal stop or a fricative).

8.2.45 oditaś ca: the t of a niṣṭhā affix\textsuperscript{26} which occurs after a verbal root marked with O is replaced with n.

This is a case of DOI. Both rules lie in the tripādī. Thus, 8.2.30 does not acknowledge the existence of 8.2.45. As stated before, I think that 1.4.2 comes into play only if the two rules can acknowledge each other’s existence. Thus, 1.4.2 cannot address this case of DOI.

Therefore, the rule that cannot see the other rule applies here, and we get: bhug + ta (8.2.30). Now, 8.2.45 applies and we get the correct form bhugna.

In order to understand the crucial role played by 8.2.1 pūrvatrāsiddham in this derivation, let us analyse how this derivation would have proceeded in its absence:

\[
\begin{array}{ccc}
bhu & j & + & ta \\
8.2.30 & 8.2.45
\end{array}
\]

8.2.30 coḥ kuh: same as above.

8.2.45 oditaś ca: same as above.

\textsuperscript{26} 1.1.26 ktaktavatū niṣṭhā.
This is a case of DOI. But before we look at the outcome (as per my interpretation of 1.4.2), let us understand the relationship between 8.2.30 and 8.2.45. If we apply 8.2.30 at this step, 8.2.45 will be applicable at the following step (as seen in the derivation of bhugna above). But if we apply 8.2.45 at this step, then \( t \) will be replaced with \( n \), which does not belong to \( jhāL \). Thus 8.2.30 will not be applicable at the following step. In other words, the RHS rule 8.2.45 blocks the LHS rule 8.2.30, but the LHS rule 8.2.30 does not block the RHS rule 8.2.45. This is a case of unidirectional blocking.

By my interpretation of 1.4.2, the RHS rule 8.2.45 applies and we get \( bhuj + na \). As stated above, 8.2.45 blocks 8.2.30. Thus, 8.2.30 is unable to apply to \( bhuj + na \), and we get the incorrect form \( bhujna \rightarrow *bhujña \) (8.4.40 stoṣ ścunā ścuḥ).

To get the correct form, one needs to apply both rules, 8.2.30 and 8.2.45, in two consecutive steps. Since 8.2.45 unidirectionally blocks 8.2.30, the only way to apply both rules, is to apply them in the following order: first, 8.2.30, and then, 8.2.45. For this, one needs to devise a way to neutralize the impact of 1.4.2. Pāṇini has achieved this with the help of 8.2.1. He has placed 8.2.45 (the RHS rule) after 8.2.1 \( pūrvatrasiddham \) and also after the LHS rule 8.2.30 in the serial order of the \( Aṣṭādhyāyī \). This enables 8.2.30 to ignore 8.2.45 and consequently, to apply before the application of 8.2.45.

Let me state in general terms how Pāṇini uses 8.2.1 to impact certain cases of DOI. In those cases of DOI wherein the RHS rule unidirectionally blocks the LHS rule, and where Pāṇini wants both the RHS and LHS rules to apply, he places the RHS rule after 8.2.1 and after the LHS rule in the serial order of the \( Aṣṭādhyāyī \). In simple words, when required, Pāṇini uses 8.2.1 \( pūrvatrasiddham \) to neutralize the impact of 1.4.2 on those cases of DOI which involve unidirectional blocking, where it is desirable for him to do so.\(^27\)

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\(^{27}\) Even though the traditional understanding of \( vipratiṣedha \) is different from mine, it must be mentioned here that, in his first \( vārttika \) on 8.2.1, Kātyāyana says: \( pūrvatrasiddhe nāsti vipratiṣedho’bhāvād uttarasya \) “in the section headed by 8.2.1, \( vipratiṣedha \) does not arise because of the absence [i.e., suspension] of the rule which comes later in the \( Aṣṭādhyāyī \)’s serial order” (Mbh III.385.14).
6) \textit{dah + tum}UN – ‘to burn’, infinitive

\begin{center}
\begin{tikzpicture}
    \node (A) at (0,0) {\textit{dah}};
    \node (B) at (1,0) {\textit{tum}};
    \node (C) at (0.5,0.5) {\textit{h}};
    \draw (A) -- (C);
    \draw (B) -- (C);
\end{tikzpicture}
\end{center}

8.2.31 \textit{ho dhah}: \textit{h} is replaced with \textit{dh} when \textit{h} occurs at the end of a \textit{pada}, or when it is followed by \textit{jhaL} (a non-nasal stop or a fricative).

8.2.32 \textit{dāder dhātor ghaḥ}: \textit{gh} replaces the final \textit{h} of a verbal root beginning with \textit{d} when it occurs at the end of a \textit{pada} or is followed by \textit{jhaL} (a non-nasal stop or a fricative).

Because 8.2.32 is in the section governed by 8.2.1 and follows 8.2.31 in the serial order of the \textit{Aṣṭādhyāyī}, it is \textit{asiddha} with respect to 8.2.31. According to the tradition, since 8.2.32 is \textit{asiddha} with respect to 8.2.31, 8.2.31 should apply here. This, however, gives \textit{daḍh + tum}, which leads to the wrong form \textit{*dāḍhum}.\textsuperscript{28}

Kātyāyana acknowledges the fact that, to get the correct answer, we need to apply 8.2.32 which is the exception, and not 8.2.31, which is the general rule. However, he assumes that the exception rule cannot win if it is \textit{asiddha} with respect to the general rule. To tackle this problem, in vt. 2\textsuperscript{29} on 8.2.1, he says: \textit{apavādo vacanaprāmāṇyāt} ‘the exception [wins] on the authority of the statement [of rule 8.2.32]’.

Thus, for the tradition, the exception rule 8.2.32 is not \textit{asiddha} with respect to the general rule 8.2.31, thanks to Kātyāyana’s \textit{vārttika}. Therefore, the former wins, leading to the correct form: \textit{dah + tum} \rightarrow \textit{dagh + tum} (8.2.32 \textit{dāder dhātor ghaḥ}) \rightarrow \textit{dagh + dhum} (8.2.40 \textit{jhaṣas tathor dho’dhaḥ}) \rightarrow \textit{dagdhum} (8.4.53 \textit{jhalāṁ jaś jhaśi}).

I disagree with the tradition. I think that, in case of SOI, the more specific rule wins even if it is \textit{asiddha} with respect to the general rule. Let me explain why. We know that Pāṇini has instructed us on how to tackle DOI through his rule 1.4.2, but he has not given any instructions about dealing with SOI. Similarly, I think that, in teaching 8.2.1 \textit{pūrvatrāsiddham} and 6.4.22

\textsuperscript{28} \textit{dah + tum} \rightarrow \textit{daḍh + tum} (8.2.31) \rightarrow \textit{daḍh + dhum} (8.2.40 \textit{jhaṣas tathor dho’dhaḥ}) \rightarrow \textit{daḍh + dhum} (8.4.41 \textit{ṣṭunā ṣṭuḥ}) \rightarrow \textit{da + dhum} (8.3.13 \textit{dho ḍhe lopaḥ}) \rightarrow \textit{*dāḍhum} (6.3.111 \textit{ḍhralope pūrvasya dīrgho’ṇah}).

\textsuperscript{29} Mbh III.385.19-21.
asiddhavad atrā bhāt, Pāṇini has given instructions vis-à-vis DOI but not vis-à-vis SOI. In other words, 8.2.1 and 6.4.22 have no impact on SOI. Consider the following situation:

\[
\begin{array}{ccc}
& K & + & L \\
R1 & \downarrow & & \downarrow \\
R2 & & R1 & \downarrow \\
& K & & L \\
R1 & & R2 \\
\end{array}
\]

We know that there is an SOI between R1K and R2K, and an SOI between R1L and R2L. Before 1.4.2, 8.2.1 and 6.4.22 can potentially exert their influence, Pāṇini resolves both these SOIs. Let us assume that R1K is more specific than R2K, thus R1K wins. Similarly, let us assume that R1L is more specific than R2L, thus R1L wins. The above diagram can be redrawn as follows, by omitting to mention the losing rules:

\[
\begin{array}{ccc}
& K & + & L \\
R1 & \downarrow & & \downarrow \\
R1 & & R1 \\
\end{array}
\]

Now, 1.4.2, 8.2.1 and 6.4.22 can potentially come into play. If neither of the two rules are governed by 8.2.1 or 6.4.22, then by my interpretation of 1.4.2, the RHS rule R1L applies at this step. If 8.2.1 governs one of the two rules, that is, for example, if R1L is asiddha with respect to R1K, then 1.4.2, which I think comes into the picture only when both rules acknowledge each other’s existence, cannot resolve this DOI. By 8.2.1, R1K applies at this step. I hope this disambiguates my proposition that 1.4.2, 8.2.1 etc. are relevant in regard with DOI but not in regard with SOI.

Coming back to the present example, I think the fact that 8.2.32 is asiddha with respect to 8.2.31 has no bearing on our method of resolving SOI, which requires us to pick the more specific rule. The more specific rule 8.2.32 wins despite being asiddha with respect to the general rule 8.2.31.

Now let us examine 6.4.22 asiddhavad atrā bhāt. As stated in section 5.1 of this chapter, according to the Kāśikā, 6.4.22 means:

A is asiddhavat with respect to B if:

(i) both A and B are taught in 6.4.22 – 6.4.175 (ā bhāt), and

(ii) both A and B have a samānāśraya ‘common substratum’ (atra).
I disagree with Kāśikā’s interpretation of all three parts of this rule, namely asiddhavat, ā bhāt and atra. Let us begin by looking at asiddhavat. As stated in section 5.1, the tradition does not differentiate between asiddha and asiddhavat. It interprets both of them as ‘suspended’. However, I do not think that Pāṇini would have added -vat to asiddha if he wanted to convey a meaning that can be conveyed by asiddha itself.

In fact, asiddhavat is derived by adding the taddhita affix vat to asiddha + Ṭā (cf. 5.1.115 tēna tulyaṁ kriyā cedvatiḥ30). Ṭā is later deleted by 2.4.71 supo dhātuprātipadikayoḥ, thereby leading to the form asiddhavat, which means ‘like asiddha’. So, asiddhavat is different from yet similar to asiddha.

We know that asiddha implies śāstrāsiddhi (‘Rule X is suspended with respect to rule Y’) which in turn always entails kāryāsiddhi (‘The outcome of the application of rule X is suspended with respect to rule Y’). Because asiddha and asiddhavat have different meanings, the only possible interpretation of asiddhavat is kāryāsiddhi: ‘the outcome of the application of rule X is suspended with respect to rule Y.’31 I will support this conclusion with more evidence later in this chapter. The meanings of asiddha and asiddhavat can be summarized as follows:

<table>
<thead>
<tr>
<th>Type</th>
<th>śāstrāsiddhi</th>
<th>kāryāsiddhi</th>
</tr>
</thead>
<tbody>
<tr>
<td>asiddha</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>asiddhavat</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

---

30 The taddhita affix vat occurs to denote the sense of tulya ‘similar to, comparable with’ after a syntactically related nominal stem ending in tṛīyā ‘instrumental’, provided what is tulya is also kriyā ‘action’.

31 Cardona (1997: 425) too holds this opinion: “I differ from Pāṇinīyas in my interpretation of 6.4.22 [asiddhavat atrābhār]. Pāṇinīyas maintain that this too should be considered to provide for rule suspension (śāstrāsiddhatvam), not the suspension of what results from applying rules (kāryāsiddhatvam)”. 

181
So, how does 6.4.22, which teaches *asiddhavat*, interact with 1.4.2?

(i) In case of DOI between two rules, if these two rules are *asiddhavat* with respect to each other, they acknowledge each other’s existence (because there is no *śāstrāsiddhi*). This allows the resolution of the DOI by 1.4.2.

(ii) Each of these two rules involved in DOI does not acknowledge the outcome of the application of the other (because there is *kāryāsiddhi*). This ensures that, after the RHS rule has applied (by my interpretation of 1.4.2), the LHS rule *always* applies at the following step, because it does not acknowledge the outcome of the application of the RHS rule.

This will become clearer in the examples below. Now let us attempt to decipher the meaning of *ā bhāt* in 6.4.22 *asiddhavad atrā bhāt*. As stated in section 5.1 of this chapter, Kātyāyana and Patañjali discuss both possibilities: one, that the jurisdiction of 6.4.22 ends at 6.4.129, and the other, that it continues up to the end of 6.4.

I think that the *adhikāra* of 6.4.22 ends at 6.4.129. Let me explain why this is the case. We know how Pāṇini indicates the boundary of *adhikāra* sūtras: he uses either *ā* or *prāk* in conjunction with a term from the *sūtra* which constitutes the boundary, in the ablative. For example, consider 1.4.1 *ā kaḍārād ekā saṁjñā*, the jurisdiction of which ends at 2.2.38 *kaḍārāḥ karmadhāraye* and 4.1.83 *prāg dīvyato ’n*, the jurisdiction of which ends at 4.4.2 *tena dīvyati khanati jayati jītam*. So, if Pāṇini wanted to state that the *adhikāra* of 6.4.22 continues up to 6.4.175 *ṛtvyaṭvyaṭvamādhvīhiranyānī cchandasi*, then he would have said, in 6.4.22, *asiddhavad atra ā ṛtvyaṭ* (which, after *sandhi*, becomes *asiddhavad atrāṛtvyaṭ*). But since he has said *asiddhavad atrābhāt*, the jurisdiction of 6.4.22 continues only up to 6.4.129 *bhasya*.

The examples discussed below will buttress my position.

Now let us examine the word *atra* in 6.4.22. As stated in section 5.1 of this chapter, Kātyāyana discusses two possible interpretations of the word *atra*. One is *samānāśrayatva* ‘common substratum’ and the other ‘with respect to the rules taught here’. Only one of the two interpretations can be correct, and I think that it is the latter, for reasons that I will now explain.

Firstly, notice that in 8.2.1 we find another term which like *a-tra*, ends in the affix *traL*, namely *pūrva-tra*. There, *pūrva-tra* means ‘with respect to the rules taught before (in the *Aṣṭādhyāyī*’s serial order)’. This strongly suggests that in 6.4.22, *atra*, which also ends in *tra*, means ‘with respect to the rules taught here (in the section governed by 6.4.22)’. 

182
Secondly, consider Kāśikā’s interpretation of 6.4.22: that which is taught in the section starting here and extending up to the end of 6.4 (ā bhāt) is suspended (asiddhavat), if both rules have a samānāśraya ‘common substratum’ (atra). It infers samānāśrayatva from the word atra. But if we assume that atra implies samānāśrayatva, then it follows that Pāṇini has not said anything about the rules with respect to which the rules in the section headed by 6.4.22 are asiddhavat. As I have stated earlier, in such a case, rules in the ābhīya section become asiddhavat with respect to, for example, rules from adhyāya seven, which is not desirable. This too indicates that atra means ‘with respect to the rules taught here (i.e., in the section 6.4.22-6.4.129)’. I will discuss this further when dealing with specific examples below.

Now that I have discussed my opinion about all three parts of 6.4.22, namely asiddhavat, atra and ā bhāt, here is my interpretation of 6.4.22:

6.4.22 asiddhavat atra bhāt: the outcome of the application of a rule taught in the section 6.4.22-6.4.129, is not acknowledged by any other rule taught here (atra), that is, in the section 6.4.22-6.4.129.

For the sake of clarity, I reproduce the table dealing with the difference between asiddha and asiddhavat below:

<table>
<thead>
<tr>
<th>Type</th>
<th>śāstrāsiddhi</th>
<th>kāryāsiddhi</th>
</tr>
</thead>
<tbody>
<tr>
<td>asiddha</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>asiddhavat</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Before we look at derivations involving 6.4.22, here is a summary of my interpretation of all three rules:
Let us now look at derivations which involve both SOI and 6.4.22.

7) \(han + siP\) – ‘to hurt’, imperative second-person singular\(^{32}\)

\[
\begin{array}{c}
han + siP \\
3.1.68 \quad 3.4.87
\end{array}
\]

3.1.68 \(kartari \ šaP\): affix \(ŠaP\) occurs after a verbal root when a \(sārvadhātuka\) affix which denotes \(kartṛ\) ‘agent’ follows.

3.4.87 \(ser hy apic ca\): a \(siP\) replacement of \(LOṬ\) is replaced with \(hi\) and is treated as if not marked with \(P\).

This is a case of DOI. By my interpretation of 1.4.2, we apply the RHS rule 3.4.87 and get \(han + hi\). Thereafter the derivation proceeds as follows: \(han + hi \rightarrow han + ŠaP + hi\) (3.1.68) \(→\)

\(^{32}\) We have performed an almost identical derivation in chapter 4 (see derivation 10, section 4.3). There, we replaced \(hi\) with \(tātAṄ\), by the optional rule 7.1.35 \(tuhyos tātaṅ āsiṣy anyatarasyām\). Here, however, we will not apply 7.1.35.
han + hi (2.4.72 adiprabhṛtyibhyāḥ śapaḥ). Now, han can be called an aṅga with respect to hi (cf. my interpretation of 1.4.13). Thus, the following rules from the aṅgādhikāra become applicable:

\[
\begin{align*}
\text{han} & \quad + \quad \text{hi} \\
6.4.36 & \quad 6.4.37
\end{align*}
\]

6.4.36 hanter jaḥ: the root han is replaced with ja when the affix hi follows.

6.4.37 anudāttopadeśavanatitanotyādīnām anunāsikaloj jhali knitti: the final nasal of a base marked with anudāṭṭa when taught in the Dhātupāṭha, as well as of vanA ‘to like’ and the roots headed by tanU ‘to extend’, is replaced with LOPA when an affix beginning with jhaL (a non-nasal stop or a fricative) and marked with K or ṇ follows.33

There is an SOI relationship between 6.4.36 and 6.4.37. 6.4.36 is specifically taught for han + hi, so it is more specific than 6.4.37.

Note that the two rules 6.4.36 and 6.4.37 have been taught in the asiddhavat section. However, as argued above (see example 6), Pāṇini’s rules 8.2.1 and 6.4.22 deal with DOI, but not with SOI. Like 8.2.1, 6.4.22 too has no impact on SOI. Here, the more specific rule 6.4.36 wins, and we get jahi, which is the correct form.

Now let us imagine what would have happened in the absence of 6.4.22. The following rule would have become applicable to ja + hi:

6.4.105 ato heḥ: a hi which comes after a base ending in a is replaced with LUK.

This would have given the incorrect form *ja. 6.4.22 helps us avoid deriving this incorrect form: as taught by 6.4.22, 6.4.36 is asiddhavat with respect to 6.4.105. So even though 6.4.105 can acknowledge the existence of 6.4.36, it cannot acknowledge the outcome of the application of 6.4.36. As a result, 6.4.105 is not applicable to jahi.

33 Since hi is a sārvadātuka which is not marked with P, we can say that it is marked with K by 1.2.4 sārvadhātukam apit. Thus 6.4.37 is applicable.
8) \( bhū + \text{tas} \) – ‘to be’, perfect third-person dual

\[
\text{bhū} \quad + \quad \text{tas}
\]

6.1.8 \( \text{liṭi dhātor anabhīṣasya} \): a verbal base which has not undergone reduplication undergoes reduplication when followed by \( \text{LIṬ} \).\(^{34}\)

3.4.82 \( \text{parasmaipadānāṁ ṇalatussthalathusāyalvamāḥ} \): \( \text{NaL, atus, us, thal, athus, a, NaL, va} \) and \( \text{ma} \) respectively come in place of the nine \( \text{parasmaipada} \) replacements of \( \text{LIṬ} \) namely \( \text{tiP, tas, jhi, siP, thas, tha, miP, vas and mas} \).

By my interpretation of 1.4.2, we apply the RHS rule 3.4.82 and get: \( bhū + atus \). Here, three rules are applicable:

\[
\text{bhū} \quad + \quad \text{atus}
\]

6.1.8 \( \text{liṭi dhātor anabhīṣasya} \): same as above.

6.4.77 \( \text{aci śnudhātubhrūvāṁ yvor iyānuvaṅau} \): the final \( i \) and \( u \) of \( Śnu \), and of any verbal base, and of \( bhṛū \) ‘brow’ are replaced with \( iyAṇ \) and \( uvAṇ \), respectively, when an affix beginning with a vowel follows.

6.4.88 \( bhūvo vug luṅ liṭoḥ \): augment \( vUK \) is attached to \( bhū \) when a \( LUṇ \) or \( LIṬ \) affix beginning with a vowel follows.

This is a case of SOI. Note that 6.4.77 and 6.4.88 both belong to the section headed by 6.4.22. However, as stated above, 6.4.22 does not impact SOI. Let us find out which of the three rules is the most specific.

6.4.77 \( \text{aci śnudhātubhrūvāṁ yvor iyānuvaṅau} \)

\( bhū + \text{affix beginning with aC} \)

other conditions

\(^{34}\) Note that, the whole base does not undergo reduplication. Instead, only one syllable does. See 6.1.1 \( \text{ekāco dve prathamasya} \) and 6.1.2 \( \text{ajāder dvīṭyasya} \).
6.1.8 liṭi dhātor anabhyāśasya

bhū + affix beginning with aC (LIṬ)

other conditions

6.4.88 bhuvo vug luṅliṭoh

bhū + affix beginning with aC (LIṬ)

bhū + affix beginning with aC (LUṅ)

other conditions

6.4.88 and 6.1.8 are both more specific than 6.4.77 because 6.4.77 has not been taught specifically for LIṬ. Between 6.4.88 and 6.1.8, 6.1.8 is more specific because it has been taught exclusively for LIṬ, whereas 6.4.88 has been taught for both LUṅ and LIṬ.

Thus, 6.1.8 emerges as the most specific rule. Upon applying it, we get: bhūbhū + atus. Here the following rules are applicable:

\[
\begin{array}{c}
\text{bhū} \\
\uparrow \\
\text{bhū} \\
\end{array}
\begin{array}{c}
\text{bhū} \\
\tilde{\text{u}} \\
\end{array}
\begin{array}{c}
\text{bhū} \\
\tilde{\text{u}} \\
\end{array}
\text{+} \\
\text{atus}
\]

7.4.73 bhavater aḥ: a replaces the last sound of the abhyāśa of bhū 'to be' when LIṬ follows.

6.4.88 bhuvo vug luṅliṭoh: same as above.

6.4.77 aci śnudhātubhruvāṁ yvor iyaṅuvaṅau: same as above.

By my interpretation of 1.4.2, we perform the RHS operation. But which of the two RHS rules should we apply? As stated above, there is an SOI between 6.4.88 and 6.4.77, and the more specific rule 6.4.88 wins. Thus, we get: bhūbhūv + atus. At this step, 7.4.43 applies, giving us bhabhūv + atus. Now that all rules from the sapādasaptādhyāyī have applied, the rule 8.4.54 abhyāse car ca applies, thereby giving the correct form: babhūvatuḥ.

In vt. 1435 on 6.4.22, Kātyāyana alludes to the interaction between vUK (6.4.88) anduvAṉ (6.4.77). He says: vugyuṭāv uvaṅyaṇoh ‘rules teaching augments vUK and yUṬ [should be siddha and not asiddhavat] with respect to rules teaching uvAṉ and yaṉ’. This vārttika is

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35 Mbh III.191.15.
premised on the assumption that, if 6.4.88 bhuvo vug luñjitoḥ is asiddhavat (which according

to the tradition, has the same meaning as asiddha) with respect to 6.4.77 aci śudhātubhruvāṁ

yvor iyañuvanau, then 6.4.77 will apply, giving the wrong answer *babhuvatuḥ.

However, as I have shown in the derivation above, there is an SOI between 6.4.77 and 6.4.88,

and 6.4.22 has no impact on SOI. Thus, Pāṇini’s system correctly derives this form, and this

vārttika is not required to assist in the process.

Now let us consider an example which demonstrates the impact of 6.4.22 on DOI.

9) śās + siP – ‘to teach’, imperative second-person singular

3.1.68 kartari śap: affix ŚaP occurs after a verbal root when a sārvadhātuka affix which

denotes kartṛ ‘agent’ follows.

3.4.87 ser hy apic ca: a siP replacement of LOT is replaced with hi and is treated as if not

marked with P.

This is a case of DOI. By my interpretation of 1.4.2, we apply the RHS rule 3.4.87 and get śās

+ hi. Thereafter, the derivation proceeds as follows: śās + hi → śās + ŚaP + hi (3.1.68) → śās

+ hi (2.4.72 adiprabhṛṭiḥbhyaḥ śapah). śās can now be called an aṅga with respect to hi (cf.

my interpretation of 1.4.13). Thus, the following rules from the aṅgādhikāra become

applicable:

---

36 We have performed this derivation in chapter 4. See derivation 9 of section 4.3. There, we replaced

hi with tātAṄ, by the optional rule 7.1.35 tuhyos tātaṅ āśiṣy anyatarasyāṁ. Here, however, we will not
do so.

37 Affix ŚaP is replaced with LUK when it occurs after roots belonging to the set headed by adA ‘to eat’
(second class).
6.4.34 śāsa id anhaloh: the penultimate sound of śās, is replaced with short i when followed by aṄ, or an affix that begins with a consonant and is marked with K or Ṇ.  

6.4.35 śā hau: śās is replaced with śā when affix hi follows.

6.4.101 hujhalbhyo her dhiḥ: hi is replaced with dhi when it occurs after root hu or after a form ending in jhaL (a non-nasal stop or a fricative).

There is an SOI between 6.4.34 and 6.4.35. As stated before, 6.4.22 does not impact SOI. 6.4.35 is more specific because it pertains to hi alone and thus wins.

Now we shall focus on the interaction between 6.4.35 and 6.4.101. Note that both these rules fall under the heading rule 6.4.22 asiddhavad atrābhāt. Thus 6.4.35 can acknowledge the existence of 6.4.101 but cannot acknowledge the outcome of the application of 6.4.101. Similarly, 6.4.101 can acknowledge the existence of 6.4.35 but not the outcome of the application of 6.4.35.

Since 6.4.35 and 6.4.101 acknowledge each other’s existence, we can use 1.4.2 to deal with this case of DOI. By my interpretation of 1.4.2, we apply the RHS rule 6.4.101 and get śās + dhi. Since 6.4.101 is asiddhavat with respect to 6.4.35, 6.4.35 does not acknowledge the outcome of the application of 6.4.101. Thus 6.4.35 applies and we get the correct form: śādhi.

In order to understand the crucial role played by 6.4.22 in this derivation, let us analyse how this derivation would have proceeded in its absence. We will directly look at the relevant step:

\[
\begin{array}{c}
\text{6.4.35} & \text{6.4.101} \\
\text{śās} + & \text{hi} \\
\end{array}
\]

Let us examine the relationship between 6.4.35 and 6.4.101. If, by 6.4.35, we replace śās with śā at this step, then 6.4.101, which applies to hi when hi is preceded by jhaL, will not be applicable at the following step. If, by 6.4.101, we replace hi with dhi at this step, then 6.4.35, which applies to śās when it is followed by hi, will not be applicable at the following step. This is a case of mutual blocking in DOI.

---

38 hi is an apit (cf. 3.4.87 ser hy apic ca) sārvadhātuka, and so by 1.2.4 sārvadhātukam apit, we can say that it is marked with K or Ṇ. Thus, 6.4.34 is applicable here.
By my interpretation of 1.4.2, we apply the RHS rule 6.4.101 and get śās + dhi. As stated above, 6.4.35 is not applicable after the application of 6.4.101. Thus, the final form is *śāsdhi, which is incorrect. To get the correct form śādhi, we need to apply both 6.4.35 and 6.4.101. However, since both rules block each other, only one can apply in this derivation. To overcome this problem, Pāṇini has put them both in the section headed by 6.4.22.

6.4.22 teaches that the two rules within 6.4.22-6.4.129 are asiddhavat with respect to each other. At the risk of repetition, let me state that this ensures two things:

(i) Both rules acknowledge each other’s existence. This allows the resolution of the DOI by (my interpretation of) 1.4.2.

(ii) Each of the two rules does not acknowledge the outcome of the application of the other. This ensures that, after the RHS rule has applied (by my interpretation of 1.4.2), the LHS rule applies at the following step, because it does not acknowledge the outcome of the application of the RHS rule.

Let me state in general terms what we have seen in this derivation. In those cases of DOI wherein two rules block each other, and where Pāṇini wants both rules to apply, he places them in the section 6.4.22-6.4.129. In simple words, when required, Pāṇini uses 6.4.22 asiddhad atrā bhāt to neutralize the impact of 1.4.2 (as interpreted by me) on those cases of DOI which involve mutual blocking, where it is desirable for him to do so. Contrast this with 8.2.1, which as I have stated earlier, is leveraged by Pāṇini to neutralize the impact of 1.4.2 on those cases of DOI which involve unidirectional blocking.\footnote{For more examples of the impact of 6.4.22 on DOI, see derivations 24 and 26 of section 4.3, chapter 4.}

Note that, if Pāṇini had taught 6.4.22 as asiddham atrā bhāt instead of asiddhavad atrā bhāt, then both rules, namely 6.4.35 and 6.4.101, would not be able to acknowledge each other. Thus, both would try to apply to their respective operands. Since only one rule can apply at any given step, the machine would have come to a halt.

Now, through the following derivation, I will provide evidence to support my claim that the jurisdiction of 6.4.22 ends at 6.4.129.
10) Let us derive the accusative plural of the Vedic perfect participle of pā ‘to drink’: pā + LIṬ ‘he who had drunk’.

\[
\begin{array}{c}
pā \\
6.1.8
\end{array} \quad + \quad \begin{array}{c}
LIṬ \\
3.2.107
\end{array}
\]

**6.1.8 liṭi dhātor anabhyāsasya:** an un-reduplicated verbal base undergoes reduplication when followed by LIṬ.

**3.2.107 kvasuś ca:** KvasU optionally replaces LIṬ in Vedic when the action is denoted in the past.

By my interpretation of 1.4.2, we apply the RHS rule 3.2.107 and get pā + KvasU. Here the following rules are applicable:

\[
\begin{array}{c}
pā \\
6.1.8
\end{array} \quad + \quad \begin{array}{c}
vas \\
4.1.2
\end{array}
\]

**6.1.8 liṭi dhātor anabhyāsasya:** same as above.

**4.1.2 svaujasamaudcāṣṭābhyaṁbhisnebhyaṁbhyaṁbhyasyasṁasbhyasṁasosāmṁyossup**

By my interpretation of 1.4.2, we apply the RHS rule 4.1.2 and get: pā + vas + Šas. Here, the following rules are applicable:

\[
\begin{array}{c}
pā \\
6.1.8
\end{array} \quad + \quad \begin{array}{c}
vas \\
4.1.2
\end{array} \quad + \quad \begin{array}{c}
Šas \\
6.4.131
\end{array}
\]

---

40 In contrast with other derivations, where, for brevity’s sake, I start the derivation directly with the substitute of the lakāra, here I have started this unconventional derivation with LIṬ for the sake of clarity.

41 Note that the whole base does not undergo reduplication. Instead, only one syllable does. See 6.1.1 ekāco dve prathamasya and 6.1.2 ajäder dvitiyasya.

42 This is applicable because KvasU is a kṛt affix (cf. 1.2.46 kṛttaddhitasamāsāś ca).
6.1.8 *liṭi dhātor anabhyāsasya*: same as above.

6.4.131 *vash samprasāraṇam*: the semivowel of the affix *vash* in an item termed *bha* is replaced with the corresponding vowel *u*.

By my interpretation of 1.4.2, we apply the RHS rule 6.4.131 and get *pā + uas + Šas*. Here, the following rules are applicable:

```
   pā          uas         Šas
   ↓            ↓            ↓
6.4.64       6.1.8       6.1.108
```

6.4.64 *āto lopa iṭi ca*: the final *ā* of a base is replaced with *LOPA* when followed by augment *iṬ* or an ārdhadhātuka affix which begins with a vowel and is marked with *K* or *Ṅ*.

6.1.8 *liṭi dhātor anabhyāsasya*: same as above.

6.1.108 *samprasāraṇaḥ ca*: a samprasāraṇa vowel and the following vowel, are together replaced with the former.

By my interpretation of 1.4.2, we apply the RHS 6.1.108 rule and get *pā + us + Šas*. Here, two rules are applicable:

```
   pā          us          Šas
   ↓            ↓            ↓
6.1.8        6.4.64
```

6.4.64 *āto lopa iṭi ca*: same as above.

6.1.8 *liṭi dhātor anabhyāsasya*: same as above.

This is a case of SOI. Let us compare the two rules to determine which one is more specific:

6.4.64

*ā + affix beginning with vowel (ārdhadhātuka) (marked with *K* or *Ṅ*)*

other conditions

6.1.8

*ā + affix beginning with vowel (*liṭ*)*

other conditions
We cannot say that one rule is more specific than the other in this scenario. So, which of the two rules should we apply here?

Let us understand the relationship between the two rules.

In \( pā + us + Śas \), if we apply 6.1.8 \( liṭi \ dhātor \ anabhyāsasya \), we get \( pāpā + us + Śas \). 6.4.64 \( āto \ lopa \ iti \ ca \) is still applicable here.

But in \( pā + us + Śas \), if we apply 6.4.64 (which teaches the substitution of \( ā \) with \( ø \) i.e., LOPA), we get \( pø + us + Śas \). Here, is 6.1.8 applicable?

Pāṇini has taught the rule 1.1.59 \( dvirvacane’ci \), which, according to the \( Kāśikā^{43} \), teaches that the substitute of a vowel is treated like its substituendum (i.e., the said vowel) – for the purpose of reduplication alone – when it is followed by a vowel-initial affix which conditions reduplication of the verbal base. So, in \( pø + us + Śas \), by 1.1.59, we can treat LOPA (\( ø \)), which is the substitute of vowel \( ā \), as the substituendum \( ā \), because it is followed by the vowel-initial affix \( us \) which causes reduplication. Therefore, 6.1.8 \( liṭi \ dhātor \ anabhyāsasya \) is applicable here.

We have seen that the two rules do not block each other and we can apply them in any order. I think Pāṇini composed 1.1.59 to ensure that, if we apply 6.4.64 to \( pā + us + Śas \), 6.1.8 can still be applied at the following step.

After applying both 6.4.64 and 6.1.8, we get \( pāp + us + Śas \). To this we apply 7.4.59 \( hrasvaḥ^{44} \) and get the correct form: \( papaṣah \).^{45}

As stated before, according to my interpretation of 6.4.22 \( asiddhavad \ atrā bhāt \), the jurisdiction of 6.4.22 ends at 6.4.129.

However, in the opinion of the \( Kāśikā \), this jurisdiction continues up to the end of 6.4 (i.e., 6.4.175) and, therefore, it creates a difficulty in the derivation of \( papaṣah \). As seen above, 6.4.131 \( vasoh \ samprasāraṇam \) changes \( vas \) to \( uas \). Since \( uas \) begins with a vowel, 6.4.64 \( āto

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43 Note that the \( Mahābhāṣya \) discusses two possible interpretations of 1.1.59. I have mentioned the one accepted by the \( Kāśikā \). I think this is the correct interpretation. The \( Kaumudī \) accepts the other interpretation, which I think is incorrect. I will not discuss the same here because it is not directly related to the topic of \( asiddhavat \).

44 The vowel of the \( abhyāsa \ ‘first of two reduplicated syllables’ is replaced with its short counterpart.

45 8.3.59 \( ādeśapratyayoh \).
lopa īti ca becomes applicable to the ā of pā. However, both 6.4.64 and 6.4.131 lie within 6.4.22 – 6.4.175, which is the jurisdiction of 6.4.22 according to the Kāśikā. Thus, the Kāśikā deems them asiddhavat with respect to each other. Consequently, 6.4.64 does not acknowledge the outcome of the application of 6.4.131. In other words, it does not acknowledge the change from vas to uas and cannot apply. This gives the incorrect form: papā + usas → *paposas (6.1.87 ād guṇah).

I think the tradition interprets atra as samānāśraya for the sole purpose of overcoming this problem. According to the Kāśikā, two rules can be called asiddhavat by 6.4.22 only if they have a samānāśraya ‘common substratum’. Without explaining exactly what this means, the Kāśikā gives the following example: 6.4.131 and 6.4.64 do not have a samānāśraya, and thus they are not asiddhavat with respect to each other. Consequently, 6.4.64 acknowledges 6.4.131 and applies to papā + uṣah (which has been derived by applying 6.4.131). In this way, we get the correct form papuṣah.

But what exactly does samānāśraya stand for? The Nyāsa glosses āśraya as nimitta ‘cause’. So according to the Nyāsa, a rule is asiddhavat with respect to another only if the two rules have a samānāśraya ‘common cause’. However, I do not think that here āśraya means nimitta. Let me explain why, by looking at another derivation: at the step śās + hi (see derivation 9 of this section), 6.4.35 śā hau which applies to śās is caused by hi, while 6.4.101 hujhalbhyo her dhīḥ, which applies to hi, is caused by śās. Even though the two rules do not have the same cause, the tradition deems them asiddhavat with respect to each other. So, when Kātyāyana uses the word samānāśraya in vt. 12 samānāśrayavacanāt siddham, he does not imply ‘common cause’. What then does he mean?

It is not possible to answer this question with certainty. But one can speculate that when Kātyāyana says two rules are samānāśraya, he likely means that they pertain to the same set of items. Both rules 6.4.101 and 6.4.35 pertain to śās + hi, thus they are samānāśraya and asiddhavat with respect to each other. However, in our present example, 6.4.131 pertains to vas + Śas, whereas 6.4.64 āto lopa īti ca pertains to papā + uas. The two rules have different āśrayas ‘substrata’ and thus, according to the tradition, they are not asiddhavat with respect to each other.

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46 On vt. 12 samānāśrayatvāt siddham, Patañjali says, samānāśrayam asiddhāṁ bhavati vyāśrayaṁ caitat.
Kātyāyana also offers another solution, which basically amounts to stating that this set of examples should be exempt from following 6.4.22. In vt. 9\(^9\) on 6.4.22, he teaches: *siddham vasusamprasāraṇam ajvidhau* ‘the samprasāraṇa of vasU should be siddha (rather than asiddhavat) with regard to an operation concerning vowels.’

It is evident that the tradition struggles to resolve this problem and comes up with not one, but two alternative ways of dealing with it. Not only does Kātyāyana write a vārttika contradicting 6.4.22, but he also concocts the concept of *samānāśrayatva* to address this difficulty.

On the contrary, notice that, according to my interpretation of 6.4.22, 6.4.131 does not lie in the ābhīya section (6.4.22-6.4.129). Thus, in my opinion, 6.4.131 is not asiddhavat with respect to 6.4.64. Therefore, if we accept that the jurisdiction of 6.4.22 stops at 6.4.129, the challenges faced by the tradition in deriving this form do not rise. My interpretation of *atra* (with respect to the rules taught here, i.e., in the section headed by 6.4.22) and *ā bhāt* (up to 6.4.129) allows us to correctly derive *papuṣah* without flouting 6.4.22.

Kātyāyana also discusses other examples of this nature, wherein he has had to write ad hoc vārttikas claiming that certain rules taught in the section 6.4.129-6.4.175, which, according to him, constitute a part of the ābhīya section (6.4.22-6.4.175), are not asiddhavat, contrary to his own interpretation of 6.4.22 (generally adopted by the later tradition).

For example, the problem faced by the tradition in deriving *paśuṣah* (accusative plural of *paśu + saN* ‘bestowing cattle’) is the same as the one faced in deriving *papuṣah*. To avoid redundancy, I will derive it by my method here without showing the DOI and SOI that might arise at different steps: *paśusaN + viṬ (3.2.67 janasanakhanakramagamo viṭ) → paśusan + viṬ + Śas (4.1.2 svaujas…) → paśusan + ø + Śas (6.1.67 ver aprktasya) → paśusaā + ø + Śas (6.4.41 viḍvanor anunāsikasyāt, 1.1.62 pratyayalope pratyayalakṣaṇam) → paśusa + Śas (6.4.140 āto dhātoḥ) → paśusas (6.1.97 ato gune) → paśuṣah (8.3.108 sanoter anaḥ).

As seen in this derivation, in order to correctly derive *paśuṣah*, one needs to first apply 6.4.41 *viḍvanor anunāsikasyāt* and then 6.4.140 *āto dhātoḥ*. However, according to the tradition, since the jurisdiction of 6.4.22 continues up to 6.4.175, 6.4.41 is asiddhavat with respect to 6.4.140. Consequently 6.4.140 cannot apply after the application of 6.4.41. This creates an obstacle in correctly deriving *paśuṣah*. To deal with this problem, Kātyāyana has composed vt. 11\(^8\) on

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\(^9\) Mbh III.190.11.

\(^8\) Mbh III.190.17.
6.4.22, effectively negating 6.4.22: āttvam yalopāllopayoh paśuṣo na vājān⁴⁹ cākhāyitā cākhāyitum ‘āttva (here, taught by 6.4.41) should be siddha when y-deletion and ā-deletion (here, taught by 6.4.140) [can potentially take place e.g.,] paśuṣo na vājān, cākhāyatā [and] cākhāyitum.’ But if one thinks, as I do, that the jurisdiction of 6.4.22 ends at 6.4.129, then this problem simply does not arise. This is because 6.4.140 lies beyond 6.4.129, and therefore, in my view, 6.4.41 is not asiddhavat with respect to 6.4.140.⁵⁰

Now, I will derive a certain form, then highlight the problem faced by the tradition in this derivation vis-à-vis 6.4.22, and will show how, by following my method, we do not encounter this problem at all.

11) praśam + NiC⁵¹ – ‘to be pacified’, causative absolutive

\[
\begin{array}{c}
\text{praś} \quad a \quad m \\
\end{array}
\]

\[
7.2.116 + 3.4.21
\]

7.2.116 ata upadhāyāḥ: vrddhi replaces the penultimate sound a of a base when an affix marked with N or Ń follows.

3.4.21 samānakartkayoḥ pūrvakāle: affix Ktvā occurs after a verbal root which denotes a prior action relative to some subsequent action provided both actions share the same agent.

By my interpretation of 1.4.2, we apply the RHS rule 3.4.21 and get: praśam + NiC + Ktvā. Here the following rules are applicable:

\[
\begin{array}{c}
\text{praś} \quad a \quad m \\
\end{array}
\]

\[
7.2.116 + 7.1.37
\]

⁴⁹ See Rgveda 5.41.1 for the context of the phrase paśuṣo na vājān.

⁵⁰ The derivation of preyān discussed under vt. 16 on 6.4.22 ā bhād iti ced vasusamprasāranayalopapravasthādināṁ pratisedhabh (Mbh III.193.17) also involves the same problem. Extending the jurisdiction of 6.4.22 all the way up to the end of 6.4 produces undesirable results, to deal with which Kātyāyana has composed vt. 16.

⁵¹ 3.1.26 hetumati ca.
7.2.116 ata upadhāyāḥ: same as above.

7.1.37 samāse ‘naṅpūrve ktvo lyap: in a compound, the first member of which is not naṅ, the affix Ktvā in the second member of the compound is replaced with LyaP.

By my interpretation of 1.4.2, we apply the RHS rule 7.1.37 and get: praśam + NiC + LyaP. Here the following rules are applicable:

\[
\begin{array}{ccc}
praś & a & m \\
7.2.116 & & 6.4.56 \\
\end{array}
\]

7.2.116 ata upadhāyāḥ: same as above.

6.4.56 lyapi laghupūrvā́: Ni, when occurring after a sound segment which is preceded by a laghu ‘light’ vowel, is replaced with ay, provided the ārdhadhātuka affix LyaP follows.

By my interpretation of 1.4.2, we apply the RHS rule 6.4.56 and get praśam + ay + LyaP. Here, 7.2.116 ata upadhāyāḥ applies and we get praśam + ay + LyaP. At this stage, 6.4.92 mitāṁ hrasvaḥ applies, which teaches that the penultimate vowel of a base marked with M (in the Dhātupāṭha), is replaced with its short counterpart when affix Ni follows. But here, praśam is not followed by NiC but instead by ay. Then how can 6.4.92 apply? 6.4.92 considers 6.4.56 to be asiddhavat, and thus cannot see the outcome of the latter’s application: it sees praśam + ay + LyaP as praśam + NiC + LyaP, and thus applies, giving us the correct form, praśamayya.

Owing to a relevant vārttika (vt. 13 on 6.4.22) which we will discuss soon, it becomes clear that Kātyāyana, when trying to derive praśamayya, applies some of these rules in a different order: first, 7.2.116 ata upadhāyāḥ, second, 6.4.92 mitāṁ hrasvaḥ and third 6.4.56 lyapi

52 “Lyapi laghupūrvā́ originally was lyapi laghupūrvasya. The substitution of the Ablative for the Genitive case has been suggested by Kātyāyana (Vol. III. p. 204).” See Kielhorn (1887: 178-184) – reprinted in Staal’s ‘A Reader on the Sanskrit Grammarians’ (1972: 121). The original version, lyapi laghupūrvasya, teaches that ‘Ni, when preceded by a light vowel, is replaced with ay, provided the ārdhadhātuka affix LyaP follows.’ In praśam + NiC + LyaP, even though there is a light vowel (a of śam) to the left of Ni, note that Ni is not immediately preceded by a (there is m between a and Ni). To lend greater clarity to this rule, Kātyāyana decided to edit it (vt. 1: lyapi laghupūrvasyeti ced vyañjanānteśūpasankkhyānam; vt. 3: lyapi laghupūrvā́d iti vacanāt siddham). Since we are discussing an example based on Kātyāyana’s vārttika 13 on 6.4.22 here, I have presented his version in the main text, rather than the original one.
Let us apply these three rules as per Kātyāyana’s order to understand the problem faced by him: \( \text{praśam} + \text{NiC} + \text{LyaP} \rightarrow \text{praśām} + \text{NiC} + \text{LyaP} \) (7.2.116 ati upadhāyāḥ) → \( \text{praśam} + \text{NiC} + \text{LyaP} \) (6.4.92 mitāṁ hrasvaḥ) → \( \text{praśamayya} \) (6.4.56 lyapi laghupūrvāt).

But applying rules in this order is against what Pāṇini has taught in 6.4.22. Let me explain how. 6.4.56 is applicable to \( \text{NiC} \) when it is preceded by a sound (\( m \) of \( \text{praśam} \)) which is in turn preceded by a light vowel (the penultimate sound \( a \) of \( \text{praśam} \)). But the light vowel \( a \) is the outcome of the application of 6.4.92, which, as per 6.4.22, should be considered \( \text{asiddhavat} \) with respect to 6.4.56. So, in this derivation, if we are to follow 6.4.22, 6.4.56 should not apply after the application of 6.4.92.

To ensure that the correct form \( \text{praśamayya} \) is derived, Kātyāyana formulates vt. 13\(^{53} \), which basically goes against 6.4.22: \( \text{hrasvayalopāllopaś cāyādeśe lyapi} \) ‘a short vowel (here, taught by 6.4.92), \( y \)-deletion and \( ā \)-deletion [should not be suspended] when \( ay \)-substitution before \( \text{LyaP} \) (here, taught by 6.4.56) [can take place]’.

On the contrary, by following my interpretation of 1.4.2, we get the correct answer without violating 6.4.22. This provides further proof that my interpretation of 1.4.2 is indeed correct.

In this chapter, I have discussed my opinion about the exact meanings of the three suspension rules, the difference between \( \text{asiddha} \) and \( \text{asiddhavat} \), how these suspension rules impact SOI and DOI, how they interact with 1.4.2, and how my interpretations enable us to perform various kinds of derivations without having to rely on Kātyāyana’s \( \text{vārttikas} \). I do not claim to have solved every problem associated with the three suspension rules, nor do I claim to have discussed each kind of example associated with these three rules. To the extent possible, I have attempted to display the diversity of derivational examples impacted by the suspension rules.

Modern scholars, such as Bronkhorst (1980), Joshi (1982), Joshi and Roodbergen (1987), and Yagi (1992) have published papers on the three suspension rules. Some of their opinions are similar to mine, and others considerably different. However, in the interest of clarity, I have restricted the discussions in this chapter to a limited set of traditional opinions and my own opinion on this topic, without examining the opinions of modern scholars.

\(^{53} \text{Mbh III.191.9.} \)
Chapter Six

In this concluding chapter, I will discuss the thought process that might have led Pāṇini to construct his algorithm for dealing with Same Step Rule Interaction (henceforth SSRI), how this algorithm was interpreted by traditional and modern scholars, and finally how we can use the knowledge of the correct meaning of 1.4.2 to conduct further research in Pāṇinian studies and allied disciplines. In essence, I will examine the past, present and future of Pāṇinian studies, with a special focus on the role played by SSRI in the functioning of the Pāṇinian machine. Since the goal of this chapter is merely to summarize the timeline of Pāṇinian thought, I will keep my arguments brief and will focus on the bigger picture, delving only into those details that are of immediate relevance.

6.1 How and Why Pāṇini Composed 1.4.2

Having thrown light on the meaning of 1.4.2 in the previous chapters, I will now try to reconstruct how Pāṇini must have designed his system and, more pertinently, how he must have come up with what is arguably one of his most important rules – 1.4.2 vipratisedhe param kāryam. It must be borne in mind that this is a purely speculative endeavour. Nonetheless, since it stands on the foundation of the evidence provided in previous chapters, and since it helps one gain a better understanding of the functioning of the Āṣṭādhyāyī, I think it is worthwhile to engage in such speculation.

Let us use nominal inflection as our example here, and the form devaiḥ (‘God’ masculine, instrumental plural) as our pivot for this discussion. We know that Pāṇini wanted to derive not only devaiḥ, but also other forms such as devāt (ablative singular), devesu (locative plural) etc.

<table>
<thead>
<tr>
<th>Case</th>
<th>Singular</th>
<th>Dual</th>
<th>Plural</th>
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</thead>
<tbody>
<tr>
<td>Nominative (Vocative)</td>
<td>devaiḥ (deva)</td>
<td>devau (devau)</td>
<td>devāḥ (devāḥ)</td>
</tr>
<tr>
<td>Accusative</td>
<td>devam</td>
<td>devau</td>
<td>devān</td>
</tr>
<tr>
<td>Instrumental</td>
<td>devena</td>
<td>devābhyaṃ</td>
<td>devaiḥ</td>
</tr>
<tr>
<td>Dative</td>
<td>devaiya</td>
<td>devābhyaṃ</td>
<td>devebhyaḥ</td>
</tr>
<tr>
<td>Ablative</td>
<td>devāt</td>
<td>devābhyaṃ</td>
<td>devebhyaḥ</td>
</tr>
<tr>
<td>Genitive</td>
<td>devasya</td>
<td>devayoh</td>
<td>devānām</td>
</tr>
<tr>
<td>Locative</td>
<td>deve</td>
<td>devayoh</td>
<td>deveṣu</td>
</tr>
</tbody>
</table>
To derive the aforementioned forms, Pāṇini came up with one common base to which he could add different affixes. As traditional grammarians have correctly pointed out, Pāṇini attributed great value to lāghava ‘brevity’, and thus he wanted to create the base in such a way that he would have to make the least number of changes to it. In other words, he wanted to write as few rules as possible. From the paradigm presented above, we can see that the candidates for the position of the common base were dev, deva, deve, devai, devā, devay etc. After taking into account several other inflected forms, Pāṇini concluded that it would be convenient and optimal to choose deva as the base and then to convert it, where required, to deve, devai, devā, devay etc. using gūṇa, vowel sandhi, substitution etc. Thus, he chose deva as the common base for deriving forms like devasya, devāya, devayoh, deve etc.

Secondly, Pāṇini wanted to derive not only devaiḥ but also instrumental plural forms of bases ending in other sounds and / or of other genders, such as mālābhiḥ (‘garland’ feminine, ending in ā, instrumental plural), vāribhiḥ (‘water’ neuter, ending in i, instrumental plural) etc.

<table>
<thead>
<tr>
<th>kavibhiḥ</th>
<th>mālābhiḥ</th>
<th>marudbhiḥ</th>
<th>vanaiḥ</th>
</tr>
</thead>
<tbody>
<tr>
<td>nadibhiḥ</td>
<td>bhānubhiḥ</td>
<td>vāribhiḥ</td>
<td>devaiḥ</td>
</tr>
</tbody>
</table>

He wanted to come up with one common affix each for every case-number combination (e.g., one affix for nominative plural, one for dative dual etc.). Given his goal of conciseness, he wanted to create these affixes in such a way that he would need to compose as few rules as possible to bring about changes in these affixes. So, when he was trying to decide what the instrumental plural affix should be, he examined all possible instrumental plural forms like kavibhiḥ, mālābhiḥ, marudbhiḥ, nadibhiḥ, bhānubhiḥ, vāribhiḥ, vanaiḥ, devaiḥ etc. He realized he had two options: he could have chosen either bhis or ais as the instrumental plural affix. He noticed that most of these forms end in bhis, and a minority of them end in ais. Because he wanted to compose as few rules as possible, he chose bhis as the instrumental plural affix. Consequently, he had to compose only one rule, namely 7.1.9 ato bhisa ais, to
deal with the affixation process for instrumental plurals. 7.1.9 teaches the substitution of bhis with ais when bhis is preceded by a nominal base ending in a.

Using the two processes mentioned above, Pāṇini came up with different classes of nominal bases, on the basis of the final sound and grammatical gender of the base, and with declensional affixes, which he has listed in 4.1.2 sv-au-jas-am-aut-chas-ṭā-bhyām-bhis-ṅe-bhyām-bhyas-ṅasi-bhyām-bhyas-ṅas-os-ām-ṅy-os-sup.

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<thead>
<tr>
<th></th>
<th>Singular</th>
<th>Dual</th>
<th>Plural</th>
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<tbody>
<tr>
<td>Nominative</td>
<td>sU</td>
<td>au</td>
<td>Jas</td>
</tr>
<tr>
<td>Accusative</td>
<td>am</td>
<td>auṬ</td>
<td>Sas</td>
</tr>
<tr>
<td>Instrumental</td>
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<td>bhyām</td>
<td>bhis</td>
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<tr>
<td>Dative</td>
<td>Ṇe</td>
<td>bhyām</td>
<td>bhyas</td>
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<tr>
<td>Ablative</td>
<td>Ṇasi</td>
<td>bhyām</td>
<td>bhyas</td>
</tr>
<tr>
<td>Genitive</td>
<td>ṇas</td>
<td>os</td>
<td>ām</td>
</tr>
<tr>
<td>Locative</td>
<td>ṇi</td>
<td>os</td>
<td>suP</td>
</tr>
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</table>

Then, he composed certain rules teaching that the affix should be placed to the right-hand side of the base (cf. 3.1.1 pratyayaḥ, 3.1.2 paraś ca). But simply juxtaposing the affix with the base could not always give the correct form. So, what did Pāṇini do to deal with this problem? Naturally, he wrote rules to prescribe the requisite changes.

Firstly, Pāṇini wrote rules to substitute certain affixes with other equivalent items (see 7.1.9 discussed above). For example, in deva + Ṇe (dative singular), Ṇe had to be replaced with ya (cf. 7.1.13 ğer yaḥ¹). But *devaya is not the correct form. So, thereafter, Pāṇini had to modify the nominal base, i.e., replace a of deva with its dirgha counterpart ā (cf. 7.3.102 supi ca²) to get the correct form devāya. Pāṇini decided to follow this order for the whole Asṭādhyāyī: first, he substituted the affix if required, and second, he modified the base (or both base and affix together, in case of ekādeśa) if required.

Sometimes, only affix substitution was required, and base modification was not required. For example, consider deva + ṇas (genitive singular). Here, Pāṇini simply had to replace ṇas

¹ The affix Ṇe, when occurring after a base ending in a, is replaced with ya.
² The a at the end of a nominal base is replaced with its long equivalent when followed by a declensional affix starting with yaṅ (y, v, r l, jh, bh or any nasal).
with sya (cf. 7.1.12 ṭaṇasiṇāsāṃ inātsyāḥ) to get the correct form devasya. On the other hand, in some other cases, only base modification was required, and affix substitution was not required. For example, consider deva + bhyām (instrumental-dative-ablative dual). Here, Pāṇini simply had to replace a of deva with its long counterpart (cf. 7.3.102 supi ca) to get the correct form devābhyām. Similarly, consider deva + bhyas (dative-ablative plural). Here, Pāṇini simply had to replace a of deva with e (cf. 7.3.103 bahuvacane jhaly et) to get the correct form devebhyaḥ. But regardless of the situation, Pāṇini always followed the same order: first, he substituted the affix if required, and then he modified the base (or both base and affix together, in case of ekādeśa) if required.

Now, consider deva + bhis (instrumental plural). Here too, first Pāṇini substituted the affix bhis with ais (cf. 7.1.9 ato bhisa ais), and then, in deva + ais, modified both base and affix by performing an ekādeśa operation i.e., by replacing a + ai with ai (cf. 6.1.88 vrddhir eci). This led to the correct form devaiḥ. However, he realized that students using his grammar may encounter a hurdle when deriving the form devaiḥ. He noticed that at the step deva + bhis, 7.1.9 ato bhisa ais is not the only rule applicable: 7.3.102 supi ca and 7.3.103 bahuvacane jhaly et, which he had composed to derive the forms devābhyām and devebhyaḥ respectively, are also applicable.

When multiple rules became simultaneously applicable, he decided to call the competition between the rule(s) applicable to the LHS operand and the rule(s) applicable to the RHS operand, vipratiṣedha ‘mutual opposition’. As we have seen above, Pāṇini’s goal was to replace the affix first, where required, and only then to modify the base (or modify both base and affix together, in case of ekādeśa) where required. So, despite the applicability of the

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3 The affix ṭa, ṇaṣl and ṇas, when occurring after a base ending in a, are replaced with ina, āt and sya respectively.

4 The a at the end of a nominal base is replaced with its long equivalent when a yaṅ-initial declensional affix follows.

5 The a at the end of a nominal base is replaced with e when a plural declensional affix starting with jhal (a non-nasal stop or a fricative) follows.

6 Vṛddhi (ā, ai, au) replaces both a and the eC vowel (e, o, ai, au) immediately following it.
LHS rules 7.3.102 and 7.3.103 at this step, Pāṇini wanted the RHS rule 7.1.9, and not any of these two LHS rules, to apply at this step. Thus, he stated 1.4.2 *vipratiṣedhe paraṁ kāryam* “in the event of *vipratiṣedha* ‘mutual opposition’ (i.e., DOI), the *para kārya* ‘RHS operation’ takes place”. Upon applying 7.1.9, we get *deva + ais*, and rules like 7.3.102 *supi ca* and 7.3.103 *bahuvacane jhaly et* are no longer applicable. Here, the rule 6.1.88 *vyṛddhir eci* applies, giving the correct form, *devaiḥ*.

One pertinent question that merits our attention here is: while making changes, why does Pāṇini start from the right-hand side (i.e., the affix) and then move leftwards (i.e., towards the interface between the affix and the base)? Notice that, in the forms *devaiḥ, devasya, devānām, devesu* etc., *dev*, which we can call the ‘LHS part’, is common to all the forms. So, the LHS part does not need to undergo any modification whatsoever. But one may ask, why not first make changes in the middle i.e., at the interface between base and affix and then move rightwards to make changes in the affix? This would be counterproductive, because the changes at the base-affix interface depend on the phonological composition of the affix. For these reasons, when making modifications, it is optimal for Pāṇini to start from the right end and move leftwards.

Pāṇini used this SSRI resolution mechanism not only for nominal inflection, but for other kinds of derivations too – such as verbal inflection, primary and secondary derivatives, compounds etc. While in the examples of DOI discussed above, the two rules are applicable to two different items i.e., one to the base and the other to the affix, Pāṇini built his system in such a way that he could extend the application of 1.4.2 to those cases of DOI wherein both rules are applicable to two different parts of the same item.

Where required, he also composed other rules to deal with DOI. For example, he composed rules 1.4.13 *yasmāt prayayavidhis tadādi prayayeṅgam* and 6.4.1 *aṅgasya* to correctly derive forms like *edhante, dadhati* etc. I have discussed this in detail in sections 4.1 and 4.2, chapter 4. He also composed rules like 6.4.22 *asiddhavad atrābhāt* and 8.2.1 *pārvatrāsiddham* to counter the impact of 1.4.2 on DOI. I have discussed this in detail in chapter 5. Lastly, note that Pāṇini did not compose any rules to deal with SOI. He expected us to choose the more specific rule, as I have shown in detail in examples 1 and 2 of section 2.8, chapter 2.

Now that we have discussed how Pāṇini must have come up with 1.4.2, let us examine how the tradition interpreted 1.4.2.
6.2 A Summary of Post-Pāṇinian Ideas on 1.4.2

Through Kātyāyana’s vārttikas, we know that he interprets pari in 1.4.2 vīpṛatīṣedhe pariṁ kāryam as ‘the rule which comes later in the Aṣṭādhyāyī’s serial order’. For example, consider 3.1.67 sārvadhātuke yak which teaches that affix yaK occurs after a verbal root when a sārvadhātuka affix which denotes bhāva or karman follows. Consider vt. 4 on this rule: *vīpṛatīṣedhād dhi śapo baliyastvam* ‘Given the vīpṛatīṣedha [between yaK (cf. 3.1.67 sārvadhātuke yak) and ŠaP (cf. 3.1.68 kartari śap)], ŠaP is more powerful [and wins, because it is parī, taught later in the serial order of the Aṣṭādhyāyī].’

Note that this vārttika makes an incorrect statement. There is no conflict at all here: yaK is added to verbal roots followed by sārvadhātuka affixes denoting bhāva ‘action’ or karman ‘object’ whereas ŠaP is added when the sārvadhātuka affix denotes karty ‘agent’. In fact, we come across many such errors in Kātyāyana’s vārttikas.

But I think that it is unwarranted to look for ‘correct’ statements in the vārttikas. This is because, in my opinion, Kātyāyana’s vārttikas are often a medium for him to share all kinds of thoughts with fellow grammarians – not just the ‘correct’ ones. Very often, we find him use na vā ‘or rather not’ and ca ‘and’ in a series of consecutive vārttikas to discuss alternative or even contradicting possibilities and explanations. Let me give an example relevant to the topic of rule conflict. Consider vts. 3, 4 and 5 on 7.1.6 śīṅo ruṭ (Mbh III.243.12-21).

Vt. 3 jhādeśād āḍ leṭi

‘[It must be stated that, contrary to 1.4.2, the introduction of] āṬ, [which is taught by the pūrva rule 3.4.94 leṭoḍaṭau wins against] the substitution of jh [which is taught by the para rule 7.1.5 āṭmanepadeśv anataḥ].’

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7 Mbh II.59.1.
8 I will translate and discuss vīpṛatīṣedha later in this chapter from Kātyāyana’s perspective.
9 An aṬ which replaces a jh which is the initial sound of an affix preceded by sīN, takes the augment ruṬ.
10 Augments aṬ and āṬ are introduced, in turn (paryāyena), to affixes which replace LEṬ.
11 A jh which is the initial sound of an āṭmanepada affix preceded by a verbal base that does not end in a is replaced with at.
Vt. 4 \( na \) \( vā \) \( nityatvād \) \( āṭaḥ \)

‘Or rather [this does] not [need to be stated] because [the rule teaching] \( āṬ \) is \( nitya \) [and thus defeats the other rule which is \( anitya \)].’

Vt. 5 \( antaraṅgalakṣaṇatvāṁ \) \( ca \)

‘And [also] because [the rule teaching] \( āṬ \) is \( antaraṅga \) [and thus defeats the other rule which is \( bahiraṅga \)].’

This style of discussing multiple possibilities without striving to always be correct, is very much akin to Patañjali’s style, which also involves a discussion about the pros and cons of various perspectives. In both Kātyāyana’s and Patañjali’s work, we find no rigidity or urgency to establish the truth. Instead, their work is characterized by curiosity and a willingness to critically examine a motley of ideas.

Coming back to the topic of \( para \), suffice it to say that regardless of the correctness of its contents, vt. 4 on 3.1.67, which I have discussed above, buttresses the proposition that Kātyāyana interpreted \( para \) as ‘the rule which comes later in the serial order of the \( Aṣṭādhyāyī \)’. And while this interpretation of \( para \) taught by Kātyāyana – alongside tools like \( nitya, antaraṅga \) etc. discussed by him – has been fully endorsed and internalized by the later tradition, most traditional and modern scholars have almost entirely overlooked a very important idea about \( paratva \) that we find in a \( vārttika \) on 6.1.158 \( anudāttam \) \( padam \) \( ekavarjam \).

6.1.158 teaches that a \( pada \) is entirely low-pitched (\( anudāttta \)) with the exception of one syllable. But how should we decide which syllable is not low-pitched? Is it a syllable of the \( prakṛti \) ‘base’ or a syllable of the \( pratyaya \) ‘affix’? After discussing this topic in multiple \( vārttikas \) on this rule, Kātyāyana says, in vt. 12\(^{12} \) \( śāstraparavipratiṣedhāniyamād \) \( vā śabdaparavipratiṣedhāt \) \( siddham \) ‘[in the event of \( vipratiṣedha \) between two operations] because it has not been [explicitly] mandated that \( paratva \) of rules [alone should be used to resolve] \( vipratiṣedha \), alternatively \( paratva \) of sounds [may also be used to] accomplish [the task of resolving] \( vipratiṣedha \)’.\(^{13} \) In other words, here, Kātyāyana suggests that alongside inferring that the rule that is \( para \) i.e., that comes later in the serial order of the \( Aṣṭādhyāyī \)

\(^{12}\) Mbh III.100.12.

\(^{13}\) Here, Nāgeśa, in his \( Uddyota \), refers to another discussion on this subject on 1.1.57 \( acaḥ \) \( parasmin \) \( pūrvavidhau \) by Kaiyaṭa and Nāgeśa.
wins, we may also infer that the operation that is applicable to the *para* i.e., RHS sound or group of sounds wins.

This shows that Kātyāyana was either exposed to or himself thought about the possibility that *para* in 1.4.2 could stand for the RHS operation. If he had chosen to further develop this line of thought, this idea could potentially have reached its logical conclusion, namely the correct interpretation of *para* in 1.4.2. One could argue that, by choosing to focus on and subsequently by accepting the wrong interpretation from amongst the two possible interpretations of *para* discussed in the aforementioned vārttika, Kātyāyana completely changed the developmental trajectory of the Pāṇinian tradition. Kātyāyana’s successors too failed to recognize the sheer potential of this vārttika, and thus the key to the *Aṣṭādhyāyī*’s algorithm remained before everyone’s eyes and yet hidden from everyone’s mind.

One key repercussion of Kātyāyana’s belief that *para* in 1.4.2 stands for ‘the rule that comes later in the *Aṣṭādhyāyī*’s serial order’ must have been that he likely got numerous incorrect forms at the end of derivations where he solved SSRI using his interpretation of 1.4.2. Perhaps it is to avoid these undesirable outcomes - wherever possible - that he decided to reduce the jurisdiction of 1.4.2. For example, in vt. 1 on 1.4.2, he defines *vipratiṣedha* in a way that allows him to exclude *anavakāśa-sāvakāśa* pairs from the jurisdiction of 1.4.2: *dvau prasaṅgav anyārthāv ekaṁ sa vipratiṣedhaḥ* (1)14 ‘[When] two rules [which are] applicable elsewhere [become applicable] to the same place, this [is called] *vipratiṣedha*’. Thus, an SSRI between two *sāvakāśa* rules (i.e., rules which are applicable elsewhere) is called *vipratiṣedha*. We know that an SSRI can be either a conflict scenario or a non-conflict one. But as I have said in previous chapters, Kātyāyana is, for the most part, interested in conflict. Thus, I will take the liberty, for the sake of this chapter, to translate the traditional interpretation of *vipratiṣedha* as ‘conflict between *sāvakāśa* rules’.

In vt. 2 on 1.4.2, he says: *ekasmin yugapat asaṁbhavai pūrvarupam apraṁbhavai ubhayaprasaṅgai* ‘[Given the] impossibility [of] co-application at one [i.e., the same step, there arises] the undesirable scenario of both *pūrva* and *para* being applicable.’ In vt. 5, Kātyāyana says: *apratiṇādhi vobhayos tulyabalatvai* ‘Or [maybe this results in] the failure of both [rules] to apply because of [their] equal strength’. In vt. 6 he says: *tatra pratipattyartham etad vacanam* ‘So, this [sūtra] has been formulated in order to instruct us about this [i.e., the decision regarding which rule should apply]’. From vts. 1, 2, 5 and 6 on 1.4.2, we can conclude that,

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14 Mbh I.304.10-305.3
according to Kātyāyana, the conflict between two sāvakāśa rules is called vipratiṣedha, and that these two rules are treated as tulyabala ‘of equal strength’. Note that this is the only occasion on which Kātyāyana uses the term tulyabala. Patañjali too uses the word tulyabala only once – when commenting on vt. 5 on 1.4.2.15

Kātyāyana has composed several vārttikas discussing terms like nitya, anitya, antaraṅga, bahiraṅga, apavāda, utsarga, anavakāśa and sāvakāśa. This indicates that he was familiar with or himself constructed these concepts and established relationships between nitya and anitya rules, between antaraṅga and bahiraṅga rules, between apavāda and utsarga rules, and between anavakāśa and sāvakāśa rules. While Patañjali does not always agree with Kātyāyana, he has embraced all these concepts wholeheartedly in his commentary. We get no evidence of Kātyāyana connecting these concepts directly with tulyabala, and only one piece of evidence of him establishing a direct link between one of these tools and vipratiṣedha, which is as follows. On 6.1.135 suṭkāt pūrvah ‘The augment sUṬ is added before k’, Kātyāyana says, in vt. 717: avipratiṣedho vā bahiraṅgalaksanatvāt ‘[Alternatively, one can argue that this is] not a case of vipratiṣedha because [sUṬ is] bahiraṅga’. This shows that he excludes antaraṅga-bahiraṅga pairs from the domain of 1.4.2.

But even after inventing tools like nitya, antaraṅga, apavāda and anavakāśa, Kātyāyana was unable to resolve certain conflicts, especially those involving DOI mutual blocking, using any of the aforementioned tools. On many occasions, solving such conflicts using 1.4.2 too led to an incorrect answer at the end of the derivation.18 Thus, he wrote the ‘pūrvavipratiṣiddha’ vārttikas. By using the expression ‘pūrvavipratiṣiddha’, Kātyāyana points out that instead of the para sūtra, which should win as per his interpretation of 1.4.2 vipratiṣedhe paraṁkāryam, it is the pūrva sūtra which emerges victorious. We have already looked at some such vārttikas in chapter 2, so I will simply mention one of them here. On 7.1.96 striyāṃ ca, vt. 10 reads: guṇavṛddhyauttvatrjvadbhāvebhyo num pūrvavipratiṣiddham ‘In case of vipratiṣedha, the pūrva sūtra, which teaches the insertion of the augment nUM, takes

15 It must be stated though that this passage is reproduced verbatim by Patañjali in his comments on vt. 3 on 6.1.85 antādivac ca (Mbh III.59.20-60.6).
16 Note that this is an adhikāra rule.
17 Mbh III.93.1.
18 For instance, see example 5 of section 2.7, chapter 2.
19 Mbh III.275.23.
precedence over para sūtras which teach (i) guṇa, (ii) vṛddhi, (iii) auttva, (iv) trjvadbhāva’. By writing this and other pūrvavipratiṣiddha vārttikas, Kātyāyana draws attention to the perceived failures of / loopholes in / exceptions to the rule 1.4.2.

Commenting on most pūrvavipratiṣiddha vārttikas, Patañjali says that they are not required at all. He gives various reasons for this, of which the following one is used by him on multiple occasions. On vt. 10 on 7.1.96 stated above, he says: na vaktavyaḥ. iṣṭavācī paraśabdaḥ. vipratiṣedhe param yad iṣṭaṁ tad bhavati ‘[This] should not be said. The word para means desirable. In [the event of] vipratiṣedha, the para i.e., desirable [rule] applies.’ It is evident that in this context Patañjali tries to defend 1.4.2 against Kātyāyana’s criticism. In fact, this is anything but an isolated instance: scholars like Goldstücker (1861: 119-121) and Weber (1872: 297-298) were amongst the earliest modern scholars to argue that Kātyāyana was severely critical of Pāṇini’s sūtras, and that Patañjali invested significant effort in countering such negative remarks. While many scholars, starting with Kielhorn, have presented rebuttals to this, even Kielhorn (1876: 50) cannot deny “that Patañjali has refuted some of the (i.e., Kātyāyana’s) objections, that he has rejected some of the additional rules of Kātyāyana.”

Coming back to vt. 10 on 7.1.96, I would argue that by hurrying to dismiss Kātyāyana’s pūrvavipratiṣiddha vārttikas using a rather feeble argument, namely that para means iṣṭa, Patañjali missed the opportunity to discover the truth of 1.4.2. Instead, if he had accepted Kātyāyana’s statement as valid and had pondered over the cause of this phenomenon, he could possibly have realized that Kātyāyana’s interpretation of para itself was incorrect, and that it was this misinterpretation which had led him to write the pūrvavipratiṣiddha vārttikas. This would certainly have been a far superior defence of Pāṇini’s rule 1.4.2 against Kātyāyana’s criticism than the one mounted by Patañjali.

After the composition of the Mahābhāṣya, ideas about the terms vipratiṣedha, para, tulyabala, and the various tools of conflict resolution discussed above began to take more concrete shape. Direct links and relationships between these concepts came to be established. For example, on 1.4.2, the Kāšikā, which was written in the 7th century AD, says:

yatra dvau prasangāv anyārthāv ekasmin yugapat prāpnutaḥ sa tulyabalavirodho vipratiṣedhaḥ. tasmin vipratiṣedhe param kāryaṁ bhavati.

20 The contents in round brackets have been added by me to Kielhorn’s quote.
‘When two operations which can be applied at other sites become simultaneously applicable at one [and the same site], this is called a conflict of equal strength or vipratiṣedha. In the event of vipratiṣedha, the rule that comes later [in the serial order of the Aṣṭādhyāyī] prevails. A general rule (utsargā) and its exception (apavāda), or a nitya rule and an anitya rule, or an antaraṅga and a bahiraṅga rule, are not rules of equal strength. These pairs do not fall under the jurisdiction of this rule. In these cases, the stronger rule wins.’

Notice that, unlike Kātyāyana and Patañjali, the authors of the Kāśikā explicitly exclude nitya-anitya, antaraṅga-bahiraṅga and apavāda-utsarga pairs from the ambit of vipratiṣedha by calling them ‘not tulyabala’. Thereafter, in both Pāṇinian and non-Pāṇinian paribhāṣā literature, we find multiple versions of the same paribhāṣā which compares the ‘strengths’ of the tools mentioned above. The earliest Pāṇinian paribhāṣā treatise to include it is the Paribhāṣāpāṭha of Puruṣottamadeva written in the 12th century. It reads: pūrvaparanityāntaraṅgāpavādānām uttarottarāṁ balīyaḥ (Pbh. 39). ‘Of [these five kinds of rules, - viz.] a preceding [rule], a subsequent [rule], a nitya [rule], an antaraṅga [rule], and an apavāda [rule], - each following [rule] possesses greater force [than any one of, or all, the rules which are mentioned before it].’

In sum, the relationships between tulyabala, vipratiṣedha, nitya, antaraṅga, para, apavāda etc. were fully and concretely established by the twelfth century. Alongside the paribhāṣās teaching these tools, dozens of paribhāṣās teaching exceptions to these tools were also written by the paribhāṣākāras. On this account, given its unwieldy and complicated nature, the traditional solution completely fails the Occam’s razor test. Additionally, the flexibility of ideas, free thinking, willingness to consider a wide variety of possibilities and alternatives, which, as stated earlier, are so characteristic of the early tradition i.e., Kātyāyana’s and Patañjali’s work, came to be replaced by a willing acceptance of rigid, ossified, established and widely-accepted ‘facts’ and ‘truths’ in the later tradition – in particular, in paribhāṣā literature. It is noteworthy that many of these paribhāṣās are anitya ‘not always applicable’ by the tradition’s own admission!

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Here, one may ask: why do the *Kāśikā* and the *paribhāṣā* texts not question the correctness of Kātyāyana’s interpretation of the term *para* in 1.4.2? I think the first broad reason is that, along with Pāṇini, who composed the foundational treatise of the tradition, Kātyāyana and Patañjali too came to be worshipped in the tradition, which might have made it almost unthinkable for subsequent scholars to disagree with Kātyāyana or Patañjali over such fundamental aspects of the grammar as the meaning of *para* in 1.4.2. It must be noted that even though the *Kāśikā* does present an alternative viewpoint to that of the *Mahābhāṣya* on many occasions, it completely embraces Patañjali’s ideas on this subject. Secondly, even amongst the three *munis*, Patañjali’s word superseded Kātyāyana’s and Kātyāyana’s word superseded Pāṇini’s, right from the time of Kaiyaṭa, who famously stated: *yathottaram hi munitrayasya prāmāṇyam*23 ‘Among the three *munis*, the authority of later *muni* supersedes that of his predecessor(s)’24. Thus, Patañjali became the most important person in the tradition, surpassing Pāṇini himself, whose work he had set out to expound on. So, hypothetically speaking, even if a traditional scholar had discovered that Patañjali had misinterpreted *para* in 1.4.2, he would have preferred Patañjali’s interpretation to Pāṇini’s in all likelihood!

One would have expected the tradition to start paying ever closer attention to the topic of rule conflict with the writing of the *Kaumudī* texts, the main goal of which was to teach students how to perform derivations. To achieve this goal, the *Kaumudī* texts took the radical decision to reorder the rules of the *Aṣṭādhyāyī* so that a rule would be taught in the *Kaumudī* only when it applied at some step in a certain derivation. However, unfortunately, these texts did not challenge the existing interpretation of *para* in 1.4.2 and, like previous texts, performed derivations using the traditional tools for conflict resolution. In fact, not only did the *Kaumudī* texts fail to discover the correct meaning of 1.4.2, but they also unwittingly ensured that coming generations would not decipher the same.

They did this by shifting the focus of the tradition from the comprehensive functioning of the Pāṇinian machine to the many individual products of the machine, namely, individual derivations of various forms. Over time, students of the *Kaumudī* got so familiar with these derivations that now, they do not have to and, consequently, do not, stop at most steps of the


23 Another popular version of this, also written by Kaiyaṭa is: *uttarottaram munināṁ prāmāṇyam*.

24 See *Pradīpa* on *Mahābhāṣya* on 1.1.29.
derivation to ask themselves: which rules are applicable at this step? Which of these rules should I apply? And why? And if pupils do apply conflict resolution tools of their own accord and end up getting the wrong form, they are not encouraged by their teachers to ask why. Instead, they are advised to consult the Kaumudī texts to ‘correct’ themselves i.e., to memorize the explanation offered by their authors.

This chain of accepting what previous scholars have said was finally broken by many modern Indologists, including Houben (2003), who asked if Pāṇini’s grammar is meant to function like a machine at all\(^\text{25}\), and Bronkhorst (2004) who questioned the ‘linearity’ of Pāṇinian derivations.\(^\text{26}\) Others have tried to make changes in some parts of the traditional conflict resolution mechanism. For example, multiple scholars, starting with Faddegon (1936), have advocated restricting the jurisdiction of 1.4.2 to 1.4.2-2.2.38. Cardona (1970: 57-58) has proposed limited blocking, which essentially deals with more complex cases of SOI, even though he does not state this explicitly.\(^\text{27}\)

Joshi and Kiparsky interpret vipratiṣedha as ‘mutual blocking’ and state that “for…so-called vipratiṣedha, no general solution has been found”\(^\text{28}\) by them.\(^\text{29}\) However, they do propose a solution for those cases which involve unidirectional blocking, namely the siddha principle. What it essentially does is resort to the nitya principle\(^\text{30}\) to solve not only these cases which the tradition solves using nityatva, but also those which it solves using antaraṅgatva. Bronkhorst (1984: 310-313) and Cardona (1999: 154-161) have correctly criticized the reasoning behind this principle.\(^\text{31}\)

\(^\text{25}\) I hope I have proven through this thesis that Pāṇini intended for his grammar to function like a well-oiled machine. But I do not want to deny that he may have made certain mistakes by virtue of being human or that interpolations and changes occurred in the Āṣṭādhyāyī at the hands of later scholars. I think these factors certainly had a negative impact on the functioning of Pāṇini’s machine.

\(^\text{26}\) See section 1.3, chapter 1 for a detailed discussion on this subject.

\(^\text{27}\) For more on this, see example 3 in section 4.4, chapter 4.


\(^\text{29}\) Kiparsky (1991: 349) also says, “Joshi and I were unable to find any general way to predict which rule wins in such a situation [i.e., vipratiṣedha, which they interpret as mutual blocking], although solutions for some special subtypes of vipratiṣedha were suggested.” Note that the words in the square brackets in this quote have been added by me for the sake of clarity.

\(^\text{30}\) Kiparsky 1982: 84-85.

\(^\text{31}\) For my criticism of the same, please see appendix E.
Even though none of these scholars have been able to offer a radically different interpretation of 1.4.2, their willingness to ask questions, to propose new ideas and to challenge the traditional method of conflict resolution inspired me to do the same, eventually leading me to the interpretation of 1.4.2 I have presented in this thesis.

In the following section, I will discuss how my findings can help us better understand other aspects of the *Aṣṭādhyāyī* and linguistics in the future.

### 6.3 The Way Forward

I have not dealt with rules teaching accentuation in this thesis. However, accentuation is inseparable from Pāṇinian Sanskrit and thus, I hope to conduct research in the future on whether we can correctly derive accented forms using my method of tackling SSRI. Conversely, using my method of dealing with SSRI may enhance our knowledge about how accentuation actually works in the Pāṇinian system.

Secondly, I have not explored rules taught particularly for deriving Vedic forms in this thesis. However, in the future, research on derivations involving such rules may enable us to verify the correctness of my findings about Pāṇini’s SSRI mechanism. It could also assist us in understanding which parts of Vedic literature Pāṇini was familiar with, thereby adding to the work done by Thieme (1935), Bronkhorst (1991) and others on this subject. In sum, such research will improve our understanding of the relationship between Pāṇini and the Vedas.

Even though the question of whether certain rules were interpolated into the ‘original’ version of *Aṣṭādhyāyī* is not closely connected with the topic of SSRI, we can benefit from studying these topics together. For example, if we get the incorrect form at the end of a derivation in which we have resolved the SSRI using my method, then, in the presence of supporting evidence, we can consider the possibility that the rule in question has been edited or constitutes an interpolation.33

While it may seem that *anuvṛtti* does not directly influence or get influenced by SSRI, there are some strong links between the two topics. *Anuvṛtti* alone helps us understand the exact

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32 For a detailed discussion on this, see Joshi and Roodbergen (1983).
33 See example 1 of section 3.1, chapter 3 to understand this better.
34 For detailed studies on *anuvṛtti*, see Joshi and Bhate (1983, 1984).
contents of any rule, and without knowing the contents of a rule, we cannot establish whether it interacts with other rules at the same step. So, developing a sound understanding of *anuvṛtti* can help us better appreciate the functioning of the *Aṣṭādhyāyī*. Also, if we get the incorrect form at the end of a derivation in which we have resolved the SSRI using my method, then we can reconsider if the right words have been continued through *anuvṛtti* into the rules involved in SSRI.³⁵

Now let us look at how my findings about SSRI in the *Aṣṭādhyāyī* can potentially open up new avenues of research in certain disciplines related to Pāṇinian studies. Let us start by talking about Sanskrit computational linguistics³⁶. One of the main goals of this field is to teach Pāṇini’s *Aṣṭādhyāyī* to the computer, so that when we feed the bases, affixes and the speaker’s intention³⁷ into the computer, the computer can perform the derivation for us and give us the correct final form. Understanding how Pāṇini deals with SSRI and knowing the actual meaning of 1.4.2 will surely help scholars to make progress in achieving this goal.

My findings can also help develop new ideas for modern theoretical linguistics, and more specifically, phonology. In Western phonology, Chomsky and Halle (1968) postulated that, each language has its own fixed order of applying rules in derivations. This is called extrinsic ordering. Kiparsky (1968), on the other hand, proposed that the order of rule application could be viewed as being dependent on the formal relationships between rules, namely, whether one rule feeds or bleeds the other rule.³⁸ This is called intrinsic ordering.

Pāṇini’s derivations are neither extrinsically nor intrinsically ordered. In fact, one need not worry about the concept of rule order at all when performing Pāṇinian derivations. This is because the choice of the rule which should apply at any given step, depends neither on whether it feeds or bleeds another rule, not on any predetermined order of application. Instead, this decision is made by the ingenious algorithm devised by Pāṇini to deal with

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³⁵ For instance, consider example 2 of section 3.1, chapter 3.

³⁶ ‘Sanskrit Computational Linguistics – First and Second International Symposia’ helps one gain a good understanding about the diversity and scope of the field.

³⁷ By ‘speaker’s intention’, I mean, information about the exact form he or she wishes to derive. For example, ‘imperative passive third person singular’.

³⁸ A feeds B if the application of A facilitates the application of B, and P bleeds Q if the application of P obstructs the application of Q.
SSRI. Perhaps modern linguistics can overcome the shortcomings of extrinsic and intrinsic ordering by experimenting with Pāṇini’s model.

Finally, my work on Pāṇini’s SSRI mechanism can also potentially propel further research on the topic of ‘natural language complexity’. In computational theory, attempts have been made to understand how complex a formal language (i.e., an artificial language used in computer science) is using the Chomskyan hierarchy (based on Chomsky: 1959), which consists of four different levels of formal language grammars and the ‘machines’ that correspond with them. Linguists have also tried to situate natural languages in this hierarchy. Let us look at the hierarchy before we discuss this topic further.

<table>
<thead>
<tr>
<th>Language</th>
<th>Least powerful grammar that can generate it</th>
<th>Machine equivalent to this grammar</th>
<th>Production rule(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>recursively enumerable</td>
<td>Type 0</td>
<td>Turing Machine</td>
<td>$\delta \rightarrow \theta$</td>
</tr>
<tr>
<td>context-sensitive</td>
<td>Type 1</td>
<td>Linear Bounded Automaton</td>
<td>$\alpha A \beta \rightarrow \alpha \gamma \beta$</td>
</tr>
<tr>
<td>context-free</td>
<td>Type 2</td>
<td>Pushdown Automaton</td>
<td>$A \rightarrow \gamma$</td>
</tr>
<tr>
<td>regular</td>
<td>Type 3</td>
<td>Finite State Automaton</td>
<td>$A \rightarrow a$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$A \rightarrow aB$</td>
</tr>
</tbody>
</table>

Key:

$a =$ terminal symbol

$A, B =$ non-terminal symbol

$\alpha, \beta, \gamma, \delta, \theta =$ string of symbols$^{39}$

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$^{39}$ This information has a purely indicative value but no claim to exhaustiveness. There are some constraints on some of these strings depending on whether or not they can contain terminals, whether or not they can be empty etc. but I won’t delve into this because it is not of much importance in the present context.
Please read the following three statements carefully in the context of the table presented above:

(i) In $A \rightarrow \gamma$ (Type 2), if the string $\gamma$ contains only one symbol, namely the terminal symbol $a$, then this rule can be rewritten as $A \rightarrow a$ (Type 3). Similarly, if the string $\gamma$ contains only two symbols, namely $aB$, then this rule can be rewritten as $A \rightarrow aB$ (Type 3). These are only two of many possibilities. Thus, regular grammars (Type 3) constitute a subset of context free grammars (Type 2).

(ii) In $\alpha A \beta \rightarrow \alpha \gamma \beta$ (Type 1), if both $\alpha$ and $\beta$ are empty, then this rule can be written as $A \rightarrow \gamma$ (Type 2). This is only one of many possibilities. Thus, context free grammars (Type 2) constitute a subset of context sensitive grammars (Type 1).

(iii) In $\delta \rightarrow \theta$ (Type 0), if the string $\delta$ is $\alpha A \beta$ and if the string $\theta$ is $\alpha \gamma \beta$, then this rule can be rewritten as $\alpha A \beta \rightarrow \alpha \gamma \beta$ (Type 1). This is only one of many possibilities. Thus, context sensitive grammars (Type 1) constitute a subset of recursively enumerable grammars (Type 0).

Therefore, we can represent these grammars as follows:
As can be seen from the diagram above:

(i) Type 3 grammars can produce Type 3 languages.
(ii) Type 2 grammars can produce Type 3 and Type 2 languages.
(iii) Type 1 grammars can produce Type 3, Type 2 and Type 1 languages.
(iv) Type 0 grammars can produce Type 3, Type 2, Type 1 and Type 0 languages.

Note that in terms of productive power, the grammars can be compared as follows (where $G_1 > G_2$ stands for ‘$G_1$ is more powerful than $G_2$’):

$$\text{Type 0} > \text{Type 1} > \text{Type 2} > \text{Type 3}$$

As stated above, even though this hierarchy is primarily meant for formal languages, linguists have attempted to situate natural languages within it. They have shown that Dutch (Bresnan et al 1982), Swiss German (Shieber 1985) and Bambara (Culy 1985) are neither regular (Type 3) nor context free (Type 2). Scholars like Fowler (1965), Staal (1965, 1966), Hyman (2007), Penn and Kiparsky (2012) and Lowe (in press) have discussed the $\text{Aṣṭādhyāyī}$’s computational ability, the characteristics of the language it produces, and whether and how we can situate such a language, i.e., Pāṇinian Sanskrit, in the Chomskyan hierarchy.

I think that there are several loopholes in the thesis that we can meaningfully situate natural languages – which are significantly different in their nature, composition and purpose, from formal languages – in a hierarchy meant for formal languages. However, the outcome of my research has an interesting parallel with one aspect of the Chomskyan hierarchy which I think merits further exploration. The following diagram illustrates how a Pāṇinian derivation would look in the absence of Pāṇini’s algorithm for dealing with SSRI. Let us assume, for the sake of this discussion, that two rules are applicable at every step of the derivation. The derivation starts at State 1 and the correct final form is State 4h.
This is a three-step derivation. Step 1 takes us from state 1 to state 2, step 2 from state 2 to state 3, and lastly step 3 from state 3 to state 4. To reach state 4h one has to make three correct decisions: one has to choose state 2b in step 1, state 3d in step 2, and state 4h in step 3. But if there had existed no internal algorithm in Pāṇini’s machine, one could have ended up with any of the eight final answers (cf. state 4), and the probability of getting the correct answer would have been 1/8. However, by teaching his solution for SSRI, Pāṇini has converted the above machine into the following machine:

To borrow terms from computational theory, Pāṇini has converted his ‘non-deterministic machine’, which could potentially proceed along multiple derivational paths, into a deterministic one, which proceeds along a single path dictated by the algorithm. A deterministic machine is desirable because it produces only correct forms whereas a non-deterministic machine is not desirable because it produces both correct and incorrect forms. Penn and Kiparsky (2012) say: “through the lens of contemporary NLP\textsuperscript{40}, the most amazing fact about the \textit{Aṣṭādhyāyī} is not that it produces so many correct derivations, after all, but that it simultaneously avoids so many incorrect ones.”

\textsuperscript{40} Natural Language Processing.
Now let us use this information to situate Pāṇinian Sanskrit in this hierarchy. We already know that we find rules which resemble context sensitive rules (cf. $aA\beta \rightarrow a\gamma\beta$) in Pāṇini’s grammar. Since regular (Type 3) and context free (Type 2) grammars do not contain such rules, we can infer that Pāṇini’s grammar is neither regular nor context-free. But does the presence of context-sensitive rules make Pāṇini’s grammar context sensitive (Type 1)? Context-sensitive grammars in the Chomskyan hierarchy correspond with *non-deterministic* linear bounded automata. But as I said, Pāṇini’s grammar is *deterministic*. Thus, we cannot call the *Aṣṭādhyāyī* a Type 1 (context sensitive) grammar. What kind of grammar is the *Aṣṭādhyāyī* then? I trust that scholars will be able to answer this question in the future with the help of the information I have provided above.

In sum, I am confident that my findings about Pāṇini’s algorithm for regulating SSRI will enable us to make substantial advances not only in the field of Pāṇinian studies but also in multiple allied disciplines. *pañinaye namah!*
Appendix A: Some Pāṇinian Metarules on Substitution

Introduction

In this thesis, we have focused on *vidhi sūtras* ‘operational rules’, and to be precise, on how we choose one rule from amongst the two or more operational rules which are simultaneously applicable in a derivation. While operational rules play an important, perhaps central role in Pāṇinian derivations, they cannot be correctly interpreted or applied without the help of two other categories of rules, namely *saṁjñā sūtras* ‘definition rules’ and *paribhāṣā sūtras* ‘metarules’.

We have already observed how the more specific rule wins in case of competition between *saṁjñā* rules, in section 1.6, chapter 1. In appendices A and B, we will look at some cases of competition between *paribhāṣā* rules which the tradition has failed to solve satisfactorily. Pāṇini has not given any explicit instructions about which of the two competing *paribhāṣā* rules must be chosen. In keeping with the general-exception template that pervades the entire *Aṣṭādhyāyī*, I think that the more specific rule emerges victorious in cases of competition between *paribhāṣā* rules.

Competition Between *Paribhāṣā* Rules 1.1.52-1.1.55

In order to examine an example of competition between these *paribhāṣā* rules, let us derive the imperative third-person singular form of the root *likh* ‘to write’. I will not discuss DOI and SOI here since our focus is on metarules. Nonetheless, I will perform the derivation bearing in mind my method of solving SOI and DOI: *likh* + *LOT* (3.3.162 *loṭ ca*) → *likh* + *tiP* (3.4.77 *lasya*, 3.4.78 *tip-tas-jhi*...¹) → *likh* + *tu* (3.4.86 *er uḥ*) → *likh* + *ŚaP* + *tu* (3.1.68 *kartari śap*). Since *likh* + *ŚaP* cannot undergo any other operations which are not triggered by *tu*, we can write *likh* + *ŚaP* as *likha*. *likha* is an *aṅga* with respect to *tu*. Thus, we can apply 7.1.35 *tuḥyostātaṅ āśisy anyatarasyām* here. This rule teaches that *tu* and *hi* should be replaced with *tātAṄ* in a benedictive form. If this rule is applied, which part of *tu* does *tātAṄ* replace? To get the correct answer, *likhatāt*, *tātAṄ* needs to replace *tu* entirely. But what do the relevant metarules have to say in this regard? Do they help us derive the correct answer, *likhatāt*? Let us look at them:

¹ The full *sūtra* reads: *tip-tas-jhi-sip-thas-tha-mip-vas-mas-t(a)-ātām-jha-thās-āṭhām-dhvam-id-vahi-mahiṅ.
1.1.52 *alo’ntyasya*: a substitute replaces the final sound of the item for which it is taught.

1.1.53 *ṅ ic ca* (*alāḥ antyasya*): a *ṅ*-marked substitute replaces the final sound of the item for which it is taught.

1.1.54 *ādeḥ parasya* (*alāḥ*): a substitute taught for the following item replaces its first sound.

1.1.55 *anekālśit sarvasya*: a multi-sound substitute or a substitute marked with Ś replaces the entirety of the item for which it is taught.

Before we go further, I should clarify the traditional interpretation of 1.1.54 *ādeḥ parasya*. According to the tradition, the metarule 1.1.54 governs only those rules which follow the following template: the substitute $B_1$ is taught for $B$ when $B$ is preceded by $A$ (where $A$ is mentioned in the ablative). The *Kāśikā* says: *parasya kāryaṁ śisyaṁānam āder alāḥ pratyetavyam. kva ca parasya kāryaṁ śisyate. yatra pañcamīnirdeśaḥ.* ‘An operation taught for the following item will apply to the first sound (of the following item). And where (i.e., in which cases) is the operation taught for the following sound? Where [an item has been] mentioned in the ablative.’ It also gives an example: 6.3.97 *dvyaatarupasargebhyo ’pa īt* ‘the substitute $īT$ is taught for [the nominal base] $ap$ ‘water’ when $ap$ is preceded by $dvi$, *antar* or an *upasarga* ‘preverb’. Since *dvyaatarupasargebhyo* is taught in the ablative, 1.1.54 mandates that $īT$ replaces the first sound of $ap$ i.e., $a$. In sum, the *Kāśikā* implies that 1.1.54 does not govern rules in which the preceding term is not mentioned in the ablative.

The *Siddhāntakaumudi* (SK) mentions the following relationships between these metarules:

(i) 1.1.54 *ādeḥ parasya* is an exception of 1.1.52 *alo’ntyasya*. Thus 1.1.54 wins against 1.1.52.2

(ii) 1.1.55 *anekālśit sarvasya* is an exception of 1.1.52 *alo’ntyasya*. Thus 1.1.55 wins against 1.1.52.3

(iii) 1.1.53 *ṅ ic ca* is an exception of 1.1.55 *anekālśit sarvasya*. Thus 1.1.53 wins against 1.1.55.4

(iv) 1.1.55 *anekālśit sarvasya* comes after 1.1.54 *ādeḥ parasya* in the serial order of the *Aṣṭādhyāyi*. Thus, by the traditional interpretation of 1.4.2, 1.1.55 wins against 1.1.54.5

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2 *Alo’ntyasya ity asyāpavādaḥ* (SK on 1.1.54).
3 *Alo’ntyasūtrāpavādaḥ* (SK on 1.1.55).
4 *Sarvasya ity asyāpavādaḥ* (SK on 1.1.53).
5 *Aṣṭābhyā auś* (7.1.21) *ityādau deḥ parasya ity etad api paratvād anena bādhyate* (SK on 1.1.55).
Below, I have represented this information in the form of a diagram. The arrows point towards the winning rules.

Let us go back to the rule 7.1.35 *tuḥyoṣ tātāṅ āśiṣy anyataraśyām*. It teaches the substitute *tā́tAṄ* for *tu*. The metarules eligible to govern the application of 7.1.35 are 1.1.52, 1.1.53 and 1.1.55. 1.1.55 is an exception of 1.1.52 and 1.1.53 is an exception of 1.1.55. Thus, 1.1.53 should govern the application of 7.1.35, which leads to *tā́tAṄ* replacing only the final sound of *tu*. However, this gives the incorrect form *ṭīkhattāt*. In his only vārttika on 1.1.53⁶, Kātyāyana recognizes this problem and says that the operation concerning *tā́tAṄ* should not be governed by 1.1.53 *ṅic ca* because here the only purpose of *anubandha Ṇ* is to block any potential *guṇa* or *vr̥ddhi* substitution in the preceding base (cf. 1.1.5 *ṅiti ca*), rather than facilitate the substitution of the last sound (cf. 1.1.53). However, we know that, in Pāṇini’s grammar, if a certain item is marked with *Ṇ*, then it automatically possesses all the properties associated with *Ṇ*-marking, unless Pāṇini has said something to the opposite effect. One cannot arbitrarily choose which function of *Ṇ* is relevant to a particular rule and which function is not. Thus, Kātyāyana’s explanation is not acceptable.

Is there a way to derive the correct form *liṅkhatāt* without flouting Pāṇini’s metarules? To answer this question, let me discuss this problem from my perspective. To begin with, let me

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⁶ Tā́tāṅi ṇitkaraṇasya sāvakāśatvād vipratiṣedhāt sarvādeśaḥ (1) ‘Because the Ṇ of *tā́tAṄ* is sāvakāśa ‘useful elsewhere’ [we can infer that] there is a vipratiṣedha ‘conflict’ (between 1.1.55 *ānekālśit sarvasya* and 1.1.53 *ṅic ca*) [and thus, the para rule, which teaches] sarvādeśa, [wins]’ (Mbh I.131.1).
present my interpretation of 1.1.54 ādeḥ parasya, which is different from that of the tradition. I think that there is no evidence in the wording of 1.1.54 or elsewhere to suggest that the presence of an ablative form in an operational rule constitutes a necessary condition for the application of 1.1.54. So, according to me, 1.1.54 governs any para or right-hand side (RHS) operation.

Let us look at the implications of these two interpretations of 1.1.54. According to the traditional interpretation, since an ablative form is not present in 7.1.35 tuhyos tātaṅ āśisy anyatarasyāṃ, 1.1.54 would not be able to govern it. However, according to my interpretation, 1.1.54 is eligible to govern 7.1.35 simply because the operand tu is para i.e., placed to the right-hand side of likha.

I also disagree with the tradition with respect to the scope of 1.1.52 alo’ntyasya and 1.1.53 nić ca. According to the tradition, 1.1.53 is applicable to any substitute marked with }*N. However, I think that, since Pāṇini has specifically taught 1.1.54 for RHS substitutions, he has likely taught both 1.1.52 and 1.1.53 only for LHS substitutions. I agree with the tradition on the scope of 1.1.55: I think that Pāṇini has taught 1.1.55 for both LHS and RHS substitutions. Let us now establish general-exception relationships separately for LHS and RHS substitutions.

First, let us consider LHS substitutions, which can potentially be governed by 1.1.52, 1.1.53 and 1.1.55.

(i) While 1.1.55 anekālśit sarvasya can govern only those substitutes which contain multiple sound segments or are marked with Š, 1.1.52 alo’ntyasya can govern any substitute. Thus, 1.1.55 is an exception of 1.1.52.

(ii) In case of substitutes which are made up of multiple sounds and marked with }*N, there arises competition between 1.1.53 nić ca and 1.1.55 anekālśit sarvasya. I think the only reason behind teaching a rule (i.e., 1.1.53) specially dealing with }*N-marked substitutes is to suggest that }*N-marked substitutes, despite containing multiple sounds, replace only the final sound of the operand, and not the entirety of it. Thus, I think 1.1.53 is an exception of 1.1.55.

Now let us consider RHS substitutions, which can potentially be governed by 1.1.54 and 1.1.55. Since 1.1.55 has been specifically taught for substitutes made up of multiple sounds, it is an exception of 1.1.54.

This information can be diagrammatically represented as follows. The arrows point towards the exception / specific rule:
Thus, we can conclude that 7.1.35, which deals with an RHS substitute, i.e., tātAṄ, cannot be governed by 1.1.52 and 1.1.53, which have been taught only for LHS substitutions. The only rules that can potentially govern 7.1.35 are 1.1.54 and 1.1.55. Since 1.1.55 has been specifically taught for substitutes made up of multiple sounds, it is more specific than 1.1.54. Therefore, by 1.1.55, tu is entirely replaced with tātAṄ, giving the correct form likhatāt.
Appendix B\textsuperscript{1}: 1.1.66 and 1.1.67 in the Context of Augmentation

To better understand the interaction between 1.1.66 \textit{tasminn iti nirdiśte pūrvasya} and 1.1.67 \textit{tasmād ity uttarasya}, let us look at the operational rule 7.1.52 \textit{āmi sarvanāmnaḥ suṣ (āt)} which the tradition interprets, based on the two \textit{paribhāṣās} mentioned above, as follows: the augment \textit{sUṬ} is introduced to affix \textit{ām} when it occurs after a \textit{sarvanāman} ‘pronominal base’ ending in \textit{a}. Even though I think this is indeed the correct interpretation, I disagree with the tradition on the process through which it arrives at this interpretation. Let us first consider the individual parts of this \textit{sūtra}:

\textit{āmi} = locative singular form of \textit{ām}

\textit{sarvanāmnaḥ (āt)} = ablative singular forms of \textit{sarvanāman} and \textit{a} respectively

\textit{sUṬ} = nominative singular form of \textit{sUṬ}

Since Pāṇini has used the locative singular form \textit{āmi}, 7.1.52 could potentially be governed by the metarule 1.1.66 \textit{tasminn iti nirdiśte pūrvasya} which the tradition interprets as follows: if an item is mentioned in the operational rule in the locative, then the item to its left undergoes the operation.\textsuperscript{2} Similarly, since Pāṇini has used the ablative forms \textit{sarvanāmnaḥ} and \textit{āt}, 7.1.52 could potentially be governed by the metarule 1.1.67 \textit{tasmād ity uttarasya} which the tradition interprets as follows: if an item is mentioned in the operational rule in the ablative, then the item to its right undergoes the operation.\textsuperscript{3}

In sum, according to the tradition, in \textit{x + y}, if rule K is applicable, then:

(i) if \textit{y} is mentioned in the locative, then, by 1.1.66, \textit{x} undergoes the operation taught by K.

(ii) if \textit{x} is mentioned in the ablative, then by 1.1.67, \textit{y} undergoes the operation taught by K.

Consider the derivation of the genitive plural of the pronominal stem \textit{sarva} ‘everything’\textsuperscript{4}: \textit{sarva + ām}. Here the pronominal stem \textit{sarva} ends in \textit{a} and is followed by \textit{ām}. So, 7.1.52 \textit{āmi sarvanāmnaḥ suṣ (āt)} is applicable. By 1.1.66, the augment \textit{sUṬ} should be attached to \textit{sarva}

\textsuperscript{1} Please read the ‘Introduction’ section of Appendix A before reading further.

\textsuperscript{2} Kāśikā on 1.1.66: \textit{tasminn iti saptamyarthanirdeśe pūrvasyaiva kāryam bhavati nottarasya.}

\textsuperscript{3} Kāśikā on 1.1.67: \textit{tasmād iti pañcamyarthanirdeśa uttarasyaiva kāryam bhavati na pūrvasya.}

\textsuperscript{4} Note that I have not mentioned instances of DOI and SOI at different steps of this derivation, since our focus is on the competition between \textit{paribhāṣā} rules. Nonetheless, I follow my method of dealing with SOI and DOI in this derivation.
but by 1.1.67, the augment $sUṬ$ should be attached to ām. Which of the two metarules should be chosen to govern 7.1.52?

Through his vārttikas on 1.1.67, Kātyāyana offers a solution to this problem. He says that when both locative and ablative forms have been used in a rule like 7.1.52, the ablative prevails (vt. 3: *ubhayanirdeśe vipratīṣedhāt paṇcāmīnirdeśah*)⁵, and the locative should be reinterpreted as a genitive (vt. 14: *yathārtham vā saśṭhīnirdeśaḥ*)⁶. Therefore, according to Kātyāyana, 7.1.52 āmi sarvanāmnaḥ sut (āi) means āmaḥ sarvanāmnaḥ sut (āi): the augment $sUṬ$ is introduced to affix ām when it occurs after a *sarvanāma* ‘pronominal base’ ending in a.

By 1.1.46 ādyantau ṭakitau (which, according to the tradition, teaches that items marked with $T$ and items marked with $K$ should be attached to the beginning and end respectively of items taught in the genitive⁷), the augment $sUṬ$ is attached at the beginning of ām. The derivation proceeds as follows: sarva + ām → sarva + sām (7.1.52 āmi sarvanāmnaḥ sut) → sarve + sām (6.1.97 bahuvacane jhaly et) → sarveṣām (8.3.59 ādeśapratyayoh).

But does Kātyāyana’s solution enable us to correctly interpret all of Pāṇini’s operational rules which teach augments? No, it fails to help us correctly interpret rules which teach the insertion of augments marked with $K$ and contain ablative and / or locative forms e.g., 6.1.75 dīrghāt (che tuk), 6.1.76 padāntād vā (dīrghāt che tuk), 7.2.82 āne muk (ataḥ) and 8.3.31 śi tuk (naś ca). Let us discuss the rule 6.1.76 padāntād vā (dīrghāt che tuk). In order to correctly interpret this rule, let us first analyse its parts. che is a locative form, and dīrghāt and padāntāt are both ablative forms. Since Pāṇini has used the locative form che, 6.1.76 could potentially be governed by the metarule 1.1.66 tasmīn iti nirdiṣṭe pūrvasya, but since Pāṇini has used the ablative forms dīrghāt and padāntāt, 6.1.76 could also be governed by the metarule 1.1.67 tasmād ity uttarasya.

Consider the compound kuṭīcchāyā ‘shade of a hut’. When deriving this form, at step kuṭī + chāyā, since kuṭī ends in a long vowel and since chāyā begins with a ch, 6.1.76 is applicable. By 1.1.66, the augment $tUK$ should be attached to kuṭī but by 1.1.67, the augment $tUK$ should be attached to chāyā. Which of the two metarules should be chosen to govern 6.1.76? By vārttikas 3 and 14, when there is a competition between the ablative and the locative, the

---

⁵ Mbh I.173.1.
⁶ Mbh I.174.6.
⁷ On 1.1.46, the Kāśikā says: ādiḥ tit bhavati antaḥ kit bhavati saśṭhīnirdiṣṭasya.
ablative prevails and the locative is reinterpreted as a genitive. Thus, according to the aforementioned vārttikas, 6.1.76 padāntād vā (dīrghāt che tuk) means: padāntād vā dīrghāt chaḥ tuk ‘the augment tUK is optionally introduced to the item beginning with cha when it is preceded by a pada ending in a long vowel’. By 1.1.46 ādyantau ūkitaau, the augment tUK is attached at the end of chaḥ. However, this gives the incorrect form: *kuṭīchāyā. To get the correct form, we need to attach the augment tUK at the end of kuṭī: kuṭī-t-chāyā → kuṭīcchāyā (8.4.40 stoś ścunā ścuḥ). This shows that Kātyāyana’s vārttikas cannot help us correctly interpret augment-insertion rules like 6.1.76.

Let me now expound on how I tackle this problem. In my opinion, Kātyāyana’s interpretation of the metarules 1.1.66 and 1.1.67 is not correct. Kātyāyana interprets pūrvasya and uttara in 1.1.66 and 1.1.67 as ‘in the place of the LHS item’ and ‘in the place of the RHS item’ respectively. In my opinion, this is not warranted. I think that that we can infer ‘in the place of X’ only when X has been mentioned (or continued by anuvṛtti) in the genitive in the operational rule (cf. 1.1.49 saṣṭhī sthāneyogā, which teaches that a genitive ending, which is not otherwise interpretable in its context, signifies the relation ‘in the place of’). Let me explain what I mean by this through examples. In 6.1.77 iko yaṇ aci, iK is mentioned in the genitive and aC in the locative. Thus, by 1.1.49 saṣṭhī sthāneyogā and 1.1.66 tasminn iti nirdiṣṭe pūrvasya respectively, we can interpret 6.1.77 as:

\[
\begin{align*}
iK & \quad + \quad aC \\
6.1.77
\end{align*}
\]

However, notice that in 6.1.76 padāntād vā (dīrghāt che tuk), Pāṇini has not used a genitive form, so we cannot interpret it as:

\[
\begin{align*}
padānta & \quad dīrgha \quad + \quad cha \\
6.1.76
\end{align*}
\]

I interpret pūrvasya in 1.1.66 merely as an indication of the left-hand side and similarly uttarasya in 1.1.67 merely as an indication of the right-hand side. The best way to offer clarity on this is to summarize the difference between the traditional and my interpretations of 1.1.66 and 1.1.67 with diagrams. In the table below, I have stated the case in which the word is mentioned in the operational rule in round brackets:
Let me now explain how I interpret the operational rules 7.1.52 अमि sarvanामनाः suँ (āt) and 6.1.76 padांताः vā (dīrghāt che tuk), based on my interpretations of 1.1.66 and 1.1.67 respectively. Let us start with 7.1.52.

According to me, there is no competition between metarules 1.1.66 and 1.1.67. In fact, I think that both 1.1.66 and 1.1.67 are required to interpret 7.1.52:

(a) 1.1.66 tells us that the augment सुँट should be placed to the left of affix अम.

\[
\text{sU} \quad \text{ाम}
\]

(b) 1.1.67 tells us that the augment सुँट should be placed to the right of sarvaना ‘the pronominal base’.

\[
\text{सर्वा} \quad \text{sU} \quad \text{ाम}
\]

Now, if we put together the teachings of metarules 1.1.66 and 1.1.67, we get:

\[
\text{सर्वा} \quad \text{sU} \quad \text{ाम}
\]

Before we continue, note that there is a difference between काशिकाः’s and my interpretation of 1.1.46 ādyantau तकितau. काशिकाः’s interpretation is: अदिः तिः bhavati antaḥ kit bhavati saśṭhिनिर्दिष्टasya ‘items marked with त and items marked with K should be attached to the beginning and end respectively of items taught in the genitive.’ I do not think that we should take the liberty to read saśṭhिनिर्दिष्टasya ‘taught in the genitive’ into this rule. I think 1.1.46 simply means ‘items marked with त and items marked with K should be attached to the beginning and end respectively’. Coming back to 7.1.52, we have:

\[
\text{सर्वा} \quad \text{sU} \quad \text{ाम}
\]

\text{sU} lies between the end of sarva and the beginning of अम. By my interpretation of 1.1.46 ādyantau तकितau, sU should be attached to the beginning of an item. Thus, it is attached to
(the beginning of) ām. We get: sarva + sām which, as seen above, leads to the correct form sarveṣām.

Now let us interpret 6.1.76 padāntād vā (dīrghāt che tuk) using my interpretation of 1.1.66 and 1.1.67. As stated above, I do not think that there is any competition between 1.1.66 and 1.1.67. In fact, I think that both 1.1.66 and 1.1.67 are required to interpret 6.1.76.

(a) 1.1.66 tells us that the augment tUK should be placed to the left of ch.

\[ tUK \quad chāyā \]

(b) 1.1.67 tells us that the augment tUK should be placed to the right of the long vowel.

\[ kuṭī \quad tUK \]

Now, if we put together the teachings of metarules 1.1.66 and 1.1.67, we get:

\[ kuṭī \quad tUK \quad chāyā \]

\textit{tUK} lies between the end of \textit{kuṭī} and the beginning of \textit{chāyā}. By my interpretation of 1.1.46 ādyantau ṭakitau, \textit{tUK} should be attached to the end of an item. Thus, it is attached to (the end of) \textit{kuṭī}. We get \textit{kufi} + \textit{chāyā} which, as seen above, leads to the correct form \textit{kuficchāyā}.

I have shown that, using my interpretation of 1.1.46, 1.1.66 and 1.1.67, we can correctly interpret Pāṇini’s operational rules which teach the insertion of augments marked with \textit{T} or \textit{K} using ablative and locative forms. Kātyāyana’s \textit{vārttikas}, on the other hand, are not able to accomplish the same.
Appendix C: ‘Conflicts’ Between Antaraṅga and Bahiraṅga Rules

In this appendix, I will discuss some traditional examples of ‘conflict’ between antaraṅga and bahiraṅga rules, and present my opinion on them. Before we begin, let us revise the basic definition of antaraṅga. According to the Paribhāṣenduśekhara1, ‘antaraṅga is (a rule) the causes (of the application) of which lie within (or before) the sum of the causes of a bahiraṅga rule’.2 An antaraṅga rule is stronger than and thus defeats a bahiraṅga rule.3

However, note that Kātyāyana and Patañjali, despite talking about antaraṅga and bahiraṅga, do not define these terms and consequently do not explain why a certain rule is to be regarded as antaraṅga. In vt. 8 on 1.4.2 vipratiṣedhe paraṁ kāryam, Kātyāyana says: antaraṅgam ca. On this vārttika, Patañjali elaborates: antaraṅgam ca balīyo bhavatīti vaktavyam ‘It should also be said that [an] antaraṅga [rule] is stronger [than a bahiraṅga rule]’. Let us examine some examples discussed by Patañjali (Mbh I.304.10 onwards) while commenting on various vārttikas on 1.4.2.

(1) Let us follow Patañjali’s method to derive syona ‘a stitched item i.e., a sack’. First, we add na to siv ‘to stitch’ by 3.3.1 uṇādayo bahulam.4 By 6.4.19 chvoḥ śūḍ anunāsike ca (which teaches that ch and v are replaced with ś and ṭ, respectively, when an affix beginning with a nasal, or affix KvI, or one beginning with jhaL i.e., a non-nasal stop or a fricative, and marked with K or Ṇ, follows), we get siū + na. According to Patañjali, two rules are simultaneously applicable to siū + na:

\[
\begin{array}{c}
\text{s} \\
\text{iū} \\
\text{+ na}
\end{array}
\]

6.1.77 7.3.86

6.1.77 iko yan aci: iK (i, u, ō, l) is replaced with yaN (y, v, r, l) when aC (any vowel) follows.

---

1 See Pb 50 in Abhyankar’s reprint (1960: 221-222) of Kielhorn’s translation of the Paribhāṣenduśekhara.
2 The Sanskrit text is as follows: antarmadhye bahiraṅgaśāstrīyanimittasamudāyamadhye ’ntarbhūtāny angāni nimittāni yasya tad antaraṅgam. evaṁ tadyānīnimittasamudāyāḥ bahirbhūtāṅgakām bahiraṅgam. See the first two lines under Pb 50 in Paribhāṣenduśekhara edited by Abhyankar (1962: 76).
3 Antaraṅgabahirāṅgagayor antaraṅgo vidhir baliyān (Pbh 115, Vyāḍiparibhāṣāpāṭha).
4 The specific Unādisūtra teaching this is 289 sīves ter yū ca.
7.3.86 pugantalahūpadhasya ca: guṇa replaces iK of a verbal base which ends in the augment pUK or which has a laghu ‘light’ vowel as its penultimate sound when a sārvadhātuka or ārdhadhātuka affix follows.

According to Patañjali, the rule teaching substitution with yaNy (6.1.77) is antaraṅga with respect to the rule teaching guṇa (7.3.86). This is corroborated by the definition of antaraṅga given by the commentary on Pbī 50 of the Paribhāṣenduśekhara: the cause of application of 6.1.77 (i.e., ū) lies before i.e., to the left of the cause of application of 7.3.86 (i.e., na). Let us use this example to speculate about how Kātyāyana might have defined antaraṅga and bahiraṅga. Note that the cause of application of 6.1.77 lies inside (antar) the aṅga siū, while the cause of application of 7.3.86 lies outside (bahir) it. Thus, the term antaraṅga could stand for aṅgasya antaḥ and the term bahiraṅga for aṅgād bahiḥ.

The antaraṅga rule 6.1.77 wins, and thus the derivation proceeds as follows: siū + na → syū + na (6.1.77) → syona (7.3.84 sārvadhātukārdhadhātukayoḥ).

Now let me present my opinion about this example. There is no evidence that Pāṇini has composed the Unādi śūtras. Therefore, this derivation, which requires us to add na to siū as per an Unādisūtra (289) is not Pāṇinian at all.

(2) Let us use Patañjali’s method to derive the form dyaukāmi ‘male offspring of dyukāma’. We start by adding the taddhita affix iṆ to the bahuvrīhi compound made up of div and kāma by 4.1.95 ata iṆ (which teaches that the taddhita affix iṆ occurs to denote an offspring after a syntactically related nominal stem which ends in a). After deleting the inflectional affixes inside the compound by 2.4.71 supra dhūtprātipadikayoḥ, we get div + kāma + iṆ. Here, by 6.1.131 diva ut (which teaches that the final sound of the pada div is replaced with uT), we get diu + kāma + iṆ. At this stage, according to Patañjali, two rules are simultaneously applicable:

\[
\begin{align*}
&d \quad i \quad u \quad + \quad kāma \quad + \quad iṆ \\
&6.1.77 \quad 7.2.117
\end{align*}
\]

6.1.77 iko yaṉ aci: same as above.

7.2.117 taddhitēsv acām ādeḥ: the first vowel of the base undergoes vṛddhi when an affix marked with Ń or ṇ follows in taddhita derivations.
This example is similar to the previous one: the cause of application of 6.1.77 (i.e., \(u\)) lies before, namely to the left of the cause of application of 7.2.117 (i.e., \(i\)). Here too, Patañjali says that 6.1.77 is antaranga and thus wins. The derivation proceeds as follows: \(diu + kāma + i\) \(\rightarrow dyu + kāma + i\) (6.1.77) \(\rightarrow dyau + kāma + i\) (7.2.117) \(\rightarrow dyaukāmi\) (6.4.148 yasyeti ca\(^5\)).

In my opinion, no such conflict arises in the first place. We want to derive a word that means: dyukāmasya apatyaṃ pumān ‘male offspring of dyukāma’. Since we are talking about dyukāma’s offspring, and not \((diu + kāma)\)’s offspring, the derivation should start with dyukāma and not with \(diu + kāma\). Thus, we have: dyukāma + Ńas + i\(i\). Ńas is deleted by 2.4.71 supo dhātuprātipadikayoḥ and we get dyukāma + i\(i\). Here two rules are simultaneously applicable:

\[
\begin{array}{c|c|c}
\text{6.1.77} & \text{7.2.117} & \text{6.4.148} \\
\end{array}
\]

7.2.117 taddhīteṣv acām ādeḥ: same as above.

6.4.148 yasyeti ca: same as above.

This is a case of DOI. By my interpretation of 1.4.2, we apply the RHS rule 6.4.148 and get dyukām + i\(i\). Then we apply 7.2.117 and get dyaukāmi, which is the correct form. \(^6\)

Several other examples discussed by Patañjali in his comments on different vārttikas on 1.4.2, such as sauttthatiḥ, kād raveyāḥ, staiṛṇīḥ, khaṭviyati, kāmaṇḍaleya, cauḍi etc. are similar to this example. For instance, in the derivation of the nominal base sauttthati, Patañjali starts with su + utthita, whereas one should actually start with sūthita.

(3) Let us follow Patañjali’s method to derive the form dudyūṣati ‘desires to shine’. We start by adding the desiderative affix sa\(N\) to the root \(di\) ‘to shine’ by 3.1.7 dhātoḥ karmanah samāṇakartṛkād icchāyāṁ vā (which teaches that the affix sa\(N\) is optionally introduced after a verbal stem, the action denoted by which is the object of a verbal stem expressing desire and both actions have the same agent). Thereafter, by 6.4.19 chvoḥ śūḍ anunāsike ca (see

\(^5\) The final \(i\) or \(a\) of a bha item is replaced with LOPA when it is followed by \(i\) or a taddhīta affix.

\(^6\) Note that I have not added the nominative singular affix here for the purpose of brevity.
translation in example 1), we get $d\ddot{u} + saN$. Here, according to Patañjali, two rules are simultaneously applicable:

$$\{d\quad [i]\} \quad \ddot{u} \quad + \quad saN$$

6.1.77 *iko yan aci* is applicable to $i$ while 6.1.9 *sanyañoḥ*\(^7\) is applicable to $di$. Notice that the cause of application of 6.1.77 (i.e., $\ddot{u}$) lies to the left of the cause of application of 6.1.9 (i.e., $saN$). Patañjali says that 6.1.77 is *antaraṅga* and thus wins, thereby giving: $dyū + saN$. Thereafter, 6.1.9 applies and we get $dyūdyū + saN$. After applying other rules, we get the correct form $dudyūṣati$.

In my opinion, such a conflict does not arise in the first place. I interpret *sanyañoḥ* as a genitive form, not as a locative form.\(^8\) So, in my view, 6.1.9 *sanyañoḥ* teaches that a verbal base ending in $saN$ or $yaN$, which has not undergone reduplication, is reduplicated\(^9\). Note that $d\ddot{u} + saN$ is not a verbal base ending in $saN$, but instead two separate items, namely $d\ddot{u}$ and $saN$. So, 6.1.9 is not applicable here. However, 6.1.77 is applicable here, and on applying it, we get $dyū + saN$. Now, since no other rules can be applied here, we can fuse the two items $dyū$ and $saN$ into a single item $dyūṣa$, which we can call a verbal base ending in $saN$. Therefore, 6.1.9 applies here and we get $dyūdyūṣa$. After applying other rules, we get the correct verbal base $dudyūṣa$ (and the correct final form $dudyūṣati$).

The examples *jujñaudanīyīṣati* and *ātestīryate* discussed by Patañjali are similar to this one.

(4) Patañjali says that in the string *ayaja + i + indram* ‘I worshipped Indra’, two rules are simultaneously applicable: 6.1.87 *āḍ guṇaḥ*, which is applicable to $a + i$ and 6.1.101 *akaḥ savarne dīrghaḥ*, which is applicable to $i + i$. He adds that 6.1.87 is *antaraṅga* and thus win, thereby giving the correct form: *ayaje indram*.

---

\(^7\) If we interpret *sanyañoḥ* as locative, as I think Patañjali does in this case, then this rule teaches that a verbal base which has not undergone reduplication is reduplicated when followed by $saN$ or $yaN$. Note that, the whole base does not undergo reduplication. Instead, only one syllable does. See 6.1.1 *ekāco dve prathamasya* and 6.1.2 *ajāder dvitiyasya*.

\(^8\) If we interpret it as locative, it is not possible to derive the form *aṭitiṣati* (Cardona 1997: xviii). Thus, we must interpret it as a genitive.

\(^9\) The whole base does not undergo reduplication. Instead, only one syllable does. See 6.1.1 *ekāco dve prathamasya* and 6.1.2 *ajāder dvitiyasya*.
I do not think that such a conflict arises at all. I think that, in the Pāṇinian system, all possible rules that can be applied while constructing a word ought to be applied before the word is considered within the context of the sentence. In other words, these rules, which contribute towards the construction of a word, cannot be applied after the word enters the sentence. Here, the rule 6.1.87 applies to ayaja + i, giving the form ayaje. Now that the word is ready, it enters the sentence: ayaje indram\(^\text{10}\).

Other examples of this nature discussed by Patañjali include agnir indraḥ, pacatv atra.

(5) Let us derive the form vānīya ‘should be weaved’ using Patañjali’s method. We add the affix anīya\(R\) to ve\(r\) ‘to weave’ by 3.1.96 tavyattavyānīyaraha. Here, according to Patañjali, two rules are simultaneously applicable:

\[
\begin{align*}
\text{ve} & \quad + \quad \text{anīya}\(R\) \\
6.1.78 & \quad 6.1.45
\end{align*}
\]

6.1.78 eco ‘yavāyāvah: the sounds represented by eC (e, o, ai, and au) are replaced with ay, av, āy, and āv respectively, when a vowel follows.

6.1.45 ād eca upadeśeśiti: the final sound of a verbal root which ends in eC (e, o, ai, and au) in the Dhātupāṭha is replaced with ā, when an affix which is not marked with Š follows.

Patañjali says that 6.1.45 is antaraṅga with respect to 6.1.78 and thus wins. Note that this contradicts what the commentary on Pbha 50 tells us. We would expect the cause of application of the antaraṅga rule to be within or before that of the bahiraṅga rule. But here, the cause of application of the bahiraṅga rule 6.1.78 (i.e., a at the beginning of anīya\(R\)) lies inside the cause of the antaraṅga rule 6.1.45 (i.e., anīya\(R\)). This exemplifies the fact that the antaraṅga tool is poorly defined and not always useful.

According to me, this is a case of SOI, and we do not need the antaraṅga tool to deal with cases of SOI. In case of SOI, the more specific rule wins. Let us compare the two rules:

\[^{10}\text{Here, the following operations take place: ayaje indram }\rightarrow ayajay indram (6.1.78 eco ‘yavāyāvah) \rightarrow ayaja indram (8.3.19 lopah śākalyasya).\]
6.1.78

*e/o/ai/au + vowel*

6.1.45

*e/o/ai/au (end of verbal root) + vowel (beginning of affix not marked with Š)*

*e/o/ai/au (end of verbal root) + non-vowel (beginning of affix not marked with Š)*

6.1.45 is more specific because it applies only when the affix is not marked with Š. Thus, it wins, giving us the correct form vā + anīya → vānīya (6.1.101 akaḥ savarne dīrghaḥ).

Other examples discussed by Patañjali such as glācchatram, agnicid idam are similar to this one.

Finally, Patañjali does not simply say that antaraṅga rules defeat bahiraṅga rules in case of conflict. He goes a step further to claim: asiddhaṁ bahiraṅgam antaraṅge ‘a bahiraṅga rule is asiddha with respect to an antaraṅga rule’. Thus, he implies that an antaraṅga rule cannot see a bahiraṅga rule, and therefore cannot see the outcome of the application of the bahiraṅga rule either. This is true not only for cases of Same Step Rule Interaction (including conflict) but also for any pair of antaraṅga-bahiraṅga rules which are not simultaneously applicable. Consider the following example.

(6) Consider pacāva + idam. By 6.1.87 ād guṇah, we get pacāvedam. Here, Patañjali claims that by 3.4.93 eta ai (which teaches that eT, which is a substitute of the first-person replacement of LOT, is replaced with ai), the e in pacāvedam could get replaced with ai, thereby giving the incorrect phrase *pacāvaidam. He says that this is prevented by the fact that the rule 6.1.87 is bahiraṅga and thus asiddha with respect to the antaraṅga rule 3.4.93. Thus, 3.4.93 cannot apply to e, which is the outcome of the application of 6.1.87. This ensures that we get the correct phrase: pacāvedam.

I do not agree with Patañjali. As stated before, according to me, in the Pāñinian system all possible rules that can be applied while constructing a word ought to be applied before the word is considered within the context of the sentence. In other words, these rules, which contribute towards the construction of a word, cannot be applied to the word after it enters the sentence. Note that, 3.4.93 eta ai is a rule which helps the construction of a word (e.g., edhāvahai) and, therefore, it is not applicable at sentence level.
In conclusion, I think that the antaraṅga tool is completely unnecessary in both SSRI and non-SSRI contexts. Most examples (like 1, 2, 3, 4 and 6) which it allegedly solves are not problematic in the first place. Some examples (like 5) it deals with are actually ordinary cases of SOI which can be solved by choosing the more specific rule.
Appendix D: Tables of Concordance

In this thesis, I have examined some derivational examples which have been previously discussed by prominent modern scholars such as Kiparsky (1982), Bronkhorst (2004) and Joshi and Kiparsky (2005). Below I give two tables of concordance.


Note that:

C4 S3 E01 = Chapter 4, Section 4.3, Example 1

<table>
<thead>
<tr>
<th>Example</th>
<th>Kiparsky’s example number</th>
<th>My example number</th>
</tr>
</thead>
<tbody>
<tr>
<td>śvayitvā</td>
<td>01</td>
<td>C4 S3 E01</td>
</tr>
<tr>
<td>tad</td>
<td>02</td>
<td>C2 S7 E08</td>
</tr>
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<td>āghniya</td>
<td>06</td>
<td>C4 S3 E33</td>
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<td>hata</td>
<td>07</td>
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<td>08</td>
<td>C4 S3 E32</td>
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<td>C2 S7 E12</td>
</tr>
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<td>17</td>
<td>C4 S3 E09</td>
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<td>19</td>
<td>C4 S2 E04</td>
</tr>
<tr>
<td>dadhati</td>
<td>20</td>
<td>C4 S2 E02</td>
</tr>
<tr>
<td>pratīcaḥ</td>
<td>27</td>
<td>C3 S2 E01</td>
</tr>
<tr>
<td>seduṣaḥ</td>
<td>28</td>
<td>C3 S2 E02</td>
</tr>
<tr>
<td>prasthāya</td>
<td>30</td>
<td>C4 S3 E06</td>
</tr>
<tr>
<td>adhītya</td>
<td>55</td>
<td>C5 S2 E01</td>
</tr>
<tr>
<td>6.1.77, 6.1.101, 6.1.87</td>
<td>58</td>
<td>C2 S8 E03, E05</td>
</tr>
<tr>
<td>tarati</td>
<td>after Ex. 60, pp. 117-118</td>
<td>C4 S4 E03</td>
</tr>
</tbody>
</table>

and


(Bronkhorst frequently quotes an unpublished draft of Joshi and Kiparsky in his paper. I think this draft is the aforementioned paper that was published in 2005, after the publication of Bronkhorst’s paper in 2004. It is for this reason that I have mentioned both papers together here).

<table>
<thead>
<tr>
<th>Example</th>
<th>Joshi &amp; Kip. (Pg. no.)</th>
<th>Bronkhorst (Pg. no.)</th>
<th>My thesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>kālimmanyā</td>
<td>-</td>
<td>12</td>
<td>C3 S2 E08</td>
</tr>
<tr>
<td>devaiḥ / vrksaiḥ</td>
<td>-</td>
<td>15</td>
<td>C2 S7 E01</td>
</tr>
<tr>
<td>dadhati</td>
<td>16-17</td>
<td>17</td>
<td>C4 S2 E02</td>
</tr>
<tr>
<td>gārgiyāḥ</td>
<td>-</td>
<td>18-19</td>
<td>C3 S2 E05</td>
</tr>
<tr>
<td>aupyata</td>
<td>13-14</td>
<td>20</td>
<td>C4 S2 E04</td>
</tr>
<tr>
<td>jatune / vārīne</td>
<td>-</td>
<td>33-34</td>
<td>C2 S8 E10</td>
</tr>
<tr>
<td>rājabhiḥ</td>
<td>2-3</td>
<td>-</td>
<td>C5 S2 E03</td>
</tr>
<tr>
<td>tad</td>
<td>5-6</td>
<td>-</td>
<td>C2 S7 E08</td>
</tr>
<tr>
<td>adhītya</td>
<td>9-10</td>
<td>-</td>
<td>C5 S2 E01</td>
</tr>
<tr>
<td>sedusah</td>
<td>11-12</td>
<td>-</td>
<td>C3 S2 E02</td>
</tr>
<tr>
<td>śvayitvā</td>
<td>15-16</td>
<td>-</td>
<td>C4 S3 E01</td>
</tr>
<tr>
<td>asmai</td>
<td>18-19</td>
<td>-</td>
<td>C2 S7 E12</td>
</tr>
</tbody>
</table>
Appendix E: Some Thoughts on the Siddha Principle

Let us begin by looking at the fundamental justification given by Joshi and Kiparsky (1979) for their siddha principle and will present my ideas on the same. In ‘The Ordering of Rules in Pāṇini’s Grammar’ (1982), Kiparsky gives a detailed explanation of the siddha principle. I will quote from this paper here.

Kiparsky proposes the siddha principle on the basis of a vārttika on 6.1.86 ṣatvatukor asiddhāṁ ‘a single replacement in place of the preceding and the following sound segments is suspended\(^1\) with respect to any potential replacement with \(ṣ\) or insertion of augment \(tUK\)’. Kiparsky explains: “Kātyāyana says that making a rule asiddha has two functions: (ṣatvatukor)\(^2\) asiddhavacanam ādeśalakṣaṇapratiṣedhāṁ utsargalakṣaṇabhāvārtham ca (6.1.86, vt. 1). Utsarga here means sthānin, the element which undergoes substitution in a rule.”\(^3\)

I translate this vārttika as follows: ‘the statement that \(ṣ\) [replacing \(s\)] and [the insertion of the augment] \(tUK\) are asiddha [has been made] for the purpose of preventing the operations that are due for application to the substitute, and facilitating the operations that are due for application to the substituendum (original item)’.

Kiparsky then says: “to use terms common in linguistics, asiddhatva blocks bleeding and feeding between rules.” Before going further, let us understand what he means by bleeding and feeding: A feeds B if the application of A facilitates the application of B, and P bleeds Q if the application of P obstructs the application of Q.

Kiparsky concludes: “it can be said that asiddha and the other devices are restrictions (niyamas) on a general paribhāṣā that determines how rules interact when no special statement about their ordering is made in the grammar. This paribhāṣā is not stated in the grammar itself but it is presupposed by the correct operation of rules in it and implied by the various restrictions on it that are stated in the grammar. It is to be formulated as ‘sarvatra siddham’ and we refer to it as the siddha principle.”\(^4\) He continues: “[W]hat the siddha principle says is that in the general case we have ādeśalakṣaṇabhāva and utsargalakṣaṇapratiṣedha…in short, the siddha relations

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\(^{1}\) When A is suspended with respect to B, B cannot acknowledge A.

\(^{2}\) The vārttika (Mbh III.65.9) has the word satvatukor in it, but when Kiparsky quotes the vārttika, he excludes this word from it.

\(^{3}\) Kiparsky 1982: 77.

\(^{4}\) Ibid., 79.
of bleeding and feeding are given free by the underlying theory of the Asṭādhyāyī and if we must not have them in some particular case, then only something must be said in the grammar itself."

Further, he says, “As far as feeding is concerned, this really goes without saying. In almost any derivation, the application of one rule creates scope for another rule to apply, that rule applies creating scope for a third rule and so on. That all rules in such a chain of rules are to be applied is taken for granted in the tradition.” He adds, “By this point anyone familiar with the topic will already have recognized that the principle of bleeding order is simply equivalent to the nitya-principle in the traditional inventory of the paribhāṣās.”

Thus, we can say feeding and bleeding together are simply equivalent to nityatva in the Pāṇinian tradition. And the siddha principle, which means the maximization of feeding and bleeding, is tantamount to the maximization, wherever possible, of the use of nityatva for rule conflict resolution, that is, in all cases involving unidirectional blocking.

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5 Ibid.
6 Ibid.
7 Ibid., 84-85.
Now, using diagrams, I will explain why I think Joshi and Kiparsky have made a logical error in interpreting the aforementioned vārttika. I will focus on bleeding and not on feeding, because as Kiparsky himself says, what he calls ‘feeding’ is built into the Pāṇinian system, and there is no controversy about it.

What Kātyāyana’s vārttika implies:

Kiparsky takes the liberty to interpret this as:
Let us use an analogy to understand this, just like Patañjali often does. Imagine that a young boy, who is obedient to his parents, can be given one of two possible instructions by his parents about going near the fire:

<table>
<thead>
<tr>
<th>Parental instruction</th>
<th>What this instruction actually entails</th>
<th>What Kiparsky assumes it entails</th>
</tr>
</thead>
<tbody>
<tr>
<td>You are not allowed to go near the fire. (These rules are <em>asiddha.</em>)</td>
<td>The child will never burn his hand. (Bleeding will never take place).</td>
<td>The child will never burn his hand. (Bleeding will never take place).</td>
</tr>
<tr>
<td>You are allowed to go near the fire. (These rules are <em>siddha.</em>)</td>
<td>The child can potentially burn his hand. He may or may not burn his hand. (Bleeding can potentially take place. It may or may not take place.)</td>
<td>The child will always burn his hand. (Bleeding will always take place).</td>
</tr>
</tbody>
</table>

I conclude that it is not logically possible to infer the *siddha* principle from vt. 1 on 6.1.86.

Regardless of that, let me briefly comment on the following question: how useful is the *siddha* principle in dealing with cases of SSRI? As stated in chapter 6, the *siddha* principle rejects the *antarāṅga* tool and essentially resorts to the *nitya* tool to solve not only those cases which the tradition solves using *nityatva*, but also those which it solves using *antarāṅgatva*. Of course, this means that the *siddha* principle is able to tackle cases of unidirectional blocking but not of mutual blocking – which is one of its drawbacks. Another drawback of the *siddha* principle is that it pays little attention to and offers no solutions for those cases of SSRI which do not involve any blocking at all (‘non-conflict’).

How useful is the *siddha* principle in dealing with cases of unidirectional blocking? Since the *siddha* principle is no different from the *nitya* principle, albeit with a wider scope of application than the traditional one, the answer to this question is the same as the answer to the question about the potency of the *nitya* principle, which I have given in footnote 62 of chapter 4, and which I reproduce here: “This is exactly why the traditional *nitya* tool which teaches that the *nitya* rule defeats the *anitya* rule, always correctly resolves cases of DOI involving

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8 As stated towards the end of section 6.2 in chapter 6, Joshi and Kiparsky admit that, for mutual blocking, “no general solution has been found” (Kiparsky 1987: 295) by them.
unidirectional blocking: the \textit{nitya} rule is applicable to the RHS operand and the \textit{anitya} rule to the LHS operand. By (my interpretation of) 1.4.2, the RHS rule (which is also the \textit{nitya} rule) defeats the LHS rule (which is the \textit{anitya} rule).” However, I do not know if the \textit{nitya} / \textit{siddha} principle is always correctly able to solve cases of SOI involving unidirectional blocking. A majority of the examples discussed in Kiparsky (1982) involve DOI and not SOI.

A major shortcoming of the \textit{nitya}, and therefore the \textit{siddha} principle, is its propensity to look ahead into the derivation: one needs to know what will happen at the next step if, hypothetically speaking, a certain rule is applied at the present step. I think this very much qualifies as ‘looking ahead’, even though it involves considering merely the potential – and not the actual – future course of the derivation. Joshi and Kiparsky (2005) take this a step further by proposing the extended \textit{siddha} principle which ‘scans entire candidate derivations…’ thanks to its ‘global (trans-derivational) “lookahead” condition on derivations’\textsuperscript{10} ‘…and chooses the one in which \textit{siddha}-relations (i.e., bleeding and feeding)\textsuperscript{11} are maximized’\textsuperscript{12,13}. In simple words, they ask us to choose, from amongst all possible derivational paths, that derivational path in which the \textit{nitya} tool has been applied the highest number of times.

Why does the derivational path in which \textit{siddha} relations are maximized lead to the correct answer though? It is easy to explain this with respect to DOI. In case of DOI, Pāṇini teaches us (according to my interpretation of 1.4.2) that we must pick the RHS rule. But as we know (see the footnoted reproduced above), it is the RHS rule which is also the \textit{nitya} rule in cases of DOI involving unidirectional blocking. So, it is natural that, of all the possible derivational paths, the correct one has the highest number of instances in which the \textit{nitya} (RHS rule) defeats the \textit{anitya} (LHS) rule – in cases of DOI involving unidirectional blocking. It is difficult to verify if Joshi and Kiparsky’s extended-\textit{siddha} principle holds true with respect to SOI.

Now let us ask: how useful is the extended \textit{siddha} principle in resolving cases of SSRI? If one has to chart out all possible derivational paths to make a decision, how is choosing the derivational path in which \textit{siddha}-relations are maximized any better than simply choosing the derivational path which gives the correct grammatical form – which we know thanks to our

\footnotesize
\begin{itemize}
  \item[10] Ibid.
  \item[11] The contents in brackets have been added by me.
  \item[13] I discuss this in a related context in section 1.3 of Chapter 1.
\end{itemize}
knowledge of Sanskrit? And in the latter case, why perform derivations at all if we have to rely on the correct final form to choose the correct derivational path?

Joshi and Kiparsky have discussed several examples in the aforementioned papers, a number of which I have solved using my method in this thesis. Please see Appendix D for relevant tables of concordance. While it is not within the scope of this thesis to discuss in detail Joshi and Kiparsky’s solutions for individual examples, we ought to study the work produced by them in greater depth in the future to gain new insights into the functioning of Pāṇini’s grammar.
Appendix F: List of Sūtras Containing the Term Para

Group A (non-technical):
1.1.34 pūrvaparāvaradakṣinottarāparādharāṇi vyavasthāyām asanījñāyām
1.4.109 paraḥ saṁnikarṣaḥ saṁhitā
3.2.39 dviṣatparayostāpeh
3.3.138 parasmin vibhāṣā
dviṣatparayostāpeh
3.4.20 parāvarayoge ca
4.3.5 parāvarādhamottamapūrvāc ca
5.2.92 kṣetriyac parakṣetre cikitsyaḥ
5.3.29 vibhāṣā parāvarābhyā
6.3.8 parasya ca

Group B (technical):
1.1.47 mid aco 'ntyāt paraḥ
1.1.51 ur aṇ raparaḥ
1.1.54 ādeḥ parasya
1.1.57 acaḥ parasmin pūrvavidhau
1.1.70 taparas tatkālasya
1.2.40 udāttasvaritaparasya sannatarah
1.4.2 vipratiṣedhe param kāryam
1.4.62 anukaraṇaṁ cānitiparam
1.4.81 chandasi pare’pi
2.1.2 sub āmantrite parāṅgavat svare
2.2.31 rājadantādiṣu param
2.4.26 paravalliṇgaṁ dvandvatapuruṣayoh
3.1.2 paraś ca
6.1.84 ekaḥ pūrwaparayoh
6.1.94 eṇi pararūpam
6.1.112 khyatyāt parasya
6.1.115 prakṛtyā 'ntyahpādam avyapare
6.1.120 anudātte ca kudhāpare
6.2.199 parādiś chandasi bahulam
6.4.156 sthūladūrayuvahrasvaksipraśudraṇāṁ yanādiparam pūrvasya ca guṇah
7.3.22 na indrasya parasya
7.3.27 nātaḥ parasya
7.4.80 oh puyanjy apare
7.4.88 ut parasyātaḥ
7.4.93 sanval laghuni caṇpare 'naglope
8.1.2 tasya param āmreḍitam
8.1.56 yaddhituparam chandasi
8.2.92 agnīt preṣaṇe parasya ca
8.3.4 anunāsikāt paro 'nusvāraḥ
8.3.6 pumāḥ khayy ampare
8.3.26 he mapare vā
8.3.27 napare naḥ
8.3.35 śarpare visarjanīyāḥ
8.3.87 upasargapṛādurbhyāṁ astir yacparah
8.3.110 na raparasṛpistjisprśisprhisavanādīnāṁ
8.3.118 sadisvaṇjyoh parasya liṭi
8.4.28 upasargād anotpārah

8.4.58 anusvārasya yāyī parasavarnāh
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