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Section 1

Vyākaraṇa and Its Many Espouses:

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Part 2

Do Counterexamples on the *Kāra* Rules A. 1.4.33-36 in the *Kāśikāvṛtti* Serve Any Purpose?

Tanuja Ajotikar

The Sanskrit Library, Providence, RI

Abstract Ajotikar et al. (2016) claim that most of the counterexamples provided in the *Kāśikāvṛtti* conform to the distinctive feature of a counterexample, namely, having all the conditions stated in the rule except one (*ekāṅgavikalatā*). Ajotikar (2021) discusses how a variant reading for a counterexample helps understand the relation between two operational rules. This article adds one more aspect to the importance of counterexamples. However, there are some cases where the purpose of the counterexample of a complex semantic condition is not clear. In this article, I study counterexamples provided on the sūtras, A. 1.4.33-36, in the *kāra* section, on which Patañjali did not comment. These sūtras are chosen for discussion because the counterexamples available on these sūtras are first provided in the *Kāśikāvṛtti*. When it comes to the issue of complex semantic conditions (*priyamāṇa*, *jñīpsyamāna*, *īpsita* or *uttamarṇa*) stated in A. 1.4.33-36, it is difficult to justify the usefulness of the available counterexamples. After carefully examining Bhaṭṭhari's views along with Helārāja's explanation, it is evident that these counterexamples must have been included in order to fulfil the criteria of a *vṛtti*. A *vṛtti* typically includes an example, a counterexample and a supplementary word, which are necessary to complete the meaning of the rule. However, these counterexamples fail to justify the significance of the semantic conditions stated in the rule for which they are provided. Hence they do not serve any purpose.

Keywords *Kāśikāvṛtti* counterexamples. *Kāra* sūtras. Bhaṭṭhari. Pāṇini non-Pāṇinian grammars.

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1 Introduction

Counterexamples are an important part of commentaries on rules in the *Aṣṭādhyāyī*. Ajotikar et. al. (2016) conclude that the essential feature of a counterexample is that it have all the conditions stated in the rule except one (*ekāṅgavikalatā*). Ajotikar (2021) adds one more aspect to the importance of counterexamples, namely that they help determine the scope of the operation provided by the sūtra. The Author demonstrates that a variant reading for a counterexample provided in the *Kāśikāvṛtti* on A.7.2.8 *neḍvaśi kṛti* helps understand the relation between the two operational rules A.7.2.8 and A.7.2.35 *ārhdhadhātukasyeḍvalādeḥ*. However, it is difficult to comprehend the purpose of a counterexample of a complex semantic condition in a sūtra that introduces a technical term. Several of this type of counterexample occur in the *kāra* section, for example, counterexamples on the sūtras A. 1.4.33-36. These sūtras are chosen for discussion because Patañjali did not comment on them, and the counterexamples are first provided in the *Kāśikāvṛtti*.

This article is divided into five sections. After this introduction, the second section of the article deals with the technical difficulty regarding the counterexample given on A. 1.4.33 along with a survey of counterexamples provided in almost all the commentaries available in print form on the *Aṣṭādhyāyī*. Then, in section 3, are discussed Bhartṛhari's views on A. 1.4.33-36, where it is examined whether the counterexamples provided in the *Kāśikāvṛtti* comply with Bhartṛhari's discussion. In section 4, I discuss counterexamples provided by pre-*Kāśikāvṛtti* non-pāṇinian grammars, namely, the Kātantra and Cāndra, where they have a sūtra equivalent to one among A. 1.4.33-36.

2 Technical Difficulty in the Counterexample on A. 1.4.33

Since Patañjali did not comment on rules A.1.4.33-41, the *Kāśikāvṛtti* is the source of all discussion on these rules in the Pāṇinian tradition. A glance at the subsequent transmission of the counterexamples on these rules will demonstrate this. Table 1 illustrates beyond any doubt that all the subsequent commentaries relied on the *Kāśikāvṛtti* for the choice of counterexamples. Hence analysis of counterexamples in the *Kāśikāvṛtti* is sufficient to settle the issue regarding their significance [tab. 1].

Table 1 Counterexamples on A. 1.4.33-36 given in pāṇinian commentaries

sūtra no.	<i>Kāśikāvṛtti</i> (Sharma et al. 1969)	<i>Bhāṣāvṛtti</i> (Chakravarti 1918)	<i>Rūpāvatāra</i> (Rangacharya 1916)	<i>Prakriyākaumudī</i> (Trivedi 1925)	<i>Siddhāntakaumudī</i> (Chaturveda, Vidyabhaskara 1961)
1 A. 1.4.33 <i>rucyarthānām prīyamāṇaḥ</i>	<i>prīyamāṇa iti kim. devadattāya rocate modakaḥ pathi.</i>	No counterexample	<i>prīyamāṇa iti kim. devadattāya rocate modakaḥ pathi.</i>	No counterexample	<i>prīyamāṇa iti kim. devadattāya rocate modakaḥ pathi.</i>
2 A. 1.4.34 <i>ślāgha- hnuṅsthā-śapām jñīpsyamāṇaḥ</i>	<i>jñīpsyamāṇa iti kim. devadattāya ślāghate pathi.</i>	No counterexample	No Counterexample	No counterexample	<i>jñīpsyamāṇa iti kim. devadattāya ślāghate pathi.</i>
3 A. 1.4.35 <i>dhāreruttamarṇaḥ</i>	<i>uttamarṇa iti kim. devadattāya śataṁ dhārayati grāme.</i>	No counterexample	No Counterexample	No counterexample	<i>uttamarṇa iti kim. devadattāya śataṁ dhārayati grāme.</i>
4 A. 1.4.36 <i>spṛherīpsitaḥ</i>	<i>īpsita iti kim. puṣpebhyo vane spṛhayati.</i>	No counterexample	<i>īpsita iti kim. puṣpebhyo spṛhayati vane.</i>	No counterexample	<i>īpsita iti kim. puṣpebhyo vane spṛhayati.</i>

Table 1 shows that the counterexamples provided by the *Kāśikāvṛtti* on A. 1.4.33-36 are repeated by other commentators without any change wherever they are included. All the counterexamples in the *Kāśikāvṛtti* have a definite pattern. The sentence that constitutes one of the examples for the sūtra is used to form a counterexample with the addition of a locative singular form at the end. For example, the *Kāśikāvṛtti* provides a pair of examples on A. 1.4.33: *devadattāya rocate modakaḥ* “Devadatta likes sweat-meats”¹ and *yajñadattāya svadate ‘pūpaḥ* “Yajñadatta likes cake”. A counterexample is provided by adding just one word, *pathi*, in *devadattāya rocate modakaḥ pathi* “Devadatta likes sweat-meats on the path”, in order to explain the significance of the condition *prīyamāṇaḥ* ‘being pleased’. The word *pathi* is a locative singular of the word *pathin* ‘path’. As is evident from Table 1, the same counterexample is repeated by the post-*Kāśikāvṛtti* commentators even if the commentator provides a different example for the sūtra. For example, the *Siddhāntakaumudī* provides the example *haraye rocate bhaktiḥ* “Hari likes devotion” (Chaturveda, Vidyabhaskara 1961, 644) whereas it does not change the counterexample sentence. This pattern of counterexample with a locative singular form is continued in the subsequent three sūtras, A. 1.4.34-36² (by addition of a locative singular word at the end such as *grāme*, *vane*). We observe one change in the *Kāśikāvṛtti* on A. 1.4.36, namely that the word *vane* is placed before and not after the verb (*puṣpebhyo vane*

¹ All translations are by the Author unless otherwise stated.

² The *Kāśikāvṛtti* provides counterexamples that include a word denoting an object termed *adhikaraṇa* in A. 1.4.25 *bhayaḥetuḥ iti kim? arāṇye bibheti. arāṇye trāyate*, and in A. 1.4.27 *īpsitaḥ iti kim? yavebhyo gā vārayati kṣetre*. A similar pattern is followed in the subsequent rules (A. 1.4.33 onwards).

spṛhayati). This sequence is copied in the *Siddhāntakaumudī*; however, in the *Rūpavatāra*, the regular pattern with the locative at the end is restored (*puṣpebhyo spṛhayati vane*).

All commentators follow the same pattern, with the exception of one, where we find variant readings. A. 1.4.34. There is a variant reading found in three different editions of the *Kāśikāvṛtti*: *devadattaḥ ślāghate* “Devadatta praises” (Mishra 1985, 552; Tripathi, Malaviya 1986, 148; Vidyavaridhi 1997, 74). In the Osmania edition of the *Kāśikāvṛtti* (Sharma et al. 1969-70, 82 fn. 10), one additional variant reading is mentioned in the critical apparatus, i.e. *devadattam ślāghate* “he/she praises Devadatta” along with *devadattaḥ ślāghate*. These two variant readings deviate from the pattern of having a locative singular word added at the end of the example sentence. These two variant readings are known to Haradatta (Mishra 1985, 552). In the *Padamāñjarī*, he quotes *devadattaḥ ślāghate* as the main reading and notes the variant *devadattam ślāghate*. Interestingly, Haradatta does not show any awareness of the commonly available reading *devadattāya ślāghate pathi*. He discusses the counterexample *devadattaḥ ślāghate* as follows: *devadattaḥ ślāghate iti. jñiṣyamānavacanāt karmasamjñaiḥ bādhyate, na kartṛsamjñetyarthaḥ* “The purpose of mentioning the counterexample, *devadattaḥ ślāghate*, is to show that the fact that the condition *jñiṣyamāna* is mentioned in sūtra, the rule blocks only the term *karma*, not the term *kartṛ*”. He further states: *kvacit tu devadattam ślāghate iti pāṭhaḥ* “in some sources, there is a variant reading *devadattam ślāghate*”. These two counterexamples available to Haradatta are not recorded in any other post-*Kāśikāvṛtti* commentary.

2.1 Is the Given Counterexample Correct?

Let us discuss the correctness of one of the counterexamples with a locative singular. For example, consider the counterexample on A. 1.4.33 *rucyarthānām prīyamāṇaḥ: devadattāya rocate modakaḥ pathi* “Devadatta likes sweetmeats on the way”. A. 1.4.33 means: “the technical term *sampradāna* denotes one who is pleased (*prīyamāṇa*) in relation to the action denoted by verbal roots meaning ‘to please’ (*rucyrtha*)”. The counterexample in question is provided for the condition to explain the need for stating *prīyamāṇa* (see **tab. 1**, row 1).

We noted at the beginning of our introduction that the essential feature of a counterexample is that having all the conditions stated in the rule except one (*ekāṅgavikalatā*) (Ajotikar et al. 2016). There is no other recurring term available in this rule other than *kārika* (from A. 1.4.23). Hence, when we apply this essential feature, it implies that in the absence of the term *prīyamāṇa*, the rule (*rucyarthānām*) would mean that any participant in the action denoted by a verb having the

same meaning as the verb *ruc* ‘to please’ would be termed *sampradāna*. Thus, *pathin* ‘path’ would be termed *sampradāna*. If not denoted (A. 2.3.1 *anabhihite*) by a verbal affix, *kṛt* or *taddhita* affix or a compound, the item termed *sampradāna* would get a fourth-triplet nominal termination by A. 2.3.13 *caturthī sampradāne*. Thus, in the sentence, *devadattāya rocate modakaḥ pathi*, the word *pathi* would not be termed *adhikaraṇa* by A. 1.4.45 *ādhāro ’dhikaraṇam* and would not get a seventh-triplet nominal termination by A. 2.3.36 *saptamy adhikaraṇe ca*.

There is a technical difficulty in this counterexample. The *kāra*-section comes under the scope of the heading A. 1.4.1 *ā kaḍārād ekā sañjñā*: “Beginning with this sūtra and ending with A. 2.2.38 *kāḍārāḥ karmadhāraye*, only one (*ekā*) technical term (*sañjñā*) applies (to a given item)”. A. 1.4.2 *vipratishedhe param kāryam* is a conflict resolution metarule which means: “When there is a conflict (*vipratishedha*) (between two rules which can equally apply in a given domain), the operation provided by the subsequent rule (*para*) alone applies”. Hence, in any situation of a conflict between two rules, the term stated by the later rule overrides the one provided by the previous rule. Thus, any *kāra* term provided after the term *sampradāna* would override the term *sampradāna*. Therefore, it is not proper to posit that, in the absence of the condition *prīyamāṇa*, *pathin* ‘path’ would not be termed *adhikaraṇa* and would not get seventh-triplet nominal termination. On the contrary, the word *pathin* ‘path’ should be termed *adhikaraṇa* and should get seventh-triplet nominal termination because the term *adhikaraṇa* is stated by A. 1.4.45 *ādhāro ’dhikaraṇam* which is a subsequent to the rules (A. 1.4.32-41) that provide the term *sampradāna*. Thus, the counterexample involving the *adhikaraṇa* (*devadattāya rocate modakaḥ pathi*) fails to explain the real purpose of the condition *prīyamāṇa* in A. 1.4.33. The same is true for the counterexamples on the subsequent rules.

3 Bhartṛhari on A. 1.4.33-36

In the quest for the origin of these counterexamples, it is necessary to study Bhartṛhari’s views on A. 1.4.33-36. In the *Sādhanaśamuddeśa* (verse 130) of his *Vākyapadīya*, Bhartṛhari explains that these rules are exceptions to the provision of the term *hetu* (A. 1.4.55), *karman* (A. 1.4.49) and the provision of the sixth-triplet nominal termination (*ṣaṣṭhī vibhakti* A. 2.3.50). Helārāja elaborates on Bhartṛhari’s views. On the basis of their discussion, I present a list of those rules to which A. 1.4.33-36 are exceptions in table 2 [tab. 2].

Table 2 Sūtra and its exceptions according to Bhartṛhari

Sūtra	Exception
A. 1.4.33 <i>rucyarthānām prīyamāṇaḥ</i>	A. 1.4.55 <i>tatprayojako hetuś ca</i> or A. 1.4.52 <i>gatibuddhipratyavasānār</i> <i>thaśabdakarmākarmakāṇāmaṇīkart</i> <i>ā sa ṇau</i>
A. 1.4.34 <i>ślāghahnunsthāśapām</i> <i>jñīpsyamāṇaḥ</i>	A. 1.4.55 <i>tatprayojako hetuś ca</i> or A. 1.4.49 <i>kartur īpsitatamaṁ karma</i>
A. 1.4.35 <i>dhārer uttamaṇaḥ</i>	A. 2.3.50 <i>śaṣṭhī śeṣe</i>
A. 1.4.36 <i>spṛher īpsitaḥ</i>	A. 1.4.49 <i>kartur īpsitatamaṁ karma</i>

Bhartṛhari explains which rule would apply if the rules A. 1.4.33-36 did not apply:

hetutve karmasañjāyām śeṣatve vāpi kārakam.
rucyarthādiṣu śāstreṇa sampradānākhyam ucyate.. 130..

In the sūtras beginning with *rucyarthānām prīyamāṇaḥ* (A. 1.4.33-41), it is the *śāstra* which gives the name of Recipient (*sampradāna*) to what would otherwise have been *Hetu*, *Karman* or *Śeṣa*. (Iyer 1971, 223)

Bhartṛhari focuses on explaining the semantics of the verbal roots listed in the sūtras that extend the provision of the term *sampradāna* to items other than the recipient in the action of giving (A. 1.4.32). According to Bhartṛhari, in a sentence like *devadattāya rocate modakaḥ*, Devadatta prompts the sweet-meat to be the object of his desire and is therefore termed *hetu* (agent of a causative action) by A. 1.4.55 *tatprayojako hetuś ca*. The meaning of the verbal root *ruc* is such that its agent is something other than the *kāra* who is pleased, that is, who is the substrate of desire. The sweet-meat (*modaka*) is the object of Devadatta's desire. Devadatta prompts the sweet-meat (*modaka*) to be the object of his desire. Because he is the agent who prompts (*prayojaka*), Devadatta would be termed *hetu*, and that would force the affix *ṇic* to apply after the verbal root *ruc* by A. 3.1.26.³ However,

3 *tathā hi devadattāya rocate modakaḥ ityatrānyakartṛko 'bhilāṣo rucyārtha ityabhilāṣa- viṣayabhāvam āpadyamānam modakam devadattaḥ prayuñkte laulyāt tadānugunyam ācaratīti hetusañjāyām prayojakasya devadattasya prāptāyām sampradānasamjñā kathayate* "For in this way in the sentence 'Devadatta likes sweet-meats' the meaning of the verbal root *ruc* is the desire by another agent. Thus (the sentence means), 'Devadatta prompts the sweet-meat to become the object of his desire, that is, because of his desire, acts in accordance with his desire.' So the technical term *sampradāna* is provided by A. 1.4.33 in exception to the technical term *hetu* which obtains to Devadatta because he is a prompter" (Tripathi 1979, 318)

the convention is to express an agent who prompts something to be the object of his desire, such as Devadatta, by the dative case rather than the nominative case in an active clause or instrumental in a passive clause. The term *sampradāna* is provided by A. 1.4.33 to such an agent who prompts something to be the object of his desire, Devadatta in this case; and, when not denoted by any verbal termination, such an agent gets the fourth-triplet nominal termination. Thus, *devadattāya rocate modakaḥ* “a sweetmeat is pleasing to Devadatta” is the valid expression; not **devadattaḥ modakam rocayate* “Devadatta prompts sweet-meat to become the object of his desire”. Thus A. 1.4.33 is an exception to *tatprayojako hetuś ca* A. 1.4.55.

If the meaning of *devadattāya rocate modakaḥ* is “a sweetmeat causes Devadatta to desire it”, and being pleased (*prīyamāna*) qualifies the direct object in the action of causing the desire then Devadatta is termed *karman* by A. 1.4.52 *gatibuddhipratyavasānārthas abdakarmākarmakāṇāmaṇikartā sa nau*. In that case A. 1.4.33 is an exception to A. 1.4.52.⁴ Thus *devadattāya rocate modakaḥ* is a valid expression; not **devadattam rocate modakaḥ* “Modaka makes Devadatta to desire it”. It is important to note that there is no reference to the *adhikaraṇa* in this discussion. So, the question concerning the source for the counterexample *devadattāya rocate modakaḥ pathi* remains unanswered.

Similarly, Bhartṛhari elaborates the meanings of the verbal roots listed in A. 1.4.34, namely, *ślāgh* ‘to praise’, *hnu* ‘to hide from’, *sthā* ‘to stand’ and *śap* ‘to curse’. Helārāja clarifies Bhartṛhari’s position only on the verbal root *ślāgh*, not on the others.⁵ With the help of this explanation we understand that A. 1.4.34 is an exception to A. 1.4.49 (which assigns the technical term *karman*) or A. 1.4.55 (which assigns the technical term *hetu*).

⁴ *yadā tu devadattāya rocate modakaḥ ity ayam artho devadattam modakaḥ prīṇayatīti tathā ca prīyamāna iti viśeṣaṇam tadā karmasañjñāyām prāptāyām sampradānasañjñārambhaḥ* “When the meaning of the sentence, ‘Devadatta likes sweet-meats,’ is ‘Sweet-meats please Devadatta,’ and so the word *prīyamāna* ‘being pleased’ is the qualifier, then the technical term *sampradāna* would be provided in exception to the technical term *karman*” (Tripathi 1979, 319).

⁵ *dhātorarthāntare hi vṛttau sakarmakatvam. evam devadattāya ślāghate iti guṇotkarṣeṇa devadattaḥ śasyamāno guṇavattayā tatsamarthācaraanād adhyaropitaprayojakabhāvo hetusañjñām prāpto guṇākhyānena vā jñāpayitum iṣṭo jñāpanenāpyamānatvāt karmasañjñāḥ iti ślāghhnuḥ ityādinā sampradānasañjñāḥ kathyate* “For the verbal root becomes transitive when the meaning of the verbal root changes. Thus in the sentence, ‘Someone praises Devadatta,’ The technical term *sampradāna* is provided by A. 1.4.34 either in exception to the term *hetu* which Devadatta, who is being praised because of his virtues, would obtain because the status of a prompter is superimposed on him because he behaves virtuously because of the fact that he possesses virtues, or in exception to the term *karman* which would obtain by virtue of the fact that he is the object of the desire to make him known by the means of description of his virtues” (Tripathi 1979, 319).

The essence of his discussion is as follows: the verbal root *ślāgh* is transitive (*sakarmaka*) here. There are two possibilities as far as the expression *devadattāya ślāghate* is concerned. (1) Yajñadatta gets encouraged to praise Devadatta because of Devadatta's extraordinary merits. In such a situation Devadatta's merits cause Yajñadatta to praise him. Thus, Devadatta would be termed *hetu* by A. 1.4.55 *tatprayojako hetuś ca*, and **devadattaḥ ślāghayate* "Devadatta causes someone to praise him" would be the expression. However, such a construction is blocked by A. 1.4.34 that provides the term *sampradāna* for Devadatta. (2) When Yajñadatta wants Devadatta's merits to be known then Devadatta would be termed *karman* by A. 1.4.49 *kartur īpsitamam karma*, and **devadattam ślāghate* "someone praises Devadatta" would be the expression. However, it is blocked by A. 1.4.34 that terms Devadatta *sampradāna*. Thus A. 1.4.34 is an exception to A. 1.4.55 and A. 1.4.49. Here also we do not find any discussion related to the locus that would be termed *adhikaraṇa* by A. 1.4.45 and condition a seventh-triplet nominal termination by A. 2.3.36. Hence the source for the counterexample *devadattāya ślāghate pathi* is not the *Vākyapadiya*.

This discussion is incomplete without the reading *devadattaḥ ślāghate* "Devadatta praises" which seems to be accepted by Haradatta as a valid reading. This reading merely points out that Devadatta is an agent of the action of praising. However, Haradatta (Mishra 1985, 552) explains this counterexample saying *jñīpsyamānavacanāt karmasamjñāiva bādhyate, na kartṛsamjñetyarthaḥ* "A. 1.4.34 blocks only [the assignment of] the term *karman* by A. 1.4.49 not the term *kartṛ* by A. 1.4.54 because the condition *jñīpsyamāna* 'desired to be made known to' is added". The statement that the term *karman* alone is blocked agrees with what Bhartṛhari and Helārāja argued, namely that A. 1.4.34 is an exception to A. 1.4.49. However, the example *devadattaḥ ślāghate* as read by Haradatta does not show this. Instead, it implies the opposite, namely that the term *kartṛ* would be blocked if the condition *jñīpsyamāna* is not stated in A. 1.4.34. Haradatta goes on to provide another counterexample *gārgikayā ślāgate sabhāyām* "He or she boasts of belonging to the family of Garga in the court". And he claims this example shows that the terms *garaṇa* and *adhikaraṇa* are not blocked by A. 1.4.34. However, this counterexample too shows just the opposite, i.e. these terms would be blocked by A. 1.4.34 in the absence of the condition *jñīpsyamāna*.

The variant reading *devadattam ślāghate*, as Haradatta states, is not in conformity with Bhartṛhari's and Helārāja's conclusion. They state that the term *karman* is blocked by A. 1.4.34. It seems that, according to Bhartṛhari and Helārāja, Pāṇini does not attest the expression **devadattam ślāghate* when the verbal root *ślāgh* means 'to praise'. Haradatta (Mishra, 1985, 552) explains this counterexample as follows:

yasmāy ākhyāyate sa jñīpsyamāna ity ākhyāyamānā dvitīyaiva nyāyyeti. ye tv ākhyāyamānam jñīpsyamānam vadanti teṣāṃ yasmāy ākhyāyate tataḥ ṣaṣṭhī bhavati. devadattāya ślāghate yajñadatto viṣṇumitrasya.

jñīpsyamāna means the one who is made known so it is proper to use the second-triplet nominal termination (after the word which is an object of the action of making know). Those, however, who explain that “*jñīpsyamāna*” = “*ākhyāyamāna*” (what is being related/spoken about), propose to add sixth-triplet nominal termination after the receiver of the information as is observed in *devadattāya ślāghate yajñadatto viṣṇumitrasya* (Yajñadatta praises Devadatta to Viṣṇumitra).

Here Haradatta points out that, in the sentence *devadattam ślāghate*, Devadatta is merely an object of the praise but neither him nor anyone else are made known of that praise. Moreover, when someone (Viṣṇumitra) other than the direct object (Devadatta) is made known of the praise, he gets a sixth-triplet nominal termination, not a fourth-triplet one. This discussion indicates that some grammarians allow the expression **devadattam ślāghate* when that praise is not intended to be known by Devadatta or anyone else. The probable source for this reading will be discussed in Section 4.2. Interestingly, at least five manuscripts of the *Kāśikāvṛtti* support the reading *devadattam ślāghate* which was known to Haradatta.⁶ It is surprising that the editors of the *Kāśikāvṛtti* (Sharma et. al. 1969-70) never considered this reading seriously even though it had the support of a commentator as well as from the manuscript tradition.

In the case of A. 1.4.36 *spṛher īpsitaḥ* also, Helārāja, elaborating Bhartṛhari’s argument, states that it is an exception to A. 1.4.49.⁷ In the sentence *puṣpebhyaḥ spṛhayati* “He desires flowers”, flowers are the most desired objects so there is the possibility of being termed *karman* by A. 1.4.49. They are not so termed because A. 1.4.36 provides the term *sampradāna* for the object of desire. Thus A. 1.4.36 is an exception to A. 1.4.49. Here as well, according to Bhartṛhari as Helārāja explains, Pāṇini does not provide for the expression **puṣpāni spṛhayati*. Joshi and Roodbergen (1995, 111 fn. 11) also opine that **puṣpāni spṛhayati* is not allowed. Furthermore, in fn. 12, they say that there is no technical difference between *īpsita*

⁶ Manuscripts C4452 at the Banares Hindu University; IOL 4087 at the India Office London; 145-1K-145-2K at Shri Ranbir Prasad Research Institute, Jammu; VI 863 at Rajasthan Oriental Research Institute, Jodhpur; 37926 at Sampurnananda Sanskrit Vishvavidyalaya, Varanasi.

⁷ *puṣpebhyaḥ spṛhayati iti puṣpāṇam īpsitatamatvāt karmasañjñāprasaṅgaḥ uktaḥ* (Tripathi 1979, 319).

and *īpsitatama*. So one should use the fourth-triplet nominal termination after the object of desire in the case of the verbal root *spṛh*. However later grammarians,⁸ disagreeing with Bhartṛhari, unanimously say that when the speaker intends to express that the desire for something is excessive, then A. 1.4.49 overrides A. 1.4.36 by the principle that the subsequent rule (*para*) alone applies. Here none of the commentaries provides **puṣpāṇi spṛhayati* as a counterexample. Instead they create optionality between A. 1.4.36 and A. 1.4.49. There is a lot of emphasis on the relation between A. 1.4.36 and A. 1.4.49; yet there is no reference to the relation of A. 1.4.36 to rules that provide any other *kāraka* terms like *adhikaraṇa*. The expression *puṣpebhyaḥ spṛhayati* and other such expressions in which the object of desire appears in a case other than accusative are idiosyncratic.

Bhartṛhari states that A. 1.4.35 *dhārer uttamaraḥ* is an exception to A. 2.3.50 *śaṣṭhī śeṣe*. Helārāja explains the example *devadattāya śataṃ dhārayati* “He or she owes a hundred to Devadatta”, as follows: Devadatta, who is the creditor, is the cause of the action of owing because he is the one who gives a hundred. However, there is no explicit mention of the action of giving. In relation to the implicit action of giving, the agent would get a sixth-triplet nominal termination. But this is blocked by A. 1.4.35 by providing the term *sampradāna*. In short, **devadattasya śataṃ dhārayati* “He or she owes hundred of Devadatta” is not an accepted usage. Here also, we can observe that there is no mention of any other *kāraka* term like *adhikaraṇa*.

It remains unanswered why the counterexamples on all of these sūtras include the *adhikaraṇa* in locative case. Bhartṛhari’s discussion revolves around clarifying how the term *sampradāna* provided by A. 1.4.33-36 is an exception to the two *kāraka* terms *hetu* and *karman*, and to the sixth-triplet termination (*śaṣṭhī*). It is obvious that we cannot expect any counterexample that includes a word that denotes an object designated by either of these two *kāraka* terms. It seems the commentators avoid using any hypothetical counterexample that does not actually occur in correct usage. Hence, they provide a counterexample that uses a word denoting an object that is termed *adhikaraṇa*. The rules that provide the term *adhikaraṇa* (A. 1.4.45) occur before the rules that provide the terms *hetu* (A. 1.4.55) and *karman* (A. 1.4.49-52). Because these rules occur in the section governed by the *ekasañjñā adhikāra* in which the subsequent rule applies (A. 1.4.1-2), the subsequent *kāraka* term prevails over the previous one when there is a conflict. The term *adhikaraṇa* is provided

⁸ Jinendrabuddhi: *yadā tu puṣpādīnām īpsitatamatvaṃ vivakṣyate, tadā paratvāt prakrasañjñāiva bhavati - puṣpāṇi spṛhayatīti* (Mishra 1985, 553). Haradatta: *prakarṣavivakṣāyām tu paratvāt prakrasañjñāiva bhavati - puṣpāṇi spṛhayatīti* (Mishra 1985, 553). Bhaṭṭojī Dīkṣita: *prakarṣavivakṣāyām tu paratvāt prakrasañjñā* (Chaturveda, Vidyabhaskara 1961, 647-8).

after the term *sampradāna* and before the term *karman*. Therefore, sentences that include a word that denotes an item termed *adhikaraṇa* easily present themselves as uncontroversial candidates to be counterexamples that are neither hypothetical nor blocked by the term *sampradāna*. There is no other explanation we can think of for these counterexamples. Whether these serve as suitable counterexamples is a different question. In fact, they do not serve any purpose whatsoever, nor do they help one understand the relation of these special rules to other rules.

4 The *Kātantra* and the *Cāndravākya*:

Since the *Kātantra* (first century CE) and the *Cāndra* (fifth century CE) are pre-*Kāśikāvṛtti*, it is interesting to see how they deal with these special cases.⁹ Thereby we may find some trace of counterexamples with the counterexample that uses a word denoting an object that is termed *adhikaraṇa*.

4.1 The *Kātantra vyākaraṇa*

The *Kātantra* grammar states only one rule that deals with the term *sampradāna*: K. 2.4.10 *yasmai ditsā rocate dhārayate vā tat sampradānam* “the participants in the action to which one desires to give, the one to whom something is pleasing, and the one to whom one owes are termed *sampradāna*”. The *Kātantra* grammar deals here with only three of the several constructions treated by Pāṇini and covers all of them in one rule. This rule corresponds to A. 1.4.33, A. 1.4.34 and A. 1.4.35. *Durgasimha* (ninth-tenth century C.E), a well-known commentator of the *Kātantra* grammar, provides three examples (Eggeling 1874, 79-80):

1. *brāhmaṇāya gām dadāti* “he/she donates a cow to a brahmin”.
2. *devadattāya rocate modakaḥ* “sweetmeats are pleasing to Devadatta”.
3. *viṣṇumitrāya gām dhārayate* “he or she owes a cow to Viṣṇumitra”.

The remaining expressions like *devadattāya ślāghate* “He/she praises Devadatta” etc. dealt with by Pāṇini are covered under the category

⁹ As the chronology was recently summarised by Ben-Dor (2019), the *Jainendramahāvṛtti* and *Kāśikāvṛtti* were composed in the same time period. However the conclusion of this section equally applies to the *Jainendramahāvṛtti*.

of purpose (*tādarthya*).¹⁰ The *Kātantra* grammar does not term them *sampradāna*. So, it avoids any kind of detailed semantic treatment of the topic. It focuses merely on accounting for the *caturthī vibhakti*. Durgasimha does not discuss here any counterexample, nor does he mention any alternative expressions like **devadattam ślāghate* or **puṣpāṇi sprhayati*. Although the *Kātantra* sūtra-pāṭha is dated no later than first century CE, the available commentaries are dated after the ninth century CE. So, there is a gap of at least eight hundred years between the composition of the sūtra-pāṭha and the commentaries. Hence the discussion we find in Durgasimha's commentary or later commentaries can be traced to other commentaries like the *Cāndravṛtti* or *Kāśikāvṛtti*. It is difficult to state with certainty whether the author of the *Kātantra* sūtra-pāṭha accounted for both usages: *devadattāya ślāghate* and **devadattam ślāghate*, or merely for the former. Moreover, there is no counterexample provided that matches with any counterexample in the *Kāśikāvṛtti*.

4.2 The *Cāndravṛtyākaraṇa*

The *Cāndra* grammar states five different rules (C. 2.1.73-77) to cover the term *sampradāna*. Among them, C. 2.1.74 *rucimati* and C. 2.1.75 *dhāre uttamarṇe* correspond to A. 1.4.33 and A. 1.4.35 respectively. Interestingly, like the *Kātantra*, there are no rules that correspond to A. 1.4.34 and A. 1.4.36. While commenting on C. 2.1.74 *rucimati*, it is asked: "how do we provide for *devadattāya ślāghate*, *chātrāya hnute*, *chātrāya āśṛṇoti* etc.?" It is answered: "Those [usages] will be taken care by *tādarthya-caturthī*".¹¹ Further, the *Cāndravṛtti* elaborates as follows: when desired as a direct object of the actions denoted by the verbal roots *ślāgh* or *sprh*, the expressions *devadattam ślāghate* "he/she praises Devadatta" and *puṣpāṇi sprhayati* "he/she desires flowers" are valid.¹² This is very interesting because what Pāṇini seems not to approve of is accepted as a valid expression. Historically we can say that these expressions not accepted earlier were allowed by

¹⁰ Durgasimha states: *katham devadattāya ślāghate chātrāya hnute..... chātrāya āśṛṇoti. tādarthyaaturthyā siddham*. "How do we say *devadattāya ślāghate*, *chātrāya hnute*, *chātrāya āśṛṇoti* etc.? Those will be taken care by *tādarthyaaturthī*" (Eggingling 1874, 79-80).

¹¹ *katham devadattāya ślāghate devadattāya hnute..... puṣpebhyah sprhayatīti. tādarthyē caturthī bhaviṣyati* "How is it the dative occurs in *devadattāya ślāghate*, *devadattāya hnute*, *puṣpebhyah sprhayati*, etc.? The dative will occur in the sense of purpose (*tādarthyē caturthī*)" (Chatterji 1953, 176).

¹² *vyāpyavivakṣyām tu devadattam ślāghate puṣpāṇi sprhayatīti* "When the speaker has the desire to express (Devadatta, or the flower [*puṣpa*]) as the direct object, then *devadattam ślāghate*, *puṣpāṇi sprhayatīti*, etc. are valid expressions" (Chatterji 1953, 176).

the fifth century CE. This change was also accepted by the Pāṇinīyas (footnote 6 and 8). The variant *devadattam ślāghate* for the counterexample *devadattāya ślāghate pathi* on A. 1.4.34 mentioned by Haradatta seems to account for the language change that is clearly accepted by the *Cāndravṛtti*. Alternatively, it is possible that *devadattam ślāghate* is an interpolation in the text of the *Kāśikāvṛtti* under the influence of the *Cāndravṛtti*. Even though there is no counterexample given in the *Cāndravṛtti* on C. 2.1.74, there is a counterexample on C. 2.1.75 *uttamarṇa iti kim? gām dhārayati devadattaḥ* “why the condition *uttamarṇa* ‘creditor’? ‘Devadatta owes a cow’”. Devadatta who is a debtor is not termed *sampradāna*. This counterexample is similar to the variant *devadattaḥ ślāghate* “Devadatta praises” in A. 1.4.34, which is noted by Haradatta and many printed editions of the *Kāśikāvṛtti*. In short, we can observe that there is no counterexample provided that matches any counterexample given in the *Kāśikāvṛtti* that includes a word denoting an object termed *adhikaraṇa*. Thus there is no historical trace of these counterexamples.

5 Conclusion

Ajotikar et al. (2016) claim that most of the counterexamples provided in the *Kāśikāvṛtti* conform to the distinctive feature of a counterexample, namely having all the conditions stated in the rule except one (*ekāṅgavikalatā*). But the counterexamples discussed in this paper do not comply with this general claim. When it comes to the issue of complex semantic conditions (*priyamāṇa*, *jñāpsyamāna*, *īpsita* or *uttamarṇa*) stated in A. 1.4.33-36, it is difficult to justify the usefulness of the available counterexamples. These must have been included in order to fulfil the criteria of a *vṛtti*. A *vṛtti* typically includes an example, a counterexample and supplementary words necessary to complete the meaning of a rule. However, these counterexamples fail to justify the significance of the semantic conditions stated in the rule for which they are provided. Hence, they do not serve any purpose.

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Total Replacement of the Affix *Jas* by the Substitute *Śī* The *kaumudīs* Interpretation of A 1.1.55 *anekāśīt sarvasya*

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Abstract The present article focuses on the replacement of the whole affix *Jas* by the substitute *Śī*, when it occurs after a *sarvanāman* (pronominal stem) ending in the short vowel *-a*, as taught by Pāṇini in A 7.1.17 *jasah śī*. Most commentators attribute the evocation of A 1.1.55 *anekāśīt sarvasya* to the fact that *Śī* is marked with Ś, while Bhaṭṭoji Dīkṣita, on the other hand, attributes this evocation to the *anekāl* nature of *śī*. This paper analyses the commentaries previous to the *Siddhāntakaumudī* (SK) to understand when *śī* started being understood as *anekāl*, concluding that Bhaṭṭoji Dīkṣita did not abandon the tradition since this appears to be a fresh reinterpretation of Kātyāyana's *vārttikas*.

Keywords Pāṇini. Sarvanāman. Pronominal inflection. Nominative plural. Commentaries.

Summary 1 Introduction. – 2 The Commentarial History of A 7.1.17 *jasah śī*. – 3 *Paribhāṣā* and Traditional Examples on (*an*)*ekāltvam*. – 4 Coming Back to Kātyāyana and Patañjali. – 5 Conclusion.



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1 Introduction

The topic of the present research is the analysis of the substitute *Śī*, which replaces the affix *Jas* (that is, the affix of the nominative plural) based on the indigenous grammatical explanations, in particular, according to *sūtra* A 7.1.17 *jaṣaḥ śī [aṅgasya #6.4.1 ataḥ #9 sarvanāmanāḥ #14]*: “*Śī* replaces *Jas*, when it occurs after the pre-affixal base consisting of a pronominal stem ending in the short vowel *-a*”; moreover, several commentaries are taken into account in order to understand the change in the interpretation of *Śī*, in accordance with aphorism A 1.1.55 *anekāśīt¹ sarvasya* “a substitute consisting of more than one phoneme (*anekāl*) or marked with *Ś* (*Śit*) replaces the whole”. In conclusion, a step back in the *Mahābhāṣya* (M) and in Kātyāyana’s *vārttikas* (vt.) will be taken to demonstrate that, even though the *Siddhāntakaumudī* (SK) often shows innovative reasonings, its author mostly limits himself to take position for one of the interpretative hypotheses developed within the grammatical tradition, from the *Aṣṭādhyāyī* (A) of Pāṇini onwards.

The main context of the article is determined by Sanskrit pronouns that need to be defined first: they are introduced by Pāṇini in rule A 1.1.27 *sarvādīni sarvanāmāni*, that is, “the word-forms beginning with *sarva* ‘all’ are designated as *sarvanāman* ‘pronouns’”. This *sarvādī* introduces a list of thirty-five pronominal stems, the first member of which is *sarva* ‘all’.²

In *navya vyākaraṇa* works,³ it is generally taught that the inflection of Sanskrit pronouns is *rāmavat* (i.e. ‘like that of Rāma’) for most of the *vibhaktis*. Nevertheless, it is important to note that the pronominal declension is partially different from the nominal one. For

All the translations are by the Author, unless specifically stated. The Author is deeply grateful to the anonymous reviewers for their insightful suggestions.

1 According to Vāsudevadikṣita’s interpretation of *anekāśīt* as *na eka aneka, aneka al yasya sa anekāl, śākāra it yasya sa śīt, anekāl ca śīt ceti samāhāradvandvaḥ* [sic] (*Bālamānoramā* on SK ad A 1.1.55).

2 (1) *sarva* ‘all’, (2) *viśva* ‘all’, (3) *ubha* ‘two’, (4) *ubhaya* ‘both’, (5) word-forms ending with the affix *Ḍatara*, (6) word-forms ending with the affix *Ḍatama*, (7) *itara* ‘other’, (8) *anya* ‘other’, (9) *anyatara* ‘either’, (10) *tvat* ‘other’, (11) *tva* ‘other’, (12) *nema* ‘half’, (13) *sama* ‘all’, (14) *sima* ‘whole’, (15) *pūrva* ‘east or prior’, (16) *para* ‘subsequent’, (17) *avara* ‘west or posterior’, (18) *dakṣiṇa* ‘south or right’, (19) *uttara* ‘north or inferior, subsequent’, (20) *apara* ‘other or inferior’, (21) *adhara* ‘west or inferior’, (22) *sva* ‘own’, (23) *antara* ‘outer or an under or lower garment’, (24) *tyad* ‘he, she, it’, (25) *tad* ‘he, she, it’, (26) *yad* ‘who’, (27) *etad* ‘this’, (28) *idam* ‘it’, (29) *adas* ‘that’, (30) *eka* ‘one’, (31) *dvi* ‘two’, (32) *yusmad* ‘you’, (33) *asmad* ‘we’, (34) *bhavat* ‘you’, (35) *kim* ‘what’ (see KV ad A 1.1.27).

3 Some works of *navya vyākaraṇa* have been taken into consideration here, mainly the *Siddhāntakaumudī* by Bhaṭṭhoji Dikṣita (sixteenth-seventeenth century), the three *kaumudī* by Varadarāja (seventeenth century), namely the *Madhyasiddhāntakaumudī*, the *Laghusiddhāntakaumudī* and the *Sārasiddhāntakaumudī*, and finally a modern Hindi commentary called *Bālasiddhāntakaumudī* by Jyoti Svarūpa Miśra (1991).

instance, Pāṇini introduces some substitutes for the nominative plural (A 7.1.17 *jaśaḥ śī*), the dative singular (A 7.1.14 *sarvanāmaḥ smai*),⁴ the ablative singular and the locative singular (A 7.1.15 *naśiṅyoḥ smātsminau*),⁵ and the genitive plural (A 7.1.52 *āmi sarvanāmaḥ suḥ*).⁶

The rule A 7.1.17 *jaśaḥ śī* prescribes the replacement of the affix *Jas* with the substitute *Śī* (nom. pl.). This is a complete replacement because of aphorism A 1.1.55 *anekāśīt sarvasya* that teaches the total replacement of the substituendum by an *anekāl* or a *Śīt* substitute. For this reason, *sarva-* + *Jas* becomes *sarva-* + *Śī*. After replacing the marker *Ś* with *lopa* (i.e. ‘zero-replacement’),⁷ the final vowel of *sarva-* and the remaining *ī* of the affix *Śī* are joined in a *guṇa-sandhi*⁸ and hence the result is the form *sarve* for the nominative plural.

The M does not analyse specifically rule A 7.1.17. The *Kāśikāvṛttī* (KV), instead, paraphrases the *sūtra* and gives some examples of its application, such as *sarve* (*sarva-* + *Śī*), *viśve* (*viśva-* + *Śī*), *ye* (*yad-* + *Śī*), *ke* (*kim-* + *Śī*), *te* (*tad-* + *Śī*). Following the authoritative exposition provided by the main commentaries, the other works explain *Śī* in two different ways, according to their interpretation of rule A 1.1.55 *anekāśīt sarvasya*. The *Rūpāvatāra* (R) and the *Prakriyākaumudī* (PK) focus on the fact that *Śī* is marked with *Ś*, while all the other *kaumudīs* beginning with the SK highlight that it is an item consisting of more than one phoneme, as shown in section 2. Nevertheless, it is worthy to note that both these hypotheses have already been put forward by the M *ad* A 1.1.55.

Since the commentaries to the PK tend to follow what was previously written in the root text (see below footnote 13), an in-depth analysis of the SK commentary *ad* A 7.1.17 will lead the research towards new horizons; in fact, after qualifying *śī* as *anekāl* “(an item) consisting of more than one phoneme”, Bhaṭṭoji Dīkṣita explains why this substitute is different from other substitutes and therefore he quotes the *paribhāṣā* “*nānubandhakṛtam anekāltvam*”. The translation

4 A 7.1.14 *sarvanāmaḥ smai* [aṅgasya #6.4.1 atah #9 neḥ #14]: “*smai* replaces *Ñe*, when it occurs after the pre-affixal base consisting of a pronominal stem ending in the short vowel -a”.

5 A 7.1.15 *naśiṅyoḥ smātsminau* [aṅgasya #6.4.1 atah #9 sarvanāmaḥ #14]: “*smāt* and *smin* replace *NasI* and *Ñi*, when they occur after the pre-affixal base consisting of a pronominal stem ending in the short vowel -a”.

6 A 7.1.52 *āmi sarvanāmaḥ suḥ* [aṅgasya #6.4.1 #āt 50]: “*suḥ* is inserted at the head of *ām*, when it occurs after the pre-affixal base consisting of a pronominal stem ending in the phoneme *a*”.

7 Rule A 1.3.8 *laśakv ataddhite* designates the initial *L*, *Ś* and *KU* of affixes other than *taddhita* as *it* when in *upadeśa*, followed by the rule A 1.3.9 *tasya lopa* that prescribes the zero-replacement (*lopa*) of that (*it*), i.e. of the marker(s).

8 Rule A 6.1.87 *ād guṇaḥ* prescribes a *guṇa*-replacement of both, a vowel which follows *a* and the *a* which precedes that vowel, in continuous utterance (*saṃhitā*). In this specific case, the final -a of *sarva-* and the following *ī* of *Śī* are replaced by the *guṇa*-vowel *e*.

and comment to this *paribhāṣā* are worth noting because there is a list of substitutes (i.e. *Dādi* list) that work in the same way as *Śī*. After an analysis of these affixes in section 3, the research will move back to the M in section 4 to demonstrate that Bhaṭṭoji Dīkṣita did not abandon the tradition of Pāṇini's grammar.

All the previous sections will lead to general conclusions on the SK and its main sources as it is important to demonstrate that Bhaṭṭoji Dīkṣita merely re-interprets the tradition in a fresh manner, whether it comes from the M of Patañjali or from the vt. of Kātyāyana. In particular, the present proposal is to outline the main feature of the problem here tackled with the aim of understanding if someone adopted this specific substitution scheme before the SK.

2 The Commentarial History of A 7.1.17 *jaśaḥ śī*

As already anticipated, the M does not analyse A 7.1.17, while the KV paraphrases this *sūtra* and gives some examples of its application. However, KV *ad* A 1.1.55 provides an example for *Śit*, namely A 7.1.20 *jaśśasoḥ śiḥ*, that is relevant to understand the position of the work on the substitute *Śī*. In fact, since *Śī* is considered as *Śit* by the KV, it is possible to understand *Śī* in the same manner.⁹ It is important to consider that other commentaries such as the R and the PK agree with the KV and teach that the substitute *Śī* replaces the whole affix *Jas* because the phoneme *Ś* of *Śī* is a marker (*it*).

R *ad* A 7.1.17: *śakāras sarvādeśārthaḥ anekāltvāt* ¹⁰ *guṇaḥ; sarve |*

The phoneme *Ś* [of *Śī*] has the aim of a total replacement [of *Jas*], because it (i.e. *Śī*) does not consist of more than one phoneme. [According to aphorism A 6.1.87 *ād guṇaḥ*],¹¹ there is a *guṇa-*

⁹ In fact, the KV *ad* A 1.1.55 reads *śit khalv api – jaśśasoḥ śiḥ* (A 7.1.20). *kuṇḍāni tiṣṭhanti, kuṇḍāni paśya*.

¹⁰ This passage seems to be an extension of *Nyāsa* on KV *ad* A 7.1.17: *śakāras sarvādeśārthaḥ. asati tasmin ādeḥ parasya iti vacanād akāramātrasya syāt*, where Jinen-drabuddhi already anticipated that “the phoneme *Ś* [of *Śī*] has the aim of a total replacement [of *Jas*]. If [*Ś*] did not occur there, in accordance with rule A 1.1.54 *ādeḥ parasya*, [*ī*] will only replace the phoneme *a* of *Jas* (i.e. the initial phoneme of the substituendum)”. Nevertheless, *Nyāsa* on KV *ad* A 1.1.55 remarks that *Śī* indeed cannot be considered as *anekāl*: *śitaḥ śakārānubandhenānekaltve’pi śīd iti pṛthakaraṇam nānubandhakṛtam anekaltvam iti jñāpanārtham*, that is, “even though an item marked with *Ś* consists of more than one phoneme because of the marker *Ś*, *śit* (in rule A 1.1.55) serves as a clue for the *paribhāṣā – nānubandhakṛtam anekāltvam*” (see section 3 below). Many thanks are due to an anonymous reviewer, who drew my attention on this source.

¹¹ A 6.1.87 *ād guṇaḥ* [*saṃhitāyām #72 aci #77 ekaḥ pūrvaparayoḥ #84*]: “there is a *guṇa*-replacement of both, a vowel which follows *a* and the *a* which precedes that vowel, in continuous utterance (*saṃhitā*)”.

replacement [of the remaining *ī* of *Śī* and the final *-a* of *sarva-* in continuous utterance]; [therefore, the final form is] *sarve* (nom. pl.).

The R defines the phoneme *Ś* of *Śī* as having the aim of a total replacement of the affix *Jas*: it is evident that the R considers *Śī* as “(an item) having the marker *Ś* (*Śit*)”, and this would be sufficient to state that the replacement concerns the whole affix *Jas*; however, the author specifies that the substitute “does not consist of more than one phoneme” (*an-ane-kāltvāt*), clearly referring to *paribhāṣā* “*nānubandhakṛtam anekāltvam*”. In fact, the *paribhāṣā* just mentioned teaches “the status of consisting of more than one phoneme is not determined by the *anubandhas*”.

Once the substitute *Śī* is interpreted as “(an item) having the marker *Ś* (*Śit*)”, the derivation of *sarve* (nom. pl.) occurs as follows: the phoneme *Ś* is zero-replaced (according to A 1.3.9 *tasya lopaḥ* “*lopa* replaces it”); subsequently, there is the *guṇa*-replacement of the remaining *ī* of *Śī* and the final *-a* of *sarva-* (A 6.1.87 *ād guṇaḥ* prescribing a *guṇa*-replacement of both, a vowel which follows *a* and the *a* which precedes that vowel in continuous utterance). Even more schematically than the R, the PK, which is the first commentary to be entitled as *kaumudī*,¹² defines the phoneme *Ś* as a marker (*it*) and, without considering the process of zero-replacement (*lopa*) and the *guṇa*-sandhi in *-e*, shows the final form of the nom. pl. *sarve*.

PK *ad* A 7.1.17: *śa it | sarve |*

Ś is a marker (*it*). [Therefore, the final form is] *sarve* (nom. pl.).¹³

On the other hand, all the *kaumudī*s beginning with the SK believe that *śī* is a substitute with more than one phoneme (*an-ekāl*) and, for

12 The PK is basically the source of Bhaṭṭoji Dīkṣita for what concerns the order of Pāṇini’s rules presented in this section and the typology of the commentary chosen, i.e. ‘an elucidation’. The word *kaumudī* is metaphorically used like other words of similar import (cf. *candrikā*) in the title of grammatical commentaries and other explanatory works to imply that the book so designated throws much light on the subject of which it treats, e.g. *padārtha-k°, prakriyā-k°, laghu-k°, vaiśamya-k°, siddhānta-k°*.

13 In order to understand if the PK (fourteenth-fifteenth century) played a role in suggesting the SK change of perspective (sixteenth-seventeenth century), some of the most important commentaries to the PK have been here examined. In particular, the *Prakāśa* by Śeṣakṛṣṇa and the *Prasāda* by Viṭṭhala (sixteenth century) are the only two commentaries that the Author of the present research has been able to analyse, since all the other works are generally unavailable. However, the *Prakāśa* and the *Prasāda* on PK *ad* A 7.1.17 quote the exact same words as the PK: *śa it. sarve*. “*Ś* is a marker (*it*). [Therefore, the final form is] *sarve* (nom. pl.)”. This is the reason why, in this specific situation, the PK cannot be considered as the source of SK reasoning. Note that the mentioned dates follow Coward, Kunjuni Raja 1990, 215.

this reason, it replaces the entire *Jas*. Bhaṭṭoji Dīkṣita provides an explanation of why *śī* should be understood in a different way; however, since the SK is often quite cryptic, it is necessary to wait for modern commentaries to grasp the point.

SK *ad* A 7.1.17: *anekālvāt sarvādeśaḥ* |¹⁴ *na cārvaṇas tṛ ityādav iva nānubandhakṛtam anekālvam iti vācyam* | *sarvādeśatvāt prāg itsamjñāyā evābhāvāt* | *sarve* |

There is a total replacement [of *Jas*], because [the substitute *śī*] consists of more than one phoneme. And it is not like the substitute *tṚ* which replaces [the final -*n*] of *arvan* (see A 6.4.127)¹⁵ etc. – it must be taught that the characteristic of having more than one phoneme is not determined by the *anubhandas* (see *paribhāṣā* in section 3 below) – since the designation as a marker (*it*) does not become applicable [to the *ś* in *śī*] before the total replacement.¹⁶ [Therefore, the final form is] *sarve* (nom. pl.).

As is well known, Varadāraja (seventeenth century) composed three different *kaumudīs* in order to further simplify the main work of Bhaṭṭoji Dīkṣita (sixteenth-seventeenth century). These commentaries abridge the SK by selecting only the most useful aphorisms of Pāṇini's grammar, and the outcome is the composition of three works of different lengths: the *Madhyasiddhāntakaumudī* (MSK), which is considered a medium version, the *Laghusiddhāntakaumudī* (LSK), a brief version, and the *Sārasiddhāntakaumudī* (SSK), a supershort version.

MSK and LSK *ad* A 7.1.17: *anekālvāt sarvādeśaḥ* | *sarve* |

14 It is evident that Bhaṭṭoji Dīkṣita presents this new way of operating among different *sūtras* as something established. In fact, both the *Praṣṭhamānoraṃā* by Bhaṭṭoji Dīkṣita himself and the *Tattvabodhinī* by Jñānendra Sarasvatī (contemporary of Bhaṭṭoji Dīkṣita) comment *anekālvāt* as *na tu śitvād iti bhāvaḥ* “the idea is [that *śī* is *anekāl*] ‘because [the substitute *śī*] is not indeed endowed with the marker *Ś* (*Sit*)’”; moreover, all the following *kaumudīs* endorse the SK approach and just mention *anekālvāt sarvādeśaḥ* as the reason why the substitute *śī* should replace the entire affix *Jas*. The BSK is the only *kaumudī* that goes deeper in explaining all the different steps required to obtain the qualification of the substitute *śī* as *anekāl* “(an item) consisting of more than one phoneme”.

15 Rule A 6.4.127 prescribes the substitution of the final sound of *arvan* with *tṚ*, except in the nominative singular (*sU*) or when the word is joined with the negative particle (*nañ*). According to *sūtra* A 1.1.52, which is here the general rule, a substitute replaces the final phoneme of the substituendum. On the other hand, *Śī* replaces the whole *sthānin* in accordance with the aphorism A 1.1.55, which prescribes the total replacement of the substituendum by an *anekāl* or by a *Śit* substitute.

16 As regard the stage in the derivation in which *Ś* is designated as a marker (*it*), see in particular section 4.

There is a total replacement [of *Jas*], because [the substitute *śī*] consists of more than one phoneme. [Therefore, the final form is] *sarve* (nom. pl.).

SSK *ad* A 7.1.17: *sarve* |

[The final form is] *sarve* (nom. pl.).

It is evident that after several centuries, the perspective concerning this affixation has changed and this is now quite the opposite. The turning point plausibly depends on the *prakriyā* perspective, as *navya vyākaraṇa* commentaries give great importance to the derivation of single words step by step. The SK explains its interpretation of *śī* as *anekāl* by stating that, prior to the total replacement of *Jas* by the substitute *śī*, the *ś* of *śī* cannot be defined as *it*.¹⁷

All the other *kaumudī*s adopt the SK reading by simply quoting *anekāltvāt sarvādeśaḥ*. Instead, Jyoti Svarūpa Miśra, the author of a contemporary Hindī commentary (1991) entitled *Bālasiddhāntakaumudī* (BSK), explains this choice by dividing the substitution at stake into different passages:

BSK *ad* A 7.1.17:

1) [*anekāla hone se śī ādeśa sampūrṇā jas ke sthāna meṃ hotā hai sarva śī* |

As the substitute *śī* consists of more than one phoneme, it takes the place of the whole *Jas*. Thus, *sarva-* + *śī* (nom. pl.).

According to the BSK, the problem is that the substitute *śī* is present-ed by rule A 7.1.17 *jasāḥ śī*; nevertheless, the designation of *pratyaya*

¹⁷ A comparable reasoning already occurs in the *Padamañjarī ad* A 1.1.55: *śidgrahaṇam kim artham? "jasaḥ śī" sarvasya yathā syāt, anekāl ity eva bhaviṣyati, śakāre lupte nānekāl, ānupūrvyāt siddham. yadāyaṃ sarvādeśas tadā pratyayaḥ, yadā pratyayas tadetsamjñā, yadetsamjñā tadā lopāḥ, yadā lopas tadaikāl tad iha sarvādeśatvam antareṇa naikāltvam upapadyate*, that is, "which is the purpose of the mention of *Śit* (an item) having the marker *Ś*? In order to obtain the total replacement (*sarvasya*) in the rule '*jasāḥ śī*' (A 7.1.17), [*śī*] will be indeed *anekāl* (an item) consisting of more than one phoneme', and after the zero-replacement of the phoneme *ś*, it will consist of no more than one phoneme (*nānekāl*), this is obtained according to the order of application [of grammatical operations]. When there is a complete substitution, then [*Śī* can be designated] as an affix (*pratyaya*); when it is an affix, then [its initial phoneme *Ś*] can be designated as a marker (*it*); when it is designated as a marker, then its zero-replacement (*lopa*) occurs; when the zero-replacement occurs, then [*Śī*] consists of a single phoneme (*ekāl*); therefore, here the characteristic of consisting of a single phoneme (*ekāltvam*) does not take place without the total replacement (*sarvādeśatvam*)". Many thanks are due to an anonymous reviewer, who drew my attention on this source.

‘affix’ is given by A 3.1.1 *pratyayaḥ* and it extends up to the end of the fifth *adhyāya* (till A 5.4.160 *niṣpravāṇīś ca*). This is why, in the beginning, *śī* cannot be qualified as *pratyaya*. However, if *śī* is not a *pratyaya*, its initial phoneme *ś* cannot be considered as *anubandha* (i.e. it is not qualified as *it*); if *ś* does not receive the qualification of *it*, there is not its zero-replacement. In conclusion, the substitute *śī* should be understood as *anekāl* and thus substituted to the whole affix *Jas*.

2) *sthānivadbhāva se śī meṃ pratyaya dharma mānakara laśakvataddhite se śakāra kī itsamjñā* |

In agreement with A 1.1.56 *sthānivādādeśo ‘nalvidhau*,¹⁸ *Śī* has the property of being a *pratyaya*; while, as stated by A 1.3.8 *laśakv ataddhite*,¹⁹ the technical term *it* denotes *Ś*.

Since the substitute *śī* is here considered as “(an item) consisting of more than one phoneme” (*anekāl*), it can now take the place of the whole affix *Jas*; in fact, *sūtra* A 1.1.55 *anekālśit sarvasya* teaches the replacement of the whole substituendum by an *anekāl* or a *Śit* substitute. Moreover, A 1.1.56 *sthānivādādeśo ‘nalvidhau* states that a substitute should be treated like the original and, hence, *Śī* takes the property of being a *pratyaya*. The phoneme *Ś* is termed *it*, the moment it acquires the qualification of *pratyaya* and, consequently, there is the *lopa*-replacement of *Ś*, according to A 1.3.9 *tasya lopaḥ* “*lopa* replaces it”:

3) *tasya lopaḥ se usakā lopa] sarva ī* |

In accordance with *tasya lopaḥ* (A 1.3.9),²⁰ *lopa* replaces that (i.e. the phoneme *Ś*). Thus, *sarva-* + *ī*.

In conclusion, *Ś* is zero-replaced; furthermore, there is the *guṇa*-replacement of the remaining *ī* of *Śī* and the final *-a* of *sarva-* to obtain the final form of the nominative plural *sarve*.

4) *guṇaḥ* | *sarve* |

18 A 1.1.56 *sthānivādādeśo ‘nalvidhau*: “the substitute (*ādeśa*) is treated like the substituendum (*sthānin*) except with regard to an operation that is relative to an original phoneme (*aL*)”.

19 A 1.3.8 *laśakv ataddhite* [*pratyayasya* #6, *ādih* #5, *upadeśe*, *it* #2]: “the initial *L*, *Ś* and *KU* of affixes other than *taddhita* (i.e. original enunciation) are designated as *it* in *upadeśa*”.

20 For a detailed analysis of rules A 1.3.8 *laśakv ataddhite* and A 1.3.9 *tasya lopaḥ*, see footnote 7.

[According to A 6.1.87 *ād guṇah*,]²¹ there is a *guṇa*-replacement [of the remaining *ī* of *Śī* and the final *-a* of *sarva-* in continuous utterance]. [Therefore, the final form is] *sarve*.²²

According to the *kaumudīs*, *Śī* can receive the definition of *pratyaya* only through *stānivadbhāva*, that is, on account of its being the substitute of the affix *Jas*. Assignment of the term *pratyaya* facilitates assignment of the term *it* to *Ś* by means of rule A 1.3.8 *lašakv ataddhite*. This, in turn, facilitates deletion of *Ś* by *sūtra* A 1.3.9 *tasya lopah*. For this reason, a total replacement of *Jas* by *Śī* is not accomplished because of *Ś* as an *it*. It is, instead, accomplished because it consists of more than one phoneme (*anekāl*).

3 Paribhāṣā and Traditional Examples on (an)ekāltvam

It is important to note that the SK provides another example concerning a final replacement which is completely different from A 7.1.17 *jaśaḥ śī*. In particular, it deals with the substitute *tṚ* taught by Pāṇini in rule A 6.4.127 *arvaṇas tr asāv anañah*, which prescribes the replacement of the final phoneme of the nominal stem *arvan-* with the substitute *tṚ*, except in the nominative singular (*sU*) or when it is joined with the negative particle (*nañ*). In accordance with A 1.1.52 *alo 'ntyasya [śaṣṭhī #49]*, “a substitute replaces the final phoneme (*aL*) of the substituendum prescribed with a genitive form”. For instance, the final phoneme *-n* of *arvan-* is replaced by the substitute *tṚ* before *au* (nom./acc. du.); thus, *arvatṚ + au*. The marker *Ṛ* is zero-replaced; afterwards, the increment *ṇuM* is inserted after the last vowel of *arvan-* (A 7.1.70 *ugidacām sarvanāmasthāne 'dhātoḥ*),²³ to obtain the final form *arvantau*. The derivation of the nominative dual (and the accusative dual) of *arvan-* can be summarised as follow:

arvan + au (A 4.1.2 *svaujas...ṇyossup*)²⁴

²¹ See footnote 8.

²² It is important to note that this *prakriyā* approach was in part anticipated by the *Bālamānoramā* on SK *ad* A 7.1.17 (including, for instance, the rule A 1.3.8 *lašakv ataddhite*). However, it is evident that the BSK results much more detailed in explaining Bhaṭṭoji's choice once for all.

²³ A 7.1.70 *ugidacām sarvanāmasthāne 'dhātoḥ [aṅgasya #6.4.1 num #58]*: “the increment *ṇuM* is inserted after the last vowel (see A 1.1.47) of a pre-affixal base with *uK* (= *u, r, l*) as a marker (*it*), excluding verbal stems (*adhātoḥ*), but including the verbal stem *ac-* before a strong ending (*sarvanāmasthāne*). In fact, according to aphorism A 1.1.47 *midaco 'ntyātparaḥ*, an increment marked with *M* (such as *ṇuM*) is inserted after the last vowel of the stem to which it is added.

²⁴ A 4.1.2 *svaujasamautḥcaṣṭābhyāmbhisṇebhyāmbhyasṇasibhyāmbhyasṇasosāmṇyoss up* introduces the nominal affixes in the following way: *prathamā vibhakti: sU* (singular),

arvan > *arvatṚ* (A 6.4.127 *arvaṇas tr asāv anañah*)

arvatṚ + *au* (A 1.1.52 *alo 'ntyasya*)

arvat + *au* (A 1.3.9 *tasya lopah*)

arvantau (A 7.1.70 *ugidacāṃ sarvanāmasthāne 'dhātoḥ: arva- + nuM + t̄ + au*).

On the other hand, the substitute *Śī* replaces the whole *sthānin* in accordance with aphorism A 1.1.55 *anekāśīt sarvasya*, which prescribes the total replacement of the substituendum by an *anekāl* or by a *Śīt* substitute.²⁵ Therefore, the derivation of the nominative plural of *sarva-* is as follows:

sarva + *Jas* (A 4.1.2 *svaujas...riyossup*)

Jas > *Śī* (A 7.1.17 *jasah śī*)

sarva + *Śī* (A 1.1.55 *anekāśīt sarvasya*)

sarve (A 6.1.87 *ād guṇah: guṇa a + ī > e*).

It is worthy to note that the example of the derivation of *arvantau* is included in the traditional explanation of the above-mentioned *paribhāṣā*.²⁶ This is the proof that the substitute *tṚ* cannot be *anekāl* because the phoneme *Ṛ* is a common marker, since only the final phoneme of *arvan* has to be replaced by *t* (to obtain *arvatṚ* + *nuM* > *arvant-*). In other words, the *sarvādeśā* is excluded.

By contrast, there are peculiar cases in which *sarvādeśā* applies (according to rule A 1.1.55), despite the *paribhāṣā*. For instance, in *paribhāṣā* VI of Śiradeva, the substitute *ṆaL* replacing *miP* and *tiP* in the perfect is mentioned. In fact, according to this *paribhāṣā*, the substitute *ṆaL* should consist of only one phoneme because, it being an affix, its initial phoneme *Ṇ* and its final phoneme *L* are designated as *anubhandas* and zero-replaced. Consequently, *ṆaL* should replace only the final *i* of *miP* and *tiP*. Nevertheless, *ṆaL* is substituted for the whole *miP* and *tiP* because its phoneme *a* is considered to

au (dual), *Jas* (plural); *dvitīyā: am, auṬ, Śas; tr̥tīyā: Ṭā, bhyām, bhis; caturthī: Ṇe, bhyām, bhyas; pañcamī: NaL, bhyām, bhyas; ṣaṣṭhī: Nās, os, ām; saptamī: Nī, os, suP.*

²⁵ The phoneme *ś* of *śī* cannot be designated as *it* before replacing *Jas*, as explained above.

²⁶ See *paribhāṣā* VI in Śiradeva (*Bṛhatparibhāṣāvṛtti*) and in Nāgeśa (*Paribhāṣenduśekhara*) and *paribhāṣā* IX in Vyādi (Wujastyk 1993).

be a contraction from *a + a*, thus consisting of more than one phoneme (*anekāl*):²⁷

bhū + tiP (A 3.4.78 *tiptasjhi...iḍvahimahiṅ*)²⁸

tiP > NaL (A 3.4.82 *parasmaipadānām ṅalatususthalathusaṅalvamāḥ*)

bhū + NaL (A 1.1.55 *anekālsīt sarvasya: a is anekāl* due to *a + a*)

bhū + a (A 1.3.9 *tasya lopah*)

babhūva (because of the increment *vūK* and the reduplication prescribed for the perfect).²⁹

In *paribhāṣā* VI of Nāgeśa, the *Ḍādi* substitutes (i.e. *Ḍā* etc.)³⁰ are also mentioned as an instance of *sarvādeśa* based on the order in which the grammatical operations take place, namely, the substitution occurs when the *ḍ* of the substitute *ḍā* is not yet designated as a

²⁷ The substitute *NaL* is introduced for the first time by rule A 3.4.82 *parasmaipadānām ṅalatususthalathusaṅalvamāḥ* [liṭaḥ #81]: “the substitutes *NaL*, *atus*, *us*, *thaL*, *athus*, *a*, *NaL*, *va* and *ma* respectively replace (the nine) *parasmaipada* endings (*tiP*, *tas*, *jhi*, *siP*, *thas*, *tha*, *miP*, *vas* and *mas*) of *IIṬ* (i.e. perfect tense)”. The endings of *IIṬ* are introduced after a verbal root, when its action belongs to the past, excluding the current day, and is unperceived (A 3.2.115 *parokṣe liṭ*).

²⁸ A 3.4.78 *tiptasjhisipthasthambivasmastātāmjhathāsāthāmdhvamiḍvahimahiṅ* introduces the verbal endings, as follows:

- *parasmaipada* - 3rd person: *tiP* (singular), *tas* (dual), *jhi* (plural); 2nd person: *siP*, *thas*, *tha*; 1st person: *miP*, *vas*, *mas*.
- *ātmanepada* - 3rd person: *ta*, *ātām*, *jha*, 2nd person: *thās*, *āthām*, *dhvam*, 1st person: *iṭ*, *vahi*, *mahiṅ*.

²⁹ The 3rd person singular of the perfect tense of *bhū-* ‘to be’ can be derived as follows: starting with the form *bhū- + tiP* (A 3.4.78), *tiP* is substituted by *NaL* (A 3.4.82) and this is a complete replacement (A 1.1.55); after the zero-replacement of the initial phoneme *ṅ* and the final phoneme *L* (A 1.3.9), we obtain the form *bhū + a*. The augment *vūK* is inserted after the verbal stem *bhū-*, when a *IIṬ* affix beginning with a vowel follows (A 6.4.88 *bhuvo vuglūṅliṭoḥ*): thus, *bhūv + a*; moreover, the verbal root is reduplicated by means of A 6.1.8 *liṭi dhātor anabhyāsasya*: hence, *bhūv + bhūv + a*. However, a long list of rules concerning the reduplication regulates the changes in the form seen immediately above: the first *bhūv* is designated as *abhyāsa* (A 6.1.4 *pūrvō ’bhyāsah*), and only its first consonant remains (i.e. *bh*), all the other are dropped (A 7.4.60 *halādih śeśah*): thus, *bhū + bhūv + a*. In addition, the vowel of the *abhyāsa* is shortened (A 7.4.59 *hrasvah*) and the resulting *u* of the *abhyāsa* is then changed in *a* when a *IIṬ* affix follows (A 7.4.73 *bhavater ah*): thus, *bha + bhūv + a*. Finally, the voiced consonant of the *abhyāsa* (i.e. *bh*) is changed into a voiced unaspirated consonant (i.e. *b*) by means of A 8.4.54 *abhyāse car ca*: thus, *babhūva*.

³⁰ Note that “the *ādi* of *Ḍādi* is intended to include *Śī* in P. VII.1.17, *Śe* in P. VII.1.39 etc.” (Kielhorn 1960, 34 fn. 1)

marker.³¹ The substitute *ḍā* is taught in the place of the affix *tiP* in the periphrastic future.³² *ḍā* is not interpreted as an affix at first, therefore its initial phonemes *ḍ* cannot be zero-replaced as every other *anubandha* can. Only considering *ḍā* as “an (item) consisting of more than one phoneme” (*anekāl*), it is possible to replace the whole original affix; in this way, the substitute *Ḍā* can be understood as an affix and its initial phoneme *Ḍ*, being *anubandha*, can be zero-replaced:

bhū + tiP (A 3.4.78 *tiptasjhi...iḍvahimahin*)

tiP > Ḍā (A 2.4.85 *luṭaḥ prathamasya ḍāraurasah*)

bhū + Ḍā (A 1.1.55 *anekālsit sarvasya: ā is anekāl* because *ḍā* is not an affix)

bhavitās + Ḍā (because of the insertion of affix *tās* before *IUN* and the augment *iṬ*)

bhavitās + ā (A 1.3.9 *tasya lopaḥ*)

bhavitā (because of the zero-replacement of the final *-ās* of *bhavās*).³³

31 Nāgeśa’s *paribhāṣā* VI reads *ḍādiviśaye tu sarvādeśatvaṃ vinānubandhatvasyaiv-ābhāvenānupūrvyāt siddham*, that is, “but in the domain of the *Ḍādi* [substitutes] (i.e. *Ḍā* etc.), the complete replacement is well established without the absence of the *anubandhas* (i.e. without the application of the *paribhāṣā* and, therefore, because of the *anekāltva* of *ḍā*) on the basis of the order [of the rules’ application]”. It is notable that Vyāḍi does not show any of these examples.

32 A 2.4.85 *luṭaḥ prathamasya ḍāraurasah*: “*Ḍā*, *rau* and *ras* respectively replace the third person endings (*tiP*, *tas*, *jhi*) of *IUT* (i.e. periphrastic future)”. The endings of *IUT* are introduced after a verbal root, when its action is to be denoted in the future, which does not belong to the current day (A 3.3.15 *anadyatane luṭ*).

33 The 3rd person singular of the periphrastic future of *bhū*- ‘to be’ is derived in the following way: starting with the form *bhū + tiP* (A 3.4.78), *tiP* is substituted by *Ḍā* (A 2.4.85); after the complete replacement (A 1.1.55), the affix *tāsI* is introduced after a verbal stem, when a *IUT* affix follows (A 3.1.33 *syatāsi ṛluṭoḥ*): thus, *bhū + tās + Ḍā*. Subsequently, the affix *tās* is designated as *ārdhadhātuka* (A 3.4.114 *ārdhadhātukaṃ śeṣaḥ*) and, for this reason, the augment *iṬ* is inserted before it (A 7.2.35 *ārdhadhātukasyeḍ valādeḥ*): thus, *bhū + iṬ + tās + Ḍā*. Moreover, the final *ū* of *bhū* is replaced by the *guṇa* vowel *o* by means of A 7.3.84 *sārvadhātukārdhadhātukayoḥ* and, because of the sandhi-phenomenon, the *guṇa* vowel *o* is substituted by *av* in accordance with A 6.1.78 *eco ’yavāyāvah*: thus, *bhavitās + Ḍā*. The *Ḍ* of *Ḍā* is zero-replaced (A 1.3.9): thus, *bhavitās + ā*. Finally, the syllable beginning with the last vowel (*ṬI*) of *bhavitās* is zero-replaced, when an affix having the marker *Ḍ* follows (A 6.4.143 *ṭeḥ*): thus, *bhavitā*.

4 Coming Back to Kātyāyana and Patañjali

This explanation of the behaviour of the substitute *Ḍā* stems indeed from the first commentaries on rule A 2.4.85 *luṭaḥ prathamasya ḍāraurasah* “*Ḍā*, *rau* and *ras* are substituted for the third person endings of *IUT*”. It is evident that this is a classic example of an aphorism that prescribes a substitution: the substitutes *Ḍā* (sing.), *rau* (du.), and *ras* (pl.) are the elements that replace the affixes of the 3rd person singular (i.e. *tiP*, *tas*, *jhi*) of the periphrastic future (*IUT*). According to the general pattern of substitution, the substitutes are linked together in a *dvandva* compound which is inflected in the nominative plural; they replace the affixes that are generically described as *prathama-* “3rd person endings” and, since this term represents the substituendum, it is inflected in the genitive singular; moreover, this happens when the action is presented in *IUT*, that is, in the periphrastic future.

The replacement of the whole *tiP* by the substitute *Ḍā* was already a problem for Kātyāyana; in fact, he wrote several vt.s to rule A 2.4.85, trying to explain the reasons behind this substitution:

MI.501 l. 1 vt. 4 ad A 2.4.85: *ḍāvikārasya śitkaraṇaṃ sarvādeśārtham*

There is need of the marker *Ś* for the *ādeśa* *Ḍā* (i.e. it will become *ḌāŚ*) in order to obtain the replacement of the whole substituendum.

The first hypothesis given by Kātyāyana is to add the phoneme *ś* to *Ḍā* to transform it in *ḌāŚ*, therefore considered as *Śit* “(an item) having the marker *Ś*”. As seen from the beginning of this article, the total replacement is justified for substitutes *anekāl* “(items) consisting of more than one phoneme” or *Śit* “(items) having the marker *Ś*” (according to rule A 1.1.55 *anekālśit sarvasya*). Therefore, since the interpretation of the substitute *Ḍā* as *anekāl* is not possible because, once the marker *Ḍ* is zero-replaced, the substitute *ā* consists of one phoneme, the idea is to transform it into a *Śit* substitute.³⁴ The risk is that, if the total replacement is not achieved, *Ḍā* replaces only the final phoneme of the substituendum by means of A 1.1.52 *alo ’ntyasya*.

MI.501 l. 9 vt. 6 ad A 2.4.85: *siddham alo ’ntyavikārāt*

The object is achieved because of the substitution of the final phoneme.

³⁴ Nevertheless, vt. 5 ad A 2.4.85 *nighātaprasaṅgas tu* reveals that adding the phoneme *ś* to the substitute *Ḍā* is useless, because there is the risk of losing the accent.

The second hypothesis is that the object can be achieved even if the *ādeśa* replaces the final phoneme of the substituendum (*tiP*), in accordance with the risk presented at the end of the first hypothesis. According to vt. 6, the substitution is achieved through the zero-replacement (*lopa*) of the syllable beginning with the last vowel (*ṬI*) of the stem before a substitute having the marker *Ḍ* (*Ḍit*), in accordance with rule A 6.4.143 *ṭeḥ*: thus, *bhavitās + t + ā > bhavitØ + ā > bhavitā*.³⁵ It is important to underline that this rule is involved in any case in the process of derivation of the 3rd person singular of the periphrastic future, in particular in the last passage: *bhavitās + ā > bhavitØ + ā > bhavitā* described in footnote 33.

M I.501 l. 15 vt. 8 *ad* A 2.4.85: *anitvād vā*

Or on account of its not acquiring the qualification of *it*.

The third hypothesis is the most interesting because, on the basis of the explanation given by Patañjali to vt. 8 *ad* A 2.4.85, Bhaṭṭoji Dikṣita comments rule A 7.1.17 *jasaḥ śī*, defining substitute *śī* as *anekāl*. In fact, while discussing the risk of the second hypothesis, it becomes evident that the substitute replacing the final phoneme of an affix cannot itself be designated as an affix. This conclusion of Patañjali triggers a series of chain reactions which are schematically illustrated as follows:

1. that which replaces the final phoneme of an affix cannot itself be an affix;
 2. if *ḍā* is not an affix, its initial phoneme *ḍ* cannot be qualified as *anubandha*;
 3. if the phoneme *ḍ* is not qualified as *anubandha*, it cannot be zero-replaced;
 4. if the phoneme *ḍ* is not zero-replaced, *ḍā* should be considered *anekāl*
- > there is the replacement of the whole substituendum based on its being *anekāl*;
5. if there is a complete substitution, *Ḍā* can be considered an affix;
 6. if *Ḍā* is an affix, its initial phoneme *Ḍ* can be qualified as *anubandha*;

35 The derivation of the final form *bhavitā* (3rd pers. sing. of the periphrastic future) by only replacing the final phoneme of the substituendum (*tiP*) with the substitute *Ḍā* can be thus demonstrated. In fact, Kātyāyana accepts this hypothesis prescribing the *lopa* of the remaining *t* of *tiP* (i.e. *bhavitās + t + ā*) in vt. 7 *ad* A 2.4.85 *ḍiti ṭer lopāl lopaḥ*. However, even if this solution is accepted by the author of the vt.s, he proposes two other vt.s to explain the complete substitution; in particular, vt. 8 *ad* A 2.4.85 *anitvād vā* is the most interesting for the scope of this research and is analysed below.

7. if the phoneme *Ḍ* is qualified as *anubandha*, it can be zero-replaced.³⁶

For the sake of completeness, one last vt. explaining the total replacement of *tiP* with *Ḍā* is illustrated:

M I.501 l. 20 vt. 9 *ad* A 2.4.85: *praśliṣṭānirdeśād vā*

Or by obtaining it on the basis of a *praśliṣṭa-nirdeśa*.

In this specific case, the phoneme *Ḍ* of the substitute *Ḍā* can be zero-replaced, but the remaining *ā* is still considered as *anekāl* “(an item) consisting of more than one phoneme”, as it stands for *ā + ā*.³⁷ The total replacement is thus justified by means of A 1.1.55 *anekāśīt sarvasya*. What is remarkable is that this is the same process accepted for the replacement of the affix *tiP* with the substitute *ÑāL* in the perfect tense, as seen in the previous section.

This explanation of the substitution of *Ḍā* is also valuable to explain the substitute *Śī* (A 7.1.17 – see section 1 above). As already seen for the previous rule A 2.4.85, there is a general pattern of substitution that prescribes the substitute *Śī* (in the nominative singular) in the place of the affix *Jas* (in the genitive singular). However, in M III.246 *ad* A 7.1.17, Patañjali does not mention the way in which this replacement should take place. There is only one hint to such a replacement in M I.131-132 *ad* A 1.1.55, in which Patañjali states that, if vt. 8 *ad* A 2.4.85 (i.e. *anitvād vā*) is accepted, there is no scope for ...*śīt sarvasya* in rule A 1.1.55. The following scheme represents this reasoning:

1. that which replaces the final phoneme of an affix cannot itself be an affix;
 2. if *śī* is not an affix, its initial phoneme *ś* cannot be qualified as *anubandha*;
 3. if the phoneme *ś* is not qualified as *anubandha*, it cannot be zero-replaced;
 4. if the phoneme *ś* is not zero-replaced, *śī* should be considered *anekāl*
- > there is the replacement of the whole substituendum based on its being *anekāl*;
5. if there is a complete substitution, *Śī* can be considered an affix;

³⁶ See M I.501 ll. 16-19 on vt. 8 *ad* A 2.4.85.

³⁷ This hypothesis is clearly rejected by Kielhorn (1960), who defines it as being superfluous, since he clearly approves the former (i.e. vt. 8 *anitvād vā*).

6. if *Śī* is an affix, its initial phoneme *Ś* can be qualified as *anubandha*;
7. if the phoneme *Ś* is qualified as *anubandha*, it can be zero-replaced.

Patañjali *ad A* 1.1.55 concludes that ...*śit sarvasya* has a scope in this rule only if the *paribhāṣā* “*nānubandhakṛtam anekāltvam*” is taken into account. However, this explanation based on vt. 8 *ad A* 2.4.85 (i.e. *anitvād vā*) and on the relevant commentary of Patañjali is evidently the earliest source of Bhaṭṭoji Dīkṣita’s interpretation of the substitute *śī* as *anekāl*.

5 Conclusion

This research on the replacement of the whole affix *Jas* by the substitute *Śī* (A 7.1.17) shows a double historical interpretation of rule A 1.1.55: according to the M, the KV, the R and the PK, the substitute *Śī* is endowed with the *anubandha Ś* and, for this reason, it replaces the whole affix *Jas* after a pronominal stem ending in the short vowel *-a*; all the *kaumudīs* beginning with the SK believe that the substitute *śī* is to be considered as *anekāl* “(an item) consisting of more than one phoneme” and that this is the only way to obtain the replacement of the entire affix *Jas*. Since the designation of *pratyaya* is given by A 3.1.1 *pratyayaḥ* up to the end of the fifth *adhyāya* (till A 5.4.160 *niṣpravāṇis ca*), the substitute *śī* cannot initially be qualified as a *pratyaya*. However, if *śī* is not a *pratyaya*, its initial phoneme *ś* cannot be considered as an *anubandha* (that is, it cannot be designated as *it*); but if *ś* does not receive the qualification of *anubandha*, there is not its zero-replacement. Thus, *śī* should be understood as *anekāl* and substituted to the whole affix *Jas*.

The substitutes *Ḍā* etc. (taking the place of *tiP* in the periphrastic future) work in the same manner. It is evident from vt.s on A 2.4.85 that this solution was presented for the first time by Kātyāyana, who devotes several vt.s to demonstrate that the substitute *ḍā* is *anekāl*, giving rise to the total replacement of the affix *tiP*. First of all, he suggests adding the phoneme *Ś* to the substitute *Ḍā* to transform it in *ḌāŚ*, thus considered as a *Śit* “(an item) having the marker *Ś*” (vt. 4); he later shows that the object can be achieved even if the substitute *Ḍā* replaces only the final phoneme of the substituendum *tiP* (vt. 6); finally, he states that the substitute which replaces the final phoneme of an affix cannot itself be designated as affix (vt. 8). This conclusion triggers a series of chain reactions which are schematically illustrated by Patañjali as follows: that which replaces the final phoneme of an affix cannot itself be an affix; therefore, if *ḍā* is not an affix, its initial phoneme *ḍ* cannot be qualified as *anubandha*; if the phoneme *ḍ*

is not qualified as *anubandha*, it cannot be zero-replaced; if the phoneme *ḍ* is not zero-replaced, *ḍā* should be considered as *anekāl*; as a consequence, there is the replacement of the whole affix *tiP* by the substitute *ḍā* on its being *anekāl*; if there is a complete substitution, *Ḍā* can be considered an affix; if *Ḍā* is an affix, its initial phoneme *Ḍ* can be qualified as *anubandha*; if the phoneme *Ḍ* is qualified as *anubandha*, it can be zero-replaced.

While presenting its commentary to A 7.1.17 *jasah śī*, Bhaṭṭoji Dīkṣita re-introduces this perspective according to which the substitute *śī* is to be considered as *anekāl* “(an item) consisting of more than one phoneme”, and not as *Śit* “(an item) having the marker *Ś*”. It is immediately evident, after going through the several steps of the present research, that the idea of interpreting the substitute *śī* as *anekāl* comes to Bhaṭṭoji Dīkṣita from the vt.s. The SK re-interprets the tradition, taking position against the M and the following commentaries, and re-introducing this qualification of the substitute *Śī*. It is worth noting that this change of perspective is necessary for the SK in order to clearly explain the *prakriyā* of the final form *sarve* (nom. pl.). Moreover, since all the other *kaumudīs* are completely based on the SK, it is not difficult to understand why Varadarāja treats the substitute *śī* as *anekāl* in his three *kaumudīs*, or why a modern work such as the BSK (in the 1969) still continues to understand the total replacement of the affix *Jas* by the substitute *śī* as based on its being “(an item) consisting of more than one phoneme”. All in all, it is extremely interesting that the *kaumudīs*’ tradition adopts such reading of rule A 7.1.17, even though Patañjali concludes his long discussion on Kātyāyana’s vt.s in favour of the root text, thus considering *Śit* as a compulsory part of the wording of A 1.1.55.

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Pāṇini and the Non-Head (*upasarjana*) of Attributive Endocentric Compounds

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Abstract This study aims at contributing to our understanding of Pāṇini’s classification of compounds. In particular, this study investigates the notion *upasarjana* – roughly translatable as ‘non-head’ – in attributive endocentric (so-called *karmadhāraya*) compounds like *nava-jvāra-* ‘new suffering’, by addressing the following questions: do the units that Pāṇini designated as *upasarjana* in subordinate endocentric (so-called *tatpuruṣa* ‘proper’) compounds like *aśva-śapha-* ‘horse’s hoof’ share any feature with the units that he designated as *upasarjana* in *karmadhārayas*? More generally, what is the hallmark of the units designated as *upasarjana*? To answer these questions, we shall delve into several rules of Pāṇini’s grammar – the *Aṣṭādhyāyī* – which conceal such powerful grammatical tools as silent case endings and the operation of case-copying.

Keywords Case-copying. Compounding. Derivational levels. Headedness. Sanskrit.

Summary 1 Introduction. – 2 The Puzzle. – 3 Pāṇini’s Model of Compounds. – 3.1 The Morphological Status of Compound-Members. – 3.2 *Upasarjana* Inside and Outside Compounding. – 3.3 On the Segment *apūrvanipāte*. – 3.4 Rephrasing the Puzzle. – 4 The Ambiguity of *ekavibhakti*. – 4.1 A Rule for Present Participles. – 4.2 An Instance of Case-Copying in the *Aṣṭādhyāyī*. – 4.3 Case-Copying in *karmadhārayas*. – 4.4 Uncovering the *ekavibhakti* Unit in *karmadhārayas*. – 4.5 Summary. – 5 Conclusion.



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1 Introduction

The ancient Indian grammarian Pāṇini (ca. fourth century B.C.) came up with a fine-grained classification of compounds, involving such compound-classes as *tatpuruṣa*, *karmadhāraya*, *dvandva*, *bahuvrīhi*, *avyayībhāva*. Some of these terms still survive in contemporary treatments of compounding: see, e.g. Scalise, Bisetto 2009; Bauer 2017. Nevertheless, the criteria on which Pāṇini grounded his classification of compounds are still poorly understood. For instance, Tribulato's (2015, 53) claim that Pāṇini's classification is a semantic one is certainly not correct (see also Bauer 2017, 107-12), as revealed by Pontillo's findings on the so-called *upasarjana* (Pontillo 2003b).¹

In the present study, I address a puzzle posed by Pāṇini's analysis of *karmadhāraya* compounds (i.e. attributive endocentric compounds, in the terms of Bisetto, Scalise 2005; Scalise, Bisetto 2009). The resolution of this puzzle will shed some light on the criteria that a compound must satisfy to count as *karmadhāraya*, and hence, on the criteria underlying Pāṇini's classification of compounds more broadly.

The present study is organised as follows. In section § 2, I provide a simplified illustration of the puzzle that this study attempts to solve. In section § 3, I discuss in some detail Pāṇini's model of compounding with a focus on the notion of *upasarjana*. This will allow me to rephrase the puzzle informally illustrated in § 2 in more precise terms. In section § 4, I capitalise on the rule governing present participles to advance a solution to the puzzle described in § 2. Finally, in section § 5 I sum up the preceding discussion and draw some conclusions.

2 The Puzzle

Consider *aśva-śapha*- 'horse's hoof' (ŚB 13.3.4.4), a Sanskrit compound formed from the nouns *aśva*- 'horse' and *śapha*- 'hoof'. This compound is equivalent in meaning to both *śaphād aśvasya* 'from the horse's hoof' (1a) and *aśvasya śapham* 'the horse's hoof' (1b).²

For inspiring my work in various ways, I would like to express my gratitude to Matteo Greco, John Lowe, Andrea Moro, and Tiziana Pontillo. I would also like to recognise my debt to the two anonymous reviewers for correcting my numerous mistakes and suggesting smart ways to improve the manuscript. Finally, I wish to thank Artemij Keidan for providing me with a lively environment to learn and discuss several aspects of Sanskrit grammar during the Coffee Break Conference panel *Vyākaraṇa and Its Many Espouses: Linguistics, Philology, Philosophy* (Rome, 10-11 December 2021), and Andrea Drocco for managing my submission with great care and kindness at the same time.

¹ See also Candotti, Pontillo 2019; 2022; Mocci, Pontillo 2019; Pontillo 2021.

² I shall mark accents in textual examples only.

(1a) ṚV 1.117.6

śaphād ásvasya śatám [...] kumbhān asiñcatam mádhūnām.
 hoof.ABL.SG.M horse.GEN.SG.M hundred pot.ACC.PL.M pour.IND.IMP.2DU honey.GEN.PL.N

‘You two poured a hundred pots of honey from the horse’s hoof.’³

(1b) (Invented example)⁴

aśvasya śapham paśyāmi.
 horse.GEN.SG.M hoof.ACC.SG.M see.IND.PRS.1SG

‘I see a horse’s hoof.’

Interestingly, *aśva-* has one single case ending in (1), in the sense that the case ending of *aśva-*, unlike that of *śapha-*, remains unchanged in these sentences: *śapha-* is inflected in the ablative in (1a), where the noun phrase headed by *śapha-* (i.e. *śaphād aśvasya*) fulfills the function of circumstantial complement of place, but is inflected in the accusative in (1b), where the noun phrase headed by *śapha-* (i.e. *aśvasya śapham*) fulfills the function of direct object; on the other hand, *aśva-* remains inflected in the genitive in both (1a) and (1b).

Pāṇini noted this asymmetry between the changeable case ending of *śapha-* and the unchangeable case ending of *aśva-* in (1).⁵ Thus, in his grammar (the *Aṣṭādhyāyī* or “A” for short), he designates *ásva-* as the *upasarjana* of *aśva-śapha-* (rule A 2.2.8, to be considered in combination with A 1.2.43);⁶ then, he defines the *upasarjana* as the unit that, when embedded in a sentence pair like (1a-b), results as being *ekavibhakti* (rule A 1.2.44). In keeping with work by Tiziana Pontillo and Maria Piera Candotti (see especially Pontillo 2003b; Candotti, Pontillo 2019, 22-4; Pontillo 2021, 505-9), *ekavibhakti* means ‘having one single case ending’, hence ‘having an unchangeable case ending’. Therefore, the *upasarjana* is for Pāṇini the compound-member that, when embedded in a sentence pair like (1a-b), results as having (i.e. being inflected in) an unchangeable case-ending. Accordingly,

³ Unless otherwise stated, all translations are by the Author.

⁴ For a textual example, cf. *só śvasyāvāntaraśaphò bhavat* ‘this became the intermediate hoof of the horse’ in TS 5.2.6, where *śapha-* is inflected in the nominative (*śaphah*, which shows up as *śapho* in compliance with the euphonic combinatory rules going under the rubric “sandhi”). The comparison of examples like this from TS or (1b) with examples like (1a) shows that the ordering of an inflected form of *śapha-* with respect to an inflected form of *aśva-* is not fixed.

⁵ Note that ‘changeable’ and ‘unchangeable’ are used in this paper merely to refer to the ability or inability of an inflected noun that belongs to a noun phrase (NP) to display different case endings when a NP fulfils different grammatical functions.

⁶ A 1.2.43 and 2.2.8 will be examined in detail in § 3 below. At this stage of the paper, the discussion will be kept at an informal level.

the asymmetry between the changeable case ending of *śapha-* and the unchangeable case ending of *aśva-* in a sentence pair like (1a-b) is brought out, in Pāṇini's grammar, by the fact that *aśva-*, as opposed to *śapha-*, gets the designation *upasarjana*.

Consider now so-called *karmadhāraya* compounds – which correspond to attributive endocentric compounds in the classification of Bisetto, Scalise 2005; Scalise, Bisetto 2009 – such as *nava-jvāra-* 'new suffering'. In A 2.1.49 (to be considered in combination with A 1.2.43), Pāṇini designates *nava-* 'new' as the *upasarjana* of *nava-jvāra-*. Then, by the rule-segment *ekavibhakti* occurring in A 1.2.44, we expect *nava-* to be a unit U such that, when U is embedded within an appropriate sentence pair, such as the invented examples (2a-b), the case ending of U results as being unchangeable. And yet, the case ending of *nava-* changes in (2a-b) just like the case ending of *jvāra-* 'suffering': both *nava-* and *jvāra-* are inflected in the nominative in (2a), where the noun phrase headed by *jvāra-* (i.e. *navo jvārah*) fulfils the function of subject of the predication; both *nava-* and *jvāra-* are inflected in the accusative in (2b), where the noun phrase headed by *jvāra-* (i.e. *navam jvāram*) fulfils the function of direct object.

(2a) (Adapted from ṚV 1.42.8ab)

<i>navo</i>	<i>jvāro</i>	<i>adhvane.</i>
new.NOM.SG.M	suffering.NOM.SG.M	road.DAT.SG.M

'New suffering is on the road'.

(2b) (Invented example)

<i>navam</i>	<i>jvāram</i>	<i>paśyāmi.</i>
new.ACC.SG.M	suffering.ACC.SG.M	see.IND.PRS.1SG

'I see new suffering'.

Therefore, there seems to be no asymmetry between *nava-* and *jvāra-* in *nava-jvāra-* when it comes to case endings: neither of these compound-members, when it is embedded within an appropriate sentence pair, results in being *ekavibhakti*, i.e. results in having an unchangeable case ending.

We are thus faced with a puzzle. On the one hand, A 2.1.49 teaches that *nava-* (and not *jvāra-*) gets the designation *upasarjana* in *nava-jvāra-*. On the other hand, A 1.2.44 defines the *upasarjana* as the *ekavibhakti* unit, but *nava-* is not *ekavibhakti* in *nava-jvāra-*: *nava-* does not have an unchangeable case ending when it is embedded in a sentence pair like (2a-b). Thus, A 1.2.44 is in apparent contradiction with A 2.1.49 when it comes to *karmadhārayas* like *nava-jvāra-*. Let us, however, note that the contradiction only arises if we read *ekavibhakti* as 'having an unchangeable case ending'. In this paper, I

argue for an ambiguous reading of *ekavibhakti* that eschews the contradiction between A 2.1.49 and 1.2.44.

In the next section (§ 3), I shall provide a more detailed account of how the *upasarjana*-based model of compounding devised by Pāṇini works. This will make it possible to rephrase the puzzle outlined in this section in more precise terms.

3 Pāṇini's Model of Compounds

A whole section of Pāṇini's grammar, namely A 2.1-2.2, is dedicated to specifically to compounding; in addition, other rules from other sections provide ancillary information and definitions regarding compounds and compound-members. In what follows, I will briefly illustrate how the compounding phenomenon is modelled in Pāṇini's rules, concentrating on the notion of *upasarjana*.

3.1 The Morphological Status of Compound-Members

In this subsection we shall consider three rules: A 2.1.4, 1.2.46, and 2.4.71. Building on Cardona (1997, 21-3, 186, 207), Kiparsky (2009, 67, 81-2), Candotti and Pontillo (2019, 31; 2022, 10), I will present a reading of these rules whereby they are strictly interconnected.

To start with, the general rule that governs compounding is A 2.1.4:

A 2.1.4: *saha supā* [*sup* 2.1.2] [*samāsaḥ* 2.1.3].

'a nominal inflected word (*sUP*) combines with another nominal inflected word in order to form a compound'.

In accordance with this rule, compound-members are nominal inflected words. Interestingly, A 1.2.46 teaches that a compound, which is made up of two inflected words, indeed qualifies as a nominal stem (*prātipadika*).⁷

A 1.2.46: *kr̥taddhitasamāsās ca* [*prātipadikam* 1.2.45].

'Nominal deverbal derivatives (*kr̥t*), nominal denominal derivatives (*taddhita*), and compounds also go under the rubric 'nominal stem' (*prātipadika*)'.

⁷ *prātipadika* is also translated as 'nominal base'. For our purposes, nominal stem and nominal base can be taken to be equivalent notions: both refer to what is left when the case ending of a nominal inflected word is dropped (see, among others, Wackernagel 1905, 10).

At first sight, the information that a compound is a (nominal) stem – as taught by A 1.2.46 – is incompatible with the information that compound-members are (nominal) inflected words (as taught by A 2.1.4). For example, given the compound stem *aśva-śapha-* ‘horse’s hoof’, it does not seem to be possible to consider the compound-members *aśva-* and *śapha-* as inflected words: from a morphological point of view, *aśva-* and *śapha-* are stems, not inflected words. The question then arises as to how we can reconcile the information taught by A 1.2.46 with the information taught by A 2.1.4. The answer to this question is suggested by another rule:

A 2.4.71: *supo dhātuprātipadikayoḥ* [luk 2.4.58].

‘A case ending that is part of a verbal or nominal stem (*dhātuprātipadikayoḥ*) is zero-replaced’.

In accordance with A 2.4.71, any case ending contained within a nominal stem is zero-replaced.⁸ But we have just seen that compounds qualify as nominal stems (*prātipadikas*) in compliance with A 1.2.46. Accordingly, any case ending contained within a compound is zero-replaced. That is, *aśva-śapha-* (a compound stem) derives from *aśvasya śaphaḥ* ‘horse’s hoof’ (a combination of run-of-the-mill inflected words) via the zero-replacement of the case endings attached to *śaphaḥ* and *aśvasya*. Formally:

(3)
aśva-sya śapha-ḥ → *aśva-∅ śapha-∅* = *aśva-śapha-*
 horse-GEN hoof-NOM
 ‘horse’s hoof’.

Crucially, zero is always an allomorph of an overt morpheme in the *Aṣṭādhyāyī* (Pontillo 2003a, 139-40; Kiparsky 2009, 80). Thus, the zero attached to *aśva-* in (3) is a silent allomorph, and the *-sya* attached to *aśva-sya* an overt allomorph, of the abstract morpheme SYA that represents the genitive case ending of the thematic declension. Likewise, the zero attached to *śapha-* in (3) is a silent allomorph, and the *-ḥ* attached to *śapha-ḥ* an overt allomorph, of the abstract morpheme S that represents the nominative case ending of the thematic declension. In other words, the zero attached to *aśva-* in (3) qualifies as a genitive case ending on a par with the *-sya* attached to *aśva-sya*,

⁸ *Contra* Sharma (1999-2003, 221), I am taking the case ending of the compound *dhātuprātipadikayoḥ* to be locative, rather than genitive. In this way, *dhātuprātipadikayoḥ* informs us that the locus in which the case ending (*sUP*) to be zero-replaced occurs is a verbal or nominal stem.

whereas the zero attached to *śapha-* in (3) qualifies as a nominative case ending on a par with the *-ḥ* attached to *śapha-ḥ*. Therefore, (3) is best represented as in (4), where *aśva-Ø^{GEN} śapha-Ø^{NOM}* is a combination of nominal inflected words marked with a specific (albeit silent) case ending.

(4)

aśva-sya śapha-ḥ → *aśva-Ø^{GEN} śapha-Ø^{NOM}* = *aśva-śapha-*
 horse-GEN hoof-NOM
 'horse's hoof'.

Generalising the results that we have just reached, we may say that, according to Pāṇini, compound-members are nominal inflected words of a special sort: like run-of-the-mill nominal inflected words, they are endowed with a case ending (rule A 2.1.4), but – unlike in run-of-the-mill nominal inflected words – such a case ending is silent (rule A 2.4.71).⁹ Owing to the silent character of the case endings attached to compound-members (e.g. *aśva-Ø^{GEN} śapha-Ø^{NOM}*), compound-members are – at least at the surface level of language – non-distinct from nominal stems (e.g. *aśva-* and *śapha-*). What is more, the combination of a nominal inflected word whose case ending is silent (e.g. *aśva-Ø^{GEN}*) with another nominal inflected word whose case ending is also silent (e.g. *śapha-Ø^{NOM}*) is – again at the surface level of language – non-distinct from a new nominal stem (e.g. the nominal stem *aśva-śapha-* is superficially non-distinct from the combination of inflected words *aśva-Ø^{GEN} śapha-Ø^{NOM}*). This allows Pāṇini to designate a compound like *aśva-śapha-* (= *aśva-Ø^{GEN} śapha-Ø^{NOM}*) as a nominal stem (rule A 1.2.46). Qua nominal stem, *aśva-śapha-* behaves like any non-compound nominal stem taken from the lexicon: *aśva-śapha-* 'horse's hoof' has its own accent (on the last syllable, i.e. *aśva-śaphá-* – see ŚB 13.3.4.4), its own inherent gender (masculine), and its own inflectional class (thematic declension), just like the non-compound nominal stem *putrá-* 'son'.

Thus, a convenient way of characterising Pāṇini's model of compounding is involving two levels of representation: a deep level, in which case-endings are represented even when they are silent (e.g.

⁹ Twenty-four centuries after Pāṇini, Lowe (2015b) also proposed that the members of Sanskrit compounds are words, rather than sub-word units. Note that Pāṇini's model of compounding is particularly well-suited to account for so-called "*aluk* compounds" such as *apsu-ṣad-* (lit. water.LOC.PL.F-sitting) 'sitting amid the waters' (RV 3.3.5), where the left-hand member of the compound is endowed with an overt case ending (in this example, locative): in Pāṇini's model (rules A 6.3.1-6.3.24), *aluk* compounds merely differ from ordinary compounds like *aśva-śapha-* in that the zero-replacement of the overt case ending attached to the compound's left-hand member applies to ordinary compounds but not to *aluk* compounds (see Cardona 1997, 224-5; Candotti, Pontillo 2019, 31 fn. 41). I am indebted to one of the anonymous reviewers for drawing my attention to this point.

aśva-Ø^{GEN} śapha-Ø^{NOM}), and a surface level, in which case endings are represented only when they are overt. In this two-tiered model, the information that a compound is a nominal stem – as taught by A 1.2.46 – does not conflict with the information that a compound is a combination of nominal inflected words (as taught by A 2.1.4): since the case-endings attached to compound-members are silent in keeping with A 2.4.71, a compound appears as a combination of inflected words (*aśva-Ø^{GEN} śapha-Ø^{NOM}*) only at the deep level of representation, while showing up as a nominal stem (*aśva-śapha-*) at the surface level of representation, where silent case endings are never represented.

At this point, one may wonder whether the semantic import of suffixing a null case ending to a certain nominal stem is the same as the semantic import of suffixing an overt case ending to that nominal stem. In other words, does the meaning of, e.g. *aśva-śapha-* (= *aśva-Ø^{GEN} śapha-Ø^{NOM}*) – where *aśva-* and *śapha-* are endowed with a silent case ending – differ from the meaning of *aśvasya śaphaḥ*, where *aśva-* and *śapha-* are endowed with an overt case ending? Indeed, Pāṇini directly addressed this question in A 2.1.1:¹⁰

A 2.1.1: *samarthaḥ padavidhiḥ*.

‘A provision that depends on nominal inflected words has the same meaning [as the output of the provision]’.

The gist of A 2.1.1 can be simplified along the following lines: let C be a compound (e.g. *aśva-śapha-* = *aśva-Ø^{GEN} śapha-Ø^{NOM}*); let W₁ + W₂ be the combination of nominal inflected words from which C derives via the zero-replacement of the case endings attached to W₁ and W₂ (e.g. *asvasya śapha*); let R be the rule which outputs C and directly or indirectly mentions W₁ and W₂ (e.g. A 2.2.8, examined in detail in § 3.2 below); then, A 2.1.1 teaches that C is synonymous with W₁ + W₂ (see Pontillo 2018 for relevant discussion). Therefore, in light of A 2.1.1 interpreted *à la* Pontillo (2018), I conclude that the meaning of a compound (i.e. the meaning of a combination of inflected words endowed with silent case endings, such as *aśva-śapha-* = *aśva-Ø^{GEN} śapha-Ø^{NOM}*) does not differ from the meaning of the corresponding combination of inflected words endowed with overt case endings (*aśvasya śaphaḥ*) in Pāṇini’s model of compounding.

In sum, a distinctive property of Pāṇini’s model of compounding is the idea that silent case endings are suffixed to compound-members. This idea makes it possible to reconcile the information that a compound is a stem (A 1.2.46) with the information that a compound

¹⁰ I am following Pontillo 2018’s interpretation of A 2.1.1, which differs substantially from the traditional interpretation going back to Kātyāyana. On the advantages of her new interpretation over the traditional one, see Pontillo 2018, 132-5.

is a combination of inflected words (A 2.1.4): at the surface level of representation, the combination of two compound-members endowed with silent case endings is non-distinct from a compound-stem; at a deeper level of representation, however, those selfsame compound-members endowed with a silent case ending are in all relevant respects inflected words.

3.2 *Upasarjana* Inside and Outside Compounding

Let us now examine a crucial notion for Pāṇini's model of compounding, namely the notion of *upasarjana*. Pāṇini introduces this notion in A 1.2.43:

A 1.2.43: *prathamānirdiṣṭaṃ samāsa upasarjanam.*

'What is mentioned in the nominative in a compound[rule] goes under the rubric *upasarjana*'.

This is a meta-rule, in the sense that it provides instructions as to how (segments of) other rules should be properly read. Specifically, A 1.2.43 informs the reader that, whenever Pāṇini mentions a form X in the nominative in a compound-rule, the reader must identify X as an *upasarjana*. The nominative case in which X is mentioned in a compound-rule is dubbed as 'metalinguistic nominative'. To illustrate how A 1.2.43 works with a concrete example, let us consider A 2.2.8, which is a compound-rule.

A 2.2.8: *ṣaṣṭhī [samāsaḥ 2.1.3] [saha supā 2.1.4] [vā 2.1.18] [tatpuruṣaḥ 2.1.22].*

'a noun inflected in the genitive preferably combines with a nominal inflected word to form a tatpuruṣa compound'.¹¹

This rule teaches to form, for example, *aśva-śapha-* from *aśvasya śaphaḥ*, i.e. from the combination of the run-of-the-mill inflected forms of *śapha-* 'horse' and *aśva-* 'hoof' (technically, such a combination is an NP). Specifically, *ṣaṣṭhī-* 'noun inflected in the genitive' of A 2.2.8 refers to *aśvasya* 'horse.GEN', because *aśvasya* is inflected in the genitive. But *ṣaṣṭhī-* is in turn inflected in the metalinguistic nominative in A 2.2.8, i.e. as *ṣaṣṭhī*. Thus, while being inflected in the metalinguistic nominative inside a compound-rule, *ṣaṣṭhī-* refers to

¹¹ Simplifying somewhat, *tatpuruṣa* compounds correspond to subordinate endocentric compounds (e.g. English *truck-driver*) in Scalise and Bissetto's classification: see Bissetto, Scalise 2005; Scalise, Bissetto 2009. As for the involvement of *vā* in A 2.2.8, I am following Kiparsky 1979, 3; Radicchi 1988, 56-8; Candotti, Pontillo 2022, 10 fn. 26 in taking *vā* to continue from A 2.1.18 through 2.2.9 by the so-called mechanism of *anuvṛtti*.

a form that, outside compound-rules, is inflected in the non-metalinguistic genitive case (*aśvasya*). At this point, the reader is instructed by A 1.2.43 to identify *aśvasya* as *upasarjana* in the NP *aśvasya śaphaḥ*, insofar as *aśvasya* is referred to by a noun inflected in the metalinguistic nominative (*śaṣṭhī*) in a compound-rule.

By means of A 1.2.43, one may construct a set of the units that count as *upasarjana* within the *Aṣṭādhyāyī*: e.g. all the units that are referred to by the rule-segment *śaṣṭhī* figuring in A 2.2.8 belong to such a set. However, A 1.2.43 does not tell us what linguistic features the elements inserted in that set (call it the ‘*upasarjana* set’) share; that is, A 1.2.43 does not provide us with a genuinely linguistic criterion that justifies the membership of those units to the *upasarjana* set (see Pontillo 2003b: 21 and the references quoted therein). Such a criterion is indeed offered by Pāṇini in A 1.2.44: the *upasarjana* is the *ekavibhakti* unit, i.e. the unit that has an unchangeable case ending (see Pontillo 2003b; Candotti, Pontillo 2019, 22-4; Pontillo 2021, 505-9).¹²

A 1.2.44: *ekavibhakti cāpūrvanipāte [upasarjanam 1.2.43]*.

‘And what has an unchangeable case ending also goes under the rubric *upasarjana*, even when it does not occupy the left-hand slot [of a compound]’.

Now, the *ekavibhakti* unit may be a compound-member (e.g. *aśva-* in *aśva-śapha-*) or an NP-internal inflected word (e.g. *aśvasya* in *aśvasya śaphaḥ*).¹³ Let us consider how, starting with the case in which the *ekavibhakti* unit is an NP-internal inflected word.

Indeed, *śaphaḥ* is not *ekavibhakti* in the NP *aśvasya śaphaḥ*, insofar as the case ending displayed by *śaphaḥ* (i.e. nominative) varies depending on the grammatical function fulfilled by the NP *aśvasya*

¹² It may reasonably be contended that the main purpose of A 1.2.44 is to extend the designation *upasarjana* to units other than those that satisfy the requirement imposed by A 1.2.43, i.e. to units that, while not being referred to by a form inflected in the metalinguistic nominative in a compound-rule, display an unchangeable case ending (*ekavibhakti*). However, the contention that A 1.2.44 primarily aims at extending the designation of *upasarjana* is not by any means incompatible with – and hence does not undermine – the claim that A 1.2.44 also provides a genuinely linguistic criterion for defining the *upasarjana* (namely, that it displays an unchangeable case ending). What is necessary to undermine the latter claim is a case in which units designated by Pāṇini as *upasarjana* fail to comply with the genuinely linguistic criterion imposed by A 1.2.44. In what follows I shall argue that attributive endocentric (*karmadhāraya*) compounds do not provide such a case; see Pontillo 2003b for evidence that other compound types, too, do not provide such a case. I am indebted to one of the anonymous reviewers for drawing my attention to this point.

¹³ For the sake of simplicity, I shall disregard here the case in which the *ekavibhakti* unit is a member of *taddhitas* (i.e. nouns derived from other nouns), which also involve an *upasarjana*. See Candotti, Pontillo 2019, 25; (2022, 16-17) in this connection.

śaphaḥ in a given pair of sentences. For instance, *śaphaḥ* is inflected in the ablative in (1a) (repeated below as (5a)), where the NP *aśvasya śaphaḥ* fulfils the function of circumstantial complement (the so-called *apaḍāna* ‘source’ of the Indian grammatical tradition); but *śaphaḥ* is inflected in the accusative in (1b) (repeated below as (5b)), where the NP *aśvasya śaphaḥ* fulfils the function of direct object.

(5a) ṚV 1.117.6

śaphā́d *aśvasya* *śatām* [...] *kumbhān* *asiñcatam* *mādhūnām*.
hoof.ABL.SG.M horse.GEN.SG.M hundred pot.ACC.PL.M pour.IND.IMP.2DU honey.GEN.PL.N

‘You two poured a hundred pots of honey from the horse’s hoof’.

(5b) (Invented example)

aśvasya *śapham* *paśyāmi*.
horse.GEN.SG.M hoof.ACC.SG.M see.IND.PRS.1SG

‘I see a horse’s hoof’.

On the other hand, *aśvasya* does qualify as *ekavibhakti* in the NP *aśvasya śaphaḥ*, insofar as the different grammatical functions fulfilled by the NP *aśvasya śaphaḥ* in (5a-b) (i.e. the functions of direct object and circumstantial complement) do not result in *aśvasya* displaying different case endings: the case ending displayed by *aśvasya* is the same (i.e. genitive) in (5a) and (5b). Since *aśvasya* qualifies as *ekavibhakti* in the NP *aśvasya śaphaḥ*, *aśvasya* gets the designation *upasarjana* in the NP *aśvasya śaphaḥ* in compliance with A 1.2.44. In this way, A 1.2.43 and 1.2.44 converge in identifying *aśvasya* as *upasarjana* in the NP *aśvasya śaphaḥ*.

Let us now proceed with showing how a compound-member may be the *ekavibhakti* unit. Recall that both *aśva-Ø^{GEN} śapha-Ø^{ABL}* and *aśvasya śaphaḥ* qualify as NPs made up of nominal inflected words in Pāṇini’s model of compounding. Now, owing to this parallelism between *aśva-Ø^{GEN} śapha-Ø^{NOM}* and *aśvasya śaphaḥ*, (5a-b) may be rewritten as (6a-b), which are abstract grammatical representations not yet belonging to the set of well-formed sentences of Sanskrit. In order for (6a-b) to become well-formed sentences of the Sanskrit language, an overt case ending should attach to the whole NP *aśva-Ø^{GEN} śapha-Ø^{NOM}* or to its variants (*aśva-Ø^{GEN} śapha-Ø^{ABL}* and *aśva-Ø^{GEN} śapha-Ø^{ACC}*), which may all be notated as *aśva-Ø^{GEN} śapha-Ø^x* for convenience.¹⁴ For example (6c), where an overt accusative case ending attaches to the NP *aśva-Ø^{GEN} śapha-Ø^{ACC}* (6b) is a well-formed sentence in Sanskrit.

¹⁴ Recall that *aśva-Ø^{GEN} śapha-Ø^x* is superficially non-distinct from the stem *aśva-śapha-*. See § 3.1 above.

(6a) (adapted from ṚV 1.117.6)

aśva-Ø^{GEN} *śapha-Ø^{ABL}* *śatām* *kumbhān* *asiñcatam* *mādhūnām*.
horse.GEN.SG.M hoof.ABL.SG.M hundred pot.ACC.PL.M pour.IND.IMP.F.2DU honey.GEN.PL.N

‘You two poured a hundred pots of honey from the horse’s hoof’.

(6b) (Invented example)

aśva-Ø^{GEN} *śapha-Ø^{ACC}* *paśyāmi*.
horse.GEN.SG.M hoof.ACC.SG.M see.IND.PRS.1SG

‘I see a horse’s hoof’.

(6c) (Invented example)

aśva-śapha-m [= *aśva-Ø^{GEN}-śapha-Ø^{ACC}-m*] *paśyāmi*.
horse-hoof.ACC.SG.M see.IND.PRS.1SG

‘I see a horse’s hoof’.

In (6a-b), *aśva-Ø^{GEN}* – but not *śapha-Ø^x* – qualifies as *ekavibhakti*: regardless of the different grammatical functions fulfilled by the NP *aśva-Ø^{GEN} śapha-Ø^x* in these sentences (circumstantial complement in (6a); direct object in (6b)), the silent case ending of *aśva-Ø^{GEN}* remains unchanged (i.e. genitive). Qua *ekavibhakti* unit, *aśva-Ø^{GEN}* gets the designation *upasarjana* in the NP *aśva-Ø^{GEN} śapha-Ø^x* in keeping with A 1.2.44. But such an NP is the representation of compound *aśva-śapha-* in Pāṇini’s model of compounding. Hence, in this model, both a compound-member – e.g. *aśva-* (= *aśva-Ø^{GEN}*) included in *aśva-śapha-* (= *aśva-Ø^{GEN} śapha-Ø^x*) – and an ordinary inflected word – e.g. *aśvasya* included in *aśvasya śaphaḥ* – may be designated as *upasarjana* (see Mocci, Pontillo 2019, 5-6 fn. 14).

Thus, A 1.2.44 provides a specific criterion whereby certain elements (e.g. *aśva-* = *aśva-Ø^{GEN}*) and not others (e.g. *śapha-* = *śapha-Ø^x*) are included in the *upasarjana* set: all the elements of the *upasarjana* set share a specific feature, namely that their case ending remains unchanged regardless of the grammatical function fulfilled by the NP to which they belong. I suggest translating the technical term *upasarjana* as ‘non-head’, on the understanding that the NP-internal unit whose case ending remains unchanged when the grammatical function fulfilled by the NP changes typically coincides with the NP-internal unit that does not serve as the head of the NP.

In the present subsection, I confined my attention to an example in which A 1.2.43 and 1.2.44 converge in identifying a certain unit as *upasarjana*: *aśva-* (= *aśva-Ø^{GEN}*) is the *upasarjana* of *aśva-śapha-* (= *aśva-Ø^{GEN} śapha-Ø^x*) in keeping with both A 1.2.43 and 1.2.44. In the next subsection (§ 3.3), instead, I shall focus on an example in which

the *upasarjana*, as identified on the basis of A 1.2.44, does not coincide with the *upasarjana* as identified on the basis of A 1.2.43.

3.3 On the Segment *apūrvanipāte*

The wording of A 1.2.44 was given in § 3.2 and is repeated below for convenience.¹⁵

A 1.2.44: *ekavibhakti cāpūrvanipāte [upasarjanam 1.2.43].*

‘And what has an unchangeable case ending also goes under the rubric *upasarjana*, even when it does not occupy the left-hand slot [of a compound].’

While I spent some time discussing the meaning of *ekavibhakti* (i.e. ‘having an unchangeable case ending’), I have not yet said anything on the other segment of this rule, namely, *apūrvanipāte*, which I translated as ‘even when what has an unchangeable case ending (*ekavibhakti*) does not occupy the left-hand slot of a compound’.¹⁶ As pointed out by Candotti and Pontillo (2019, 24), the *apūrvanipāte* segment acknowledges that there are exceptions to the general rule governing the position of the *upasarjana* inside compounds, i.e. A 2.2.30.

A 2.2.30: *upasarjanam pūrvam.*

‘A constituent termed *upasarjana* occupies the left-hand slot [in a compound].’

To wit, according to A 2.2.30 the canonical position occupied by the *upasarjana* is the left-hand slot of the compound: for instance, the left-hand slot of *aśva-śapha-* (= *aśva-Ø^{GEN} śapha-Ø^x*) is occupied by *aśva-* (= *aśva-Ø^{GEN}*), which we have said is designated as *upasarjana* in this compound (see § 3.2 above). However, there are cases in which the *upasarjana* occupies the right-hand slot of the compound. Thus, KV ad A 1.2.44 gives the following example of a *tatpuruṣa*:

(7)

niṣ-kausāmbi-

out.of-Kausāmbi-

‘(One) who is out of the city termed *Kausāmbī*.’

¹⁵ The following discussion will heavily draw on Pontillo’s work on A 1.2.44 and its subsequent elaborations by Candotti and Pontillo (see especially Pontillo 2003b; Candotti, Pontillo 2019; Candotti, Pontillo 2022).

¹⁶ Of course, *apūrvanipāte* results from breaking down *cāpūrvanipāte* into *ca* and *apūrvanipāte*. I am taking *apūrvanipāte* to be a concessive locative.

This compound is taught by A 2.2.18, which features the segment *prādi-* ‘the list beginning with *pra-*’:

A 2.2.18: *kugatiprādayaḥ* [*samāsaḥ* 2.1.3] [*saha supā* 2.1.4] [*sup* 2.1.9] [*tatpuruṣaḥ* 2.1.22] [*nityam* 2.2.17].

‘The indeclinable word *ku-*, the units termed *gati* or included in the list beginning with *pra-* mandatorily combine with an inflected word to form a *tatpuruṣa* compound’.

Since the list beginning with *pra-* (*prādi-*) includes *nis-* (namely the left-hand member of *niṣ-kaśāmbi-* (7)),¹⁷ *nis-* is referred to by *prādi-*, which is mentioned in the nominative in A 2.2.18.¹⁸ Let us now recall that what is referred to by a word that is inflected in the nominative in a compound-rule is designated as *upasarjana* in keeping with A 1.2.43 (see § 3.2 above). Accordingly, *nis-* should be designated as *upasarjana* in *niṣ-kaśāmbi-*. Nevertheless, *nis-* does not receive the designation *upasarjana* in *niṣ-kaśāmbi-*. Instead, it is *kaśāmbi-* (i.e. the right-hand member of *niṣ-kaśāmbi-*) that is designated as *upasarjana*, owing to A 1.2.44.¹⁹ Let us consider how.

In the system of the *Aṣṭādhyāyī*, the compound *niṣ-kaśāmbi-* is analysed as *nis-Ø^s kaśāmbi-Ø^{ABL}*, i.e. as an NP made up of inflected words whose case endings are silent.²⁰ Let us now embed NP *nis-Ø^s kaśāmbi-Ø^{ABL}* in a sentence pair where such an NP fulfills different grammatical functions: see (8a-b), where I am instantiating *x*, i.e. the value of the silent case ending attached to *nis-*, as nominative and accusative. For concreteness, I provide the surface realisation of (8a-b) in (8c-d), respectively.

¹⁷ The form *nis-* shows up as *niṣ-* (with retroflex *s*) in *niṣ-kaśāmbi-* due to sandhi. *nis-* is an indeclinable word that may be used as a prefix to nouns and verbs, or as a preposition accompanying nouns (Candotti, Pontillo 2022, 14 fn. 34).

¹⁸ More precisely, it is the whole segment *kugatiprādi-*, of which *prādi-* is a subsegment, that is mentioned in the nominative (*kugatiprādayaḥ*) in A 2.2.18. Technically, *kugatiprādi-* is a *dvandva* (i.e. coordinative) compound, and *prādi-* is one of the three members of such a compound, the other members being *ku-* and *gati-*.

¹⁹ On the shortening that the final vowel of *kaśāmbi-* undergoes (*ī > i*) when *kaśāmbi-* is part of the compound *niṣ-kaśāmbi-*, see below.

²⁰ By specifying *nityam* ‘mandatorily’ in A 2.2.18, Pāṇini informs us that *niṣ-kaśāmbi-* (= *nis-Ø^s kaśāmbi-Ø^{ABL}*) has no counterpart in which the case endings attached to both *nis-* (= *nis-Ø^s*) and *kaśāmbi-* (= *kaśāmbi-Ø^{ABL}*) are overt; put another way, *niṣ-kaśāmbi-* lacks a non-compounded counterpart (e.g. **nis kaśāmbiyāḥ*). To be noted that indeclinable words such as *nis-* are treated by Pāṇini as nouns on a par with, for example, *aṣvaḥ* ‘horse.NOM.SG’, the only difference between *nis-* and *aṣvaḥ* being that the case ending attached to *nis-* is zero-replaced in compliance with A 2.4.82 (*avyayād āpsupaḥ* [luk 2.4.58]), while the case ending of *aṣvaḥ* (i.e. *-ḥ*) is not zero-replaced. On A 2.4.82, see Cardona 1997, 212.

(8a) (Invented example)

nis-Ø^{NOM} *kauśāmbī-Ø^{ABL}* *vājaṃ* *jayati.*
 out.of.NOM.SG.M Kauśāmbī.ABL.SG.F award.ACC.SG.M win.IND.PRS.3SG

‘One who is out of the city termed Kauśāmbī is winning the award’.

(8b) (Invented example)

nis-Ø^{ACC} *kauśāmbī-Ø^{ABL}* *paśyāmi.*
 out.of.ACC.SG.M Kauśāmbī.ABL.SG.F see.IND.PRS.1SG

‘I see one who is out of the city termed Kauśāmbī’.

(8c) (Invented example)

niṣ-kauśāmbī-r [= *nis-Ø^{NOM}-kauśāmbī-Ø^{ABL-r}*] *vājaṃ* *jayati.*
 out.of-Kauśāmbī.NOM.SG.M award.ACC.SG.M win.IND.PRS.3SG

‘One who is out of the city termed Kauśāmbī is winning the award’.

(8d) (Invented example)

niṣ-kauśāmbī-m [= *nis-Ø^{ACC}-kauśāmbī-Ø^{ABL-m}*] *paśyāmi.*
 out.of-Kauśāmbī.ACC.SG.M see.IND.PRS.1SG

‘I see one who is out of the city termed Kauśāmbī’.

In these invented examples, the silent case-ending attached to *nis-* changes according to the grammatical function fulfilled by the NP *nis-Ø^x kauśāmbī-Ø^{ABL}*: *nis-* takes on nominative (*nis-Ø^{NOM}*) in (8a), where the NP *nis-Ø^x kauśāmbī-Ø^{ABL}* fulfills the function of subject, but takes on accusative (*nis-Ø^{ACC}*) in (8b), where that NP fulfills the function of direct object. By contrast, the silent case-ending attached to *kauśāmbī-* is unchangeable: despite the different grammatical functions fulfilled by the NP *nis-Ø^x kauśāmbī-Ø^{ABL}* in (8a-b), *kauśāmbī-* remains inflected in the ablative in these sentences (*kauśāmbī-Ø^{ABL}*).

Since by A 1.2.44 the *ekavibhakti* unit (i.e. the unit whose case ending is unchangeable) is designated as *upasarjana*, *kauśāmbī-* (= *kauśāmbī-Ø^{ABL}*) - but crucially not *nis-* (= *nis-Ø^x*) - gets the designation *upasarjana* in *niṣ-kauśāmbī-*. The *upasarjana* status of *kauśāmbī-* in *niṣ-kauśāmbī-* is further confirmed by the shortening of the final <*i*> of *kauśāmbī-* in *niṣ-kauśāmbī-*: as pointed out by Pontillo (2003b, 24) (see also Candotti, Pontillo 2019, 24), A 1.2.48 ensures that this shortening is only possible insofar as *kauśāmbī-* is designated as *upasarjana* in the compound *niṣ-kauśāmbī-*.

A 1.2.48: *go-striyor upasarjanasya* [*hrasvaḥ prātipadikasya* 1.2.47]. ‘The final vowel of *go-* or of nouns ending in a feminine affix, such that *go-* and the nouns ending in a feminine affix are nominal stems as well as *upasarjanas*, is replaced by a short vowel’.

To sum up, A 2.2.30 provides that the *upasarjana* is canonically allocated to the left-hand slot of a compound. Nevertheless, some compounds exist in which the *upasarjana* is allocated to the right-hand slot; a relevant example in this regard is *niṣ-kaśāmbi-* ‘(one) who is out of a village termed Kauśāmbī’, where *kaśāmbi-* is the *upasarjana* and the right-hand member of the compound at the same time. To license the formation of compounds like *niṣ-kaśāmbi-*, in which the *upasarjana* is allocated to the right-hand member (as opposed to the left-hand member) of a compound, Pāṇini includes the segment *apūrvanipāte* ‘even when what has an unchangeable case ending (*ekavibhakti*) does not occupy the left-hand slot of a compound’ in rule A 1.2.44 (*ekavibhakti cāpurvanipāte*).

In this way, A 1.2.44 serves two purposes. First, it provides a genuine linguistic criterion to decide whether a certain unit belongs to the *upasarjana* set: a unit U belongs to the *upasarjana* set if and only if, when the grammatical function fulfilled by the NP to which U belongs changes, the case ending of U remains unchanged. Second, by providing a specific criterion for the membership of a unit to the *upasarjana* set, A 1.2.44 supersedes (i.e. licenses exceptions to) both A 1.2.43 and 2.2.30: even when the *upasarjana* is not mentioned in the nominative (as an exception to A 1.2.43, which provides for the *upasarjana* to be mentioned in the nominative in a compound-rule) or when the *upasarjana* does not occupy the left-hand slot of a compound (as an exception to A 2.2.30, which provides for the *upasarjana* to be allocated to the left-hand slot of a compound), the *upasarjana* can still be identified as the unit U such that, when the grammatical function fulfilled by the NP to which U belongs changes, the case ending of U remains unchanged (Candotti, Pontillo 2022, 14).

3.4 Rephrasing the Puzzle

In § 2 above, I presented a puzzle posed by *karmadhāraya* compounds to Pāṇini’s *upasarjana*-based classification of compounds. However, that presentation of the puzzle was a mere sketch, as I had not yet analysed, at that point of the paper, the fundamental rules which underpin Pāṇini’s model of compounding. In this section, I restate the puzzle in more precise terms, capitalising on the discussion in §§ 3.1-3.3 above.

Let us start with the rule that defines *karmadhāraya* compounds:

A 1.2.42: *tatpuruṣaḥ samānādhikaraṇaḥ karmadhārayaḥ*.

‘A *tatpuruṣa* compound whose members are *samānādhikaraṇa* is called *karmadhāraya*’.

In accordance with this rule, the *tatpuruṣa* compound type may be broken down into two subtypes: compounds whose members are *samānādhikaraṇa*, and compounds whose members are not *samānādhikaraṇa*. But what does *samānādhikaraṇa* really mean?

From the morphological point of view, *samānādhikaraṇa* is a *bahuvrīhi* compound formed from *samāna-* ‘same’ and *adhikaraṇa-* ‘substratum’, and properly means ‘having the same substratum’. Although it is not easy to find a good term to render *samānādhikaraṇa* in English,²¹ the phenomenon which this expression is meant to capture is clear enough. Thus, I have deliberately chosen not to translate *samānādhikaraṇa* in this paper, but I do provide a precise definition of this expression: let W_1 and W_2 be nominal inflected words, which include compound-members such as *aśva-* (= *aśva-Ø^{GEN}*) in the compound *aśva-śapha-* (= *aśva-Ø^{GEN} śapha-Ø^x*) ‘horse’s hoof’, as well as run-of-the-mill inflected words such as *aśvasya* in the NP *aśvasya śaphaḥ*; if, in a given sentence, W_1 cannot refer to an entity other than the one referred to by W_2 , then W_1 is *samānādhikaraṇa* with W_2 . For example, in *navo jvāraḥ* ‘the new suffering’, *navah* (lit. new.NOM.SG) cannot refer to a new entity that is not simultaneously a form of suffering (i.e. an entity referred to by *jvāraḥ* ‘suffering.NOM.SG’).²² Accordingly, *jvāraḥ* and *navah* are *samānādhikaraṇa* in *navo jvāraḥ*.²³

21 Some terms suggested in the literature to render *samānādhikaraṇa* are: ‘coreferential’ (Cardona 1997, 217); ‘homo-denotative’ (Gillon 2008, 2); ‘coindexed’ (Kiparsky 2009, 54); ‘predicated’ (Lowe 2015a, 331). Among these, ‘coreferential’ is possibly the most popular, but it is nonetheless problematic as it interferes with the way this self-same term is used in binding theory (see, e.g. Chomsky 1981). In this theory, coreferentiality is technically the relationship that holds between a pronominal category (a pronoun or an anaphor) and its antecedent: e.g. *John* is said to be coreferential with the anaphor *himself* in the English sentence *John admires himself*.

22 It may be worth noting that Pāṇini’s grammar lacks the distinction between adjective and noun: *navah* and *jvāraḥ* are both categorised as nominals – more precisely, as the outcome of attaching a case ending to a *prātipadika*, i.e. to a nominal stem – by Pāṇini (see, e.g. Joshi 2015, 349). Therefore, from the perspective of Pāṇini’s grammar, it comes as no surprise that *navah*, which in modern linguistics would be categorised as an adjective, is as capable as *jvāraḥ* of referring to an entity (I am indebted to one of the anonymous reviewers for drawing my attention to this point). See Candotti, Pontillo 2011 on how Pāṇini dealt with grammatical features that, in modern linguistics, would be referred to as adjectival; see also Alfieri 2014 on the birth of the adjectival part of speech in the Western grammatical tradition.

23 Thus, the *samānādhikaraṇa* relation (i.e. the relation holding between two units that are *samānādhikaraṇa*) does not coincide with the modern linguistic notion of agreement (see Hock 2015, 8, 13; Joshi 2015). The definition of *samānādhikaraṇa* adopted

Thus, A 1.2.42 labels a *tatpuruṣa* whose members are *samānādhikaraṇa* as *karmadhāraya*. *Karmadhārayas* correspond to the attributive endocentric compounds (also known as “appositive/ attributive endocentric compounds”) of Bisetto, Scalise 2005; Scalise, Bisetto 2009. Let us now consider a concrete example of *karmadhāraya*: *nava-jvāra-* ‘new suffering’. This compound, occurring in RV 1.42.8, is governed by A 2.1.49, which opens up the section of rules given over to *karmadhārayas* (i.e. A 2.1.49-72):

A 2.1.49: *pūrvakālaikasarvajaratpurāṇanavakevalāḥ samānādhikaraṇena* [*samāsaḥ* 2.1.3] [*saha supā* 2.1.4] [*sup* 2.1.9] [*vā* 2.1.18] [*tatpuruṣaḥ* 2.1.22]

‘A nominal inflected word X such that X denotes something which precedes in time, or such that X is *eka-* ‘one’, *sarva-* ‘all’, *jarat-* ‘old’, *purāṇa-* ‘ancient’, *nava-* ‘new’, and *kevala-* ‘alone’, combines with a nominal inflected word Y such that Y is co-referential with X, to form a *tatpuruṣa karmadhāraya* compound’.

This rule, considered in conjunction with A 1.2.43, teaches the following constraints on *nava-jvāra-*: that *nava-* be *samānādhikaraṇa* with *jvāra-*; and that *nava-* (which is mentioned in the nominative in A 2.1.49, which is a compound-rule) be the *upasarjana*.²⁴ We can easily verify that the constraint that *nava-* be *samānādhikaraṇa* with *jvāra-* is satisfied in *nava-jvāra-*. Consider how.

Since compound-members are nominal inflected words with silent case endings in Pāṇini’s model of compounding, *nava-jvāra-* should be represented as *nava-Ø^x jvāra-Ø^x*, which therefore behaves exactly like the combination of run-of-the-mill inflected words *navo jvāraḥ* – see (9) below.²⁵ Thus, the compound-member *nava-* (= *nava-Ø^x*) ‘the new one’ cannot refer to a new entity that is not also a form of suffering (i.e. an entity referred to by *jvāra-* = *jvāra-Ø^x* ‘suffering’). Then, in accordance with the definition of *samānādhikaraṇa* adopted here, *nava-* is *samānādhikaraṇa* with *jvāra-* in *nava-jvāra-*.

here owes much to the suggestions and corrections advanced by one of the anonymous reviewers.

²⁴ More precisely, it is the whole segment *pūrvakālaikasarvajaratpurāṇanavakevala-*, of which *nava-* is a part, that is mentioned in the nominative in A 2.1.49.

²⁵ The notation *nava-Ø^x jvāra-Ø^x* stands for any combination of *nava-* and *jvāra-* in which *nava-* agrees in case with *jvāra-* and both *nava-* and *jvāra-* are endowed with a silent case ending. In this way, *nava-Ø^x jvāra-Ø^x* includes such NPs as *nava-Ø^{NOM} jvāra-Ø^{NOM}*, *nava-Ø^{ACC} jvāra-Ø^{ACC}*, *nava-Ø^{INS} jvāra-Ø^{INS}*, etc.

(9)

nava-jvāraḥ → *nava-Ø^xjvāra-Ø^x* = *nava-jvāra-*
 new.NOM suffering.NOM
 ‘new suffering’

Let us consider now the second constraint imposed by A 2.1.49 - in conjunction with A 1.2.43 - on *nava-jvāra-*, namely that *nava-* be *upasarjana*. As discussed in § 3.2 above, the *upasarjana* is the *ekavibhakti* unit in accordance with A 1.2.44, i.e. the unit U such that the case ending of U remains unchanged when the noun phrase to which U belongs fulfils different grammatical functions. Therefore, to verify that *nava-* (= *nava-Ø^x*) is indeed the *upasarjana* in *nava-jvāra-* (= *nava-Ø^xjvāra-Ø^x*), we need to construct a sentence pair in which an NP that contains *nava-* performs different grammatical functions. A good example of such a sentence pair is (10a-b), which features the NP *nava-Ø^xjvāra-Ø^x*, where *nava-Ø^x* and *jvāra-Ø^x* are, as usual, nominal inflected words with a silent case ending. At the surface level of language, where an overt case ending attaches to the whole NP *nava-Ø^xjvāra-Ø^x* (i.e. to *nava-jvāra-*), (10a-b) show up as (10c-d), respectively.

(10a) (Adapted from RV 1.42.8ab)

<i>nava-Ø^{NOM}</i>	<i>jvāra-Ø^{NOM}</i>	<i>adhvane.</i>
new.NOM.SG.M	suffering.NOM.SG.M	road.DAT.SG.M

‘New suffering is on the road’.

(10b) (Invented example)

<i>nava-Ø^{ACC}</i>	<i>jvāra-Ø^{ACC}</i>	<i>paśyāmi.</i>
new.ACC.SG.M	suffering.ACC.SG.M	see.IND.PRS.1SG

‘I see new suffering’.

(10c) (Adapted from RV 1.42.8ab)

<i>nava-jvāra-ḥ</i>	[= <i>nava-Ø^{NOM}-jvāra-Ø^{NOM}-ḥ</i>]	<i>adhvane.</i>
new-suffering.NOM.SG.M		road.DAT.SG.M

‘New suffering is on the road’.

(10d) (Invented example)

<i>nava-jvāra-m</i>	[= <i>nava-Ø^{ACC}-jvāra-Ø^{ACC}-m</i>]	<i>paśyāmi.</i>
new-suffering.ACC.SG.M		see.IND.PRS.1SG

‘I see new suffering’.

When the NP *nava-Ø^x jvāra-Ø^x* fulfils the grammatical function of subject, as in (10a), a silent nominative ending applies to both *nava-* (*nava-Ø^{NOM}*) and *jvāra-* (*jvāra-Ø^{NOM}*). By contrast, when NP *nava-Ø^x jvāra-Ø^x* fulfils the grammatical function of direct object, as in (10b), a silent accusative ending applies to *nava-* (*nava-Ø^{ACC}*) as well as to *jvāra-* (*jvāra-Ø^{ACC}*). It appears, then, that neither *nava-* nor *jvāra-* is an *ekavibhakti* unit: when the grammatical function of NP *nava-Ø^x jvāra-Ø^x* changes, the case ending of both *nava-* and *jvāra-* also changes.

Since A 1.2.44 defines the *upasarjana* as the *ekavibhakti* unit (see § 3.2 above), the fact that *nava-* (*nava-Ø^x*) and *jvāra-* (*jvāra-Ø^x*) are not *ekavibhakti* units in *nava-jvāra-* (= *nava-Ø^x jvāra-Ø^x*) entails that neither *nava-* nor *jvāra-* gets the designation *upasarjana* in *nava-jvāra-*. Therefore, the second constraint imposed by A 2.1.49 (in conjunction with A 1.2.43) on *nava-jvāra-*, i.e. that *nava-* be *upasarjana*, appears to be violated.

We are therefore faced with a puzzle: on the one hand, A 2.1.49, in conjunction with A 1.2.43, teaches that *nava-* is the *upasarjana* in the *karmadhāraya* compound *nava-jvāra-*; on the other hand, the definition of *upasarjana* as an *ekavibhakti* unit (A 1.2.44) leads us to consider *nava-* as non-*upasarjana* in *nava-jvāra-*.²⁶ In brief, the puzzle arising in connection with *nava-jvāra-* is the fact that rule A 1.2.44 appears to contradict rule A 2.1.49 (considered in conjunction with A 1.2.43). At this point, two possibilities suggest themselves to solve this puzzle, i.e. to avoid the contradiction between the rules at stake.

According to the first possibility, A 1.2.44's definition of the *upasarjana* as an *ekavibhakti* unit is required to be complied with only in compounds like *niṣ-kaušāmbi-*, i.e. in compounds in which the *upasarjana* occupies the right-hand slot of the compound itself (see § 3.3 above). Since there is no clear reason to maintain that the *upasarjana* of *nava-jvāra-* is the right-hand member *jvāra-*, the *upasarjana* of *nava-jvāra-* need not be an *ekavibhakti* unit, i.e. need not satisfy the definition of *upasarjana* provided by A 1.2.44. This, then, makes it possible to designate *nava-* as the *upasarjana* of *nava-jvāra-* without incurring any contradiction between A 2.1.49 and 1.2.44. Among the supporters of this first possibility are Böhtlingk (1887, 17) and Kiparsky (1979, 232).

According to the second possibility, A 1.2.44's definition of the *upasarjana* as an *ekavibhakti* unit must be satisfied in any compound, including *nava-jvāra-*, regardless of the position occupied by the *upasarjana* inside the compound (left-hand slot versus right-hand slot). Indeed, in accordance with this second possibility, the contradiction between A 2.1.49 and 1.2.44 should be resolved by capitalising

²⁶ The reader can easily verify that this puzzle is not confined to *nava-jvāra-* but indeed extends to any other *karmadhāraya*.

on the ambiguity of *ekavibhakti* in A 1.2.44, in a sense to be made precise below.

The first possibility listed above was already discussed by Pontillo (2003b), who eventually dismissed it on the grounds that A 1.2.44's definition of the *upasarjana* as an *ekavibhakti* unit is demonstrably satisfied in compound types other than those whose right-hand member is designated as *upasarjana* (see especially Pontillo 2003b, 30).²⁷ I also reject the first possibility: indeed, if A 1.2.44's definition of the *upasarjana* as an *ekavibhakti* unit were to be confined to compounds like *niṣ-kaušāmbi-* (as suggested by the first possibility), we would merely have the *upasarjana* set (i.e. the set of units designated as *upasarjana* in compliance with A 1.2.43), but no genuine linguistic feature that is shared by all members of the set and that justifies the membership of a certain unit to that set (see § 3.2 above). I consider the idea that all members of the *upasarjana* set share a specific linguistic feature that justifies their membership to the set – as well as the exclusion of other units from the set – much more interesting and insightful: if confirmed, this idea would return a new picture of Pāṇini's model of compounding, whereby such a model is much deeper and much more complicated than has been thought before.

For these reasons, in the next section (§ 4) I pursue the second of the two possibilities listed above. Specifically, I shall capitalise on the *Aṣṭādhyāyī* rule governing present participles to argue in favour of a novel understanding of the *ekavibhakti* segment featuring in A 1.2.44.

4 The Ambiguity of *ekavibhakti*

In the present section I argue that the notion of *ekavibhakti* is ambiguous between the meaning 'having an unchangeable case ending' and the meaning 'having the same case ending [as another nominal inflected word]'. I specify the latter meaning in terms of the syntactic operation of case-copying: a unit U_1 has the same case ending as another unit U_2 in the sense that U_1 copies the case ending of U_2 . I provide evidence for case-copying in the *Aṣṭādhyāyī* by capitalising on A 3.2.124, namely the rule teaching the formation of present participles.

²⁷ Indeed, Pontillo (2003b, 27) explicitly claims that A 1.2.44's definition of *upasarjana* as an *ekavibhakti* unit is satisfied in *karmadhārayas* like *nava-jvāra-* and *sad-vaidyā-* 'good physician', too. However, she does not address the puzzle discussed in the present subsection.

4.1 A Rule for Present Participles

In rule A 3.2.124, Pāṇini teaches the formation of present participles. Yet, this rule is of interest for reasons that go beyond present participles. Let us examine its wording:

A 3.2.124: *laṭaḥ śatṛśānacāv aprathamāsamānādhipikaraṇe [pratyayah 3.1.1] [paraś ca 3.1.2 dhātoḥ 3.1.91] [varttamāne 3.2.123].*

‘The participial suffix *-nt-* or *-(m)āna-* is introduced after a verbal base in place of LAṬ when an ongoing verbal action is to be signified and when LAṬ is *samānādhipikaraṇa* with a nominal word inflected in a case other than nominative’.

To properly grasp the content of this rule, we need to understand the segment *laṭ-* that here shows up in the genitive (*laṭaḥ*). Following Sharma (1999-2003), I have graphically rendered *laṭ-* in all capitals in my translation of the rule: LAṬ.

LAṬ is, in essence, the placeholder standing for the whole set of finite verbal endings that attach to the present tense-aspect verbal stem: e.g. *-mi*, *-si*, *-ti*, *-mas*, *-tha*, *-nti*, etc. attach to the present tense-aspect verbal stem *naya-* (from the first-class verbal base *nī-* ‘to lead’) to yield the indicative present active forms *nayā-mi*, *naya-si*, *naya-ti*, *nayā-maḥ*, *naya-tha*, *naya-nti*, etc.²⁸ Interestingly, LAṬ is a meaningful unit in the *Aṣṭādhyāyī* – let us consider how. LAṬ is one of the ten abstract affixes, concisely referred to by Pāṇini as LA, which are deputed to convey tense, aspect, and mood (see, e.g. Cardona 1997, 148; Sharma 1999-2003, 646); this means that whatever Pāṇini teaches for LA also holds for LAṬ. Thus, since Pāṇini teaches in A 3.4.69 that LA signifies an agent (*kartṛ*), a patient (*karman*), or an eventuality (*bhāva*),²⁹ we automatically understand that LAṬ also signifies an agent, a patient, or an eventuality. In other words, while in accordance with such modern linguistic theories as generative grammar the semantic roles of agent and patient are properties of nominals (more precisely, nominals are ‘assigned’ those roles by the verb), in Pāṇini’s grammar those roles are properties of verbal endings, in the

28 For the sake of simplicity, I shall not discuss how the present tense-aspect verbal stem *naya-*, which involves the thematic vowel (*-a-*) and the *guṇa*-grade of *nī-*, is formed from the verbal base *nī-* according to Pāṇini.

29 A 3.4.69 reads as follows: *laḥ karmaṇi ca bhāve cākarmakebhyaḥ [dhātoḥ 3.1.91] [kartari 3.4.67]* ‘Any verbal ending (LA) attaches to a verbal base when: i) an agent or a patient is to be signified; ii. an agent or an eventuality is to be signified, provided an objectless verbal base is used’. On the term ‘eventuality’, which I am using to translate *bhāva-*, see Lowe 2015a, 95 fn. 1.

sense that verbal endings signify the agent or the patient.³⁰ For instance, given the invented pair of sentences *devadattaḥ senām naya-ti* ‘Devadatta is leading the army’ (active) and *devadattena senā nīyate* ‘The army is led by Devadatta’ (passive), the active verbal ending *-ti* signifies the agent of the action of leading, and the middle-passive verbal ending *-te* signifies the patient of the action of leading from the perspective of the *Aṣṭādhyāyī*; from the perspective of generative grammar, instead, *devadatta-* is assigned the agent role by the active verb *nayati*, and the patient role by the passive verb *nīyate*.³¹

Now that we know what LAṬ is, we may proceed with considering the consequences of A 3.2.124, with the help of an invented example:

(11) (Invented example)

<i>odanam</i>	<i>pac-LAṬ</i>	<i>devadattam</i>	<i>paśyāmi.</i>
rice.ACC.SG.M	cook-LAṬ	Devadatta.ACC.SG.M	see.IND.PRS.1SG

Intended meaning: ‘I see Devadatta cooking rice’.

In (11), LAṬ signifies the agent of the action of cooking (the action of cooking being signified by *pac-* ‘to cook’). In addition, LAṬ is *samānādhikaraṇa* with *devadattam* in (11): to wit, LAṬ (more precisely, the verbal endings that LAṬ stands for) cannot refer to a cook (i.e. an agent of the action of cooking) that is not simultaneously the individual whose name is Devadatta (i.e. the entity referred to by *devadattam*) in this sentence.

Now, since LAṬ is *samānādhikaraṇa* with a nominal word inflected in a case other than nominative (i.e. *devadattam*) in (11), LAṬ cannot be replaced by a finite verbal ending in accordance with A 3.2.124, witness the ill-formedness of (12a). Indeed, A 3.2.124 prescribes that LAṬ of (11) must be replaced by the participial suffix *-nt-* or *-(m)āna-*, as in (12b), which is well-formed in Sanskrit (for further details see Cardona 1997, 171-2; Sharma 1999-2003, 427; Lowe 2015a, 331, 334-5).

(12a) (Invented example)

* <i>odanam</i>	<i>pacati</i>	<i>devadattam</i>	<i>paśyāmi.</i>
rice.ACC.SG.M	COOK.IND.PRS.3SG	Devadatta.ACC.SG.M	see.IND.PRS.1SG

30 For the sake of simplicity, I am disregarding the case in which verbal endings signify an eventuality.

31 The question then arises as to what the nominative-marked word (e.g. *devadattaḥ* and *senā*) signifies in the system of the *Aṣṭādhyāyī*. The answer to this question is contained in A 2.3.46, for which see Mocci, Pontillo 2020. On the codification of semantic roles in generative grammar, see Hale, Keyser 2002.

(12b) (Invented example)

<i>odanam</i>	<u><i>pacantam</i></u>	<i>devadattam</i>	<i>paśyāmi</i> .
rice.ACC.SG.M	COOK.PTCP.PRS.ACC. SG.M	Devadatta.ACC.SG.M	see.IND.PRS.1SG

'I see Devadatta cooking rice'.

To be noted that we cannot know that LAṬ of (11) is to be replaced by *-nt-* (12b) rather than by *-ti* (12a), unless we first know that *devadatta-* is inflected in the accusative (i.e. in a case other than nominative) in (11). But this means – crucially – that the case ending of *devadatta-* must be determined before and independently of the replacement of LAṬ by *-nt-*. Moreover, an accusative ending attaches to *devadatta-* as well as to *pacat-* in (12b).³² Crucially, however, *pacat-* does not yet exist before the replacement of LAṬ by *-nt-* takes place in *pac-LAṬ* (11). Therefore, the replacement of LAṬ by *-nt-* in *pac-LAṬ* logically precedes the assignment of the accusative ending to *pacat-*.³³

4.2 An Instance of Case-Copying in the *Aṣṭādhyāyī*

Let us now combine the two conclusions reached at the end of the previous subsection, namely: i) that the attachment of an accusative ending to *devadatta-* precedes the replacement of LAṬ by *-nt-* in *pac-LAṬ*; ii) that the replacement of LAṬ by *-nt-* in *pac-LAṬ* precedes the assignment of an accusative ending to *pacat-*. By transitivity, it follows from (i)-(ii) that the assignment of the accusative ending to *devadatta-* precedes the assignment of the accusative ending to *pacat-*. The picture emerging from A 3.2.124 and (11)-(12) is then the following: in the derivation that eventually leads to (12b), there is a stage at which *devadatta-* is inflected in the accusative (*devadattam*), whereas *pacat-* lacks a case ending. Put another way, the derivational stage at which *devadatta-* takes on accusative case (call it S_1) does not coincide with the derivational stage at which *pacat-* takes on accusative case (*pacantam*) – call it S_2 – insofar as S_1 necessarily precedes

³² *pacat-* is the stem of the present active participle that is obtained by attaching the participial suffix *-nt-* to *pac-*. I shall abstract away from the sound rules needed to obtain *pacat-* from the combination of *pac-* with *-nt-*.

³³ Indeed, before the replacement of LAṬ by *-nt-* takes place in *pac-LAṬ*, *pac-LAṬ* does not even qualify as a nominal form: in fact, *pac-LAṬ* is ambiguous between a nominal form and a verbal form in (11), depending on whether LAṬ is replaced by a participial suffix (*-nt-* or *-[m]āna-*) or a finite verbal ending (e.g. *-ti*). But only nominal forms can take on case endings. Therefore, the fact that *pac-LAṬ* does not qualify as a nominal form in (11) ensures that *pac-LAṬ* cannot be the recipient of any case ending in (11). This further upholds the conclusion that the replacement of LAṬ by *-nt-* in *pac-LAṬ* precedes the attachment of the accusative ending to *pacat-*.

S₂. For concreteness, we may equate S₁ and S₂ with (13) and (12b), respectively:

(13) (Invented example)

<i>odanam</i>	<i>pacat-?</i>	<i>devadattam</i>	<i>paśyāmi.</i>
rice.ACC.SG.M	COOK.PTCP.PRS.?	Devadatta.ACC.SG.M	see.IND.PRS.1SG

Intended meaning: ‘I see Devadatta cooking rice’.

The question now arises as to how the existence of these two different derivational stages (i.e. S₁ and S₂) interacts with the rules for case assignment. Specifically, I am interested in the following question: does the rule governing the assignment of accusative case to *devadatta-* at S₁ (see (13)) also govern the assignment of accusative case to *pacat-* at S₂ (see (12b))? To answer the latter question, let us consider A 2.3.2:

A 2.3.2: *karmaṇi dvitīyā [anabhihite 2.3.1].*

‘An accusative case ending [attaches to a nominal stem] in order to signify a patient (*karman*), provided that the patient is not otherwise signified’.

In accordance with this rule, the accusative case ending *-m* attaches to, e.g., *devadatta-* in (13) in order to signify that *devadatta-* ‘Devadatta’ is the patient of the action of seeing (the action of seeing being denoted by the verbal base *paś-*). This rule also features the segment *anabhihite*.

anabhihite is in essence a constraint that whatever is signified by a nominal ending be only signified once (Cardona 1997, 155; Kiparsky 2009, 50): in the specific context of A 2.3.2, an accusative ending cannot attach to a nominal stem to signify the patient of a certain action if that patient has already been signified. Thus, if the patient of the action of seeing has already been signified by the accusative ending attached to *devadatta-* in (13), the accusative ending cannot attach to *pacat-* ‘the one who cooks’ to signify the patient of the action of seeing, lest the *anabhihite* constraint be violated. Analogously, if the accusative ending attaches to *pacat-* in (13) (thereby yielding *pacantam*) in order to signify the fact that *pacat-* is the patient of the action of seeing, the accusative ending cannot attach to *devadatta-* in (13) in order to signify the patient of the action of seeing, lest the *anabhihite* be violated.

Therefore, when two accusative endings apply to two nominal stems to signify the patient of one and the same action, only the first assignment of the accusative ending can be governed by A 2.3.2; the second assignment of the accusative ending will necessarily violate the *anabhihite* constraint. But we have already seen that the

assignment of the accusative ending to *devadatta-*, which takes place at derivational stage S_1 , logically precedes the assignment of the accusative ending to *pacat-*, which instead takes place at derivational stage S_2 . Accordingly, only the assignment of the accusative ending to *devadatta-*, illustrated in (13) (= S_1), can be governed by A 2.3.2: if the assignment of the accusative ending to *pacat-*, illustrated in (12b) (= S_2), were governed by A 2.3.2, the *anabhihite* constraint would be violated. How can we account, then, for the assignment of the accusative ending to *pacat-* in (12b)? To the best of my knowledge, there is no rule, in the whole *Aṣṭādhyāyī*, that governs the assignment of the accusative ending to *pacat-* in (12b) (see also Joshi 2015, 350). For this reason, I assume that there must be an implicit mechanism that takes care of the accusative case of *pacat-* in (12b). I suggest that such an implicit mechanism has to do with the *sāmānādhikaraṇya* relation.³⁴ Consider how.

As we know from A 3.2.124, the participial stem *pacat-*, which features in (12b)-(13), is formed by substituting the participial suffix *-nt-* for LAṬ in *pac-LAṬ*. Now, A 1.1.56 provides that the substitutes of a linguistic unit U trigger the same rules as U (provided that the rules in question do not mention sounds); put another way, the substitutes of U are viewed as if they were U by the rules.³⁵ Thus, the participial suffix *-nt-* which replaces LAṬ is viewed by A 3.2.124 as if it were LAṬ. This means that, when A 3.2.124 enjoins the constraint that LAṬ be *sāmānādhikaraṇya* with *devadattam* in (11), this constraint is inherited, as it were, by *-nt-* (i.e. the substitute of LAṬ), which is thus also required to be *sāmānādhikaraṇya* with *devadattam*. Therefore, *-nt-* has to be taken as *sāmānādhikaraṇya* with *devadattam* in (12b)-(13), just like LAṬ in (11) (see Sharma 1999-2003, 428). Simplifying somewhat, I shall say in what follows that the present participle *pacat-* of (12b)-(13) is *sāmānādhikaraṇya* with *devadattam*, although it would be more precise to say that suffix *-nt-*, which is involved in *pacat-* and signifies the agent of the action of cooking, is *sāmānādhikaraṇya* with the accusative-marked word *devadattam*, which signifies the patient of the action of seeing.

Building on the systematic correlation between the *sāmānādhikaraṇya* relation and case-sharing (i.e. the fact that two units share the same case) in Sanskrit, I would like to suggest that

³⁴ The suggestion is not new, as it was already proposed by Patañjali (2nd century B.C.) in M 1.442.5 *ad* A 2.3.1 (see Joshi 2015, 349-51 for discussion). *sāmānādhikaraṇya* is an abstract noun - derived from the adjective *sāmānādhikaraṇa* - denoting the relation between two units that are *sāmānādhikaraṇa* with one another.

³⁵ A 1.1.56 reads *sthānivad ādeśo 'nalvidhau* 'The substitute is as if it were the placeholder, except in respect to a provision mentioning a sound [of the placeholder]'. For a recent overview of Pāṇini's substitution framework, see Candotti, Pontillo 2021 and the references cited therein.

the assignment of accusative case to *pacat-* in (12b) is indeed the result of *pacat-* copying the accusative case of *devadatta-* (i.e. of the unit with which *pacat-* is *samānādhikaraṇa*). That is, at stage S_1 – i.e. the stage, represented in (13), at which an accusative ending attaches to *devadatta-* (thereby returning *devadattam*) to express the patient of the action of seeing in compliance with A 2.3.2 – *pacat-* lacks a case ending, but is *samānādhikaraṇa* with *devadattam*; at stage S_2 – i.e. the stage represented in (12b) – *pacat-* copies the accusative case attached to *devadattam*, thereby showing up as *pacantam*.³⁶

4.3 Case-Copying in *karmadhārayas*

Let us consider again the problematic sentence pair in (10a-b), repeated below as (14a-b). *nava-* and *ḥvāra-* are endowed with a silent accusative ending in (14b) and are thus represented as *nava-Ø^{acc}* and *ḥvāra-Ø^{acc}*, respectively.

(14a) (Adapted from RV 1.42.8ab)

<i>nava-Ø^{NOM}</i>	<i>ḥvāra-Ø^{NOM}</i>	<i>adhvane.</i>
new.NOM.SG.M	suffering.NOM.SG.M	road.DAT.SG.M

‘New suffering is on the road’.

(14b) (Invented example)

<i>nava-Ø^{acc}</i>	<i>ḥvāra-Ø^{acc}</i>	<i>paśyāmi.</i>
new.ACC.SG.M	suffering.ACC.SG.M	see.IND.PRS.1SG

‘I see new suffering’.

Now, if the assignment of accusative case to *ḥvāra-* is governed by A 2.3.2 in (14b), the assignment of accusative case to *nava-* cannot be similarly governed by A 2.3.2 in (14b), lest the *anabhihite* constraint be violated (see § 4.2 above). In other words, when an overt accusative ending – to be subsequently replaced by a silent accusative ending – attaches to *ḥvāra-* in order to signify the fact that suffering (*ḥvāra-*) serves as the patient of the action of seeing, the following result is automatically effected: that no accusative ending can attach to *nava-* in order to signify the fact that some new entity (*nava-*) serves as the patient of the selfsame action of seeing. Analogously, if the assignment of accusative case to *nava-* is governed by A 2.3.2

³⁶ The operation of case-copying has been formalised in contemporary linguistics. For example, such an operation is used in the framework of generative grammar to explain the fact that subject and predicate share the same case (Moro 1997, 41-2).

in (14b), the assignment of accusative case to *ḵvāra-* cannot be governed by A 2.3.2 in this very same sentence, lest the *anabhihite* constraint be violated.

In order to avoid violating the *anabhihite* constraint in (14b), I submit that only the assignment of accusative case to *ḵvāra-* is governed by A 2.3.2, the assignment of accusative case to *nava-* being dealt with via the operation of case-copying. Specifically, I assume that the derivation of (14b) involves two stages - S_1 and S_2 - much like the derivation of (12b) (see § 4.2 above): at stage S_1 , represented in (15), an accusative ending attaches to *ḵvāra-* (returning *ḵvāra-Ø^{ACC}* via the zero-replacement of the case ending) to express the patient of the action of seeing in compliance with A 2.3.2, while *nava-* lacks a case ending, but is *sāmānādhikaraṇa* with *ḵvāra-Ø^{ACC}*. At stage S_2 , which coincides with (14b), the *sāmānādhikaraṇya* relation holding between *nava-* and *ḵvāra-Ø^{ACC}* allows *nava-* to copy the accusative ending attached to *ḵvāra-Ø^{ACC}*, so that *nava-* becomes *nava-Ø^{ACC}*.

(15) (Invented example)

<i>nava-?</i>	<i>ḵvāra-Ø^{ACC}</i>	<i>paśyāmi.</i>
new.?	suffering.ACC.SG.M	see.IND.PRS.1SG

Intended meaning: ‘I see new suffering’.

Note that the assumption that the derivation of (14a-b) involves a case-copying operation at derivational stage S_1 is not ad hoc, insofar as it is independently needed to account for the case-marking of present participles, as discussed in § 4.2 above in connection with A 3.2.124. We shall see in the next subsection that this asymmetry between *ḵvāra-* (= *ḵvāra-Ø^{ACC}*) and *nava-* (= *nava-Ø^{ACC}*) in (14), whereby *nava-* copies the case ending of *ḵvāra-* but not vice versa, is the key to the problem of the purported contradiction between A 2.1.49, which requires in conjunction with A 1.2.43 that *nava-* be *upasarjana*, and A 1.2.44, which defines the *upasarjana* as the *ekavibhakti* unit.

4.4 Uncovering the *ekavibhakti* Unit in *karmadhārayas*

I would like to entertain the hypothesis that *ekavibhakti* of A 1.2.44 does not simply mean ‘having one case ending’ in the sense of ‘having an unchangeable case ending’. Rather, *ekavibhakti* of A 1.2.44 means ‘having one case ending with respect to certain units Z’ in the sense of ‘having the same case ending as certain units Z’, somewhat like *eka-rūpa-* (lit. ‘one-colour’) as occurring in *āraṇyāḥ paśava ekarūpāḥ* (JB 1.89.16), which translates as ‘the forest animals are of one colour with respect to one another’ (see Bodewitz 1973), but also as ‘the forest animals are of the same colour as one another’. Now,

crucially, this reading of *ekavibhakti* as ‘having one case ending with respect to (i.e. having the same case ending as) certain units Z’ is ambiguous, insofar as it contains a variable, namely Z. I submit that Z may range: i) over the units that are said to be *ekavibhakti*; as well as ii) over units other than those that are said to be *ekavibhakti*. Let us see some examples.

aśva- (= *aśva-Ø^{GEN}*) ‘horse’ is *ekavibhakti* in *aśva-śapha-* (= *aśva-Ø^{GEN} śapha-Ø^x*) ‘horse’s hoof’ insofar as *aśva-*, as occurring, e.g., in sentence (6a), has one case ending with respect to (i.e. has the same case ending as) the token of *aśva-* in another sentence (6b): see § 3.2 above. On the other hand, *nava-* (= *nava-Ø^x*) is *ekavibhakti* in *nava-jvāra-* (= *nava-Ø^x jvāra-Ø^x*) not because *nava-*, as occurring, e.g. in (14b), has one case ending with respect to (i.e. has the same case ending as) the token of *nava-* in another sentence, say (14a): in fact, the case ending of *nava-* in (14a) (i.e. *nava-Ø^{NOM}*) differs from the case ending of *nava-* in (14b) (i.e. *nava-Ø^{ACC}*). Rather, *nava-* is *ekavibhakti* in *nava-jvāra-* merely because *nava-* has one case ending with respect to (i.e. has the same case ending as) *jvāra-* in (14b), precisely in the sense that *nava-*, which lacks a case ending in (15) (i.e. *nava-?*), copies its case ending from *jvāra-* (= *jvāra-Ø^{ACC}*) in (14b), thereby showing up as *nava-Ø^{ACC}*.

Indeed, the idea that *ekavibhakti* means ‘having the same case ending as certain units Z’ is compatible with Pāṇini’s *usus scribendi*. There are only two occurrences of the term *ekavibhakti-* in the *Aṣṭādhyāyī*: besides A 1.2.44, *ekavibhakti-* also recurs in A 1.2.64, the rule introducing the so-called *ekaśeṣa* device (*sarūpāṇām ekaśeṣa ekavibhaktau*). Borghero and Pontillo (2020, 69) take *ekavibhaktau* here as a right-hand-context locative conveying the meaning ‘before a single nominal ending’, and translate the whole rule as follows: “In the place of constituents having the same form (*sarūpāṇām*), only one remains (*ekaśeṣa*) before a single nominal ending (*ekavibhaktau*)” (69). However, following Böhlingk (1887, 19), we could also read *ekavibhaktau* as a locative of condition conveying the meaning ‘provided that one case ending with respect to (i.e. the same case ending as) other units is used’: that is, ‘provided that the same case ending attaches to the nominal inflected words which have the same form’. If this alternative reading of *ekavibhaktau* is adopted, A 1.2.64 translates as follows: ‘In the place of nominal inflected words having the same form, only one remains, provided that the same case ending attaches to the nominal inflected words which have the same form’ – to wit, *ekavibhaktau* would prevent us from deriving such forms as *vṛkṣau* ‘two trees’ from the coordination phrase in (16a), where the two tokens of *vṛkṣa-* have different case endings (nominative and accusative), and would instead force us to derive *vṛkṣau* from the coordination phrase in (16b), where the two tokens of *vṛkṣa-* have the same case ending (nominative). Thus, the occurrence of

ekavibhakti- in A 1.2.64 is perfectly compatible with a reading of *ekavibhakti*- in A 1.2.44 as ‘having the same case ending’.³⁷

(16a) (Invented example)

<i>vrkṣaś</i>	<i>ca</i>	<i>vrkṣam</i>	<i>ca</i>
tree.NOM.SG.M	and	tree.ACC.SG.M	and

(16b) (Invented example, based on Cardona 1997, 260)

<i>vrkṣaś</i>	<i>ca</i>	<i>vrkṣaś</i>	<i>ca</i>
tree.NOM.SG.M	and	tree.NOM.SG.M	and

‘The tree and the tree’.

Thus, I hypothesise that *nava-* is an *ekavibhakti* unit in *nava-jvāra-* in the sense that *nava-* ‘has one case ending with respect to’ (*ekavibhakti*), i.e. has the same case ending as, another nominal inflected word: in the example reported in (14), *nava-* has the same case ending as *dvāra-* = *dvāra-Ø^{acc}*. Note that, for this hypothesis to be tenable, the notion of *ekavibhakti* (in the sense of ‘having the same case ending [as another nominal inflected word]’) has to be relativised to (15), i.e. to a derivational stage at which *nava-* is non-case-marked whereas *dvāra-* is case-marked. Indeed, if the condition of being *ekavibhakti* in the sense of ‘having the same case ending [as another nominal inflected word]’ had to be satisfied at the derivational stage at which both *nava-* and *dvāra-* are case-marked (see (14a-b)), it would be impossible to determine which of the following two possibilities is correct: that *nava-* has the same case as *dvāra-*; or that *dvāra-* has the same case as *nava-* – to wit, it would be impossible to understand which, between *nava-* and *dvāra-*, should be considered as *ekavibhakti*. Indeed, it is only when the condition of being *ekavibhakti* is relativised to (15) (i.e. is constrained to be satisfied at the derivational level where only *dvāra-* is case-marked) that it is possible to consider *nava-* as having the same case as *dvāra-*, and hence to consider *nava-* as an *ekavibhakti* unit: *dvāra-* could not be said to have the same case ending as *nava-* in (15), insofar as the case ending of *dvāra-* (= *dvāra-Ø^{acc}*) is already determined in (15) (by A 2.3.2), while the case

³⁷ For a detailed analysis of A 1.2.64 and discussion of its interpretation, see Borghero, Pontillo 2020 and the references cited therein. It may be worth noting that there are Vedic occurrences in which *eka-*, i.e. the left-hand member of *ekavibhakti-*, conveys the meaning ‘the same (as another thing)’ outside compounding. See for instance RV 9.21.3: *vīthā krīṭanta indavaḥ/ sadhāstham abhī ékam ít/ síndhor úrmá ví akṣaran||* ‘Moving playfully at will toward one and the same seat, the drops have flowed in various ways into the swell of the river’ (transl. Jamison, Brereton 2014). Here *sadhāstham abhī ékam* conveys the meaning toward ‘the same seat as the one toward which any drop moves’.

ending of *nava-* (= *nava-?*) is not.

The question now arises as to why Pāṇini should have taken S_1 (i.e. the derivational stage at which only one of the two units between which a *sāmānādhikaraṇya* relation holds is case-marked) to be (15), where *ḥvāra-* is assigned accusative case in accordance with A 2.3.2 and *nava-* lacks a case ending, rather than (17), where it is instead *nava-* that is assigned accusative case in accordance with A 2.3.2, *ḥvāra-* lacking instead a case ending.

(17) (Invented example)

<i>nava-Ø^{acc}</i>	<i>ḥvāra-?</i>	<i>paśyāmi.</i>
new.ACC.SG.M	suffering.?	see.IND.PRS.1SG

Intended meaning: ‘I see new suffering’.

I reckon that there is no logical reason as to why (17) should be preferred over (15). I speculate that, for Pāṇini, the case-marking of *ḥvāra-* (and not of *nava-*) in accordance with A 2.3.2 was merely a grammatical fact, which cannot be traced back to any independent principle of grammar and therefore has merely to be recorded in the grammar.

Thus, *nava-* satisfies the condition of being *ekavibhakti* in *nava-ḥvāra-* under the hypothesis that *ekavibhakti* conveys the meaning ‘having the same case ending as certain units Z’ in A 1.2.44, where Z may refer to *ḥvāra-*, i.e. to a unit other than the one that is said to be *ekavibhakti* (i.e. *nava-*).

4.5 Summary

In this section I have advanced a fresh reading of the *ekavibhakti* segment featuring in A 1.2.44, whereby this segment is ambiguous, in the sense that it involves a variable ranging over different kinds of objects. Specifically, *ekavibhakti* conveys the meaning ‘having one case ending with respect to, that is the same case ending as, certain units Z’, where variable Z may stand for units that are said to be *ekavibhakti*, or for units other than those that are said to be *ekavibhakti*. In this way, what counts as *ekavibhakti* is not only the unit (say, *aśva-*) that has the same case ending as the other tokens of that unit (*aśva-*) across different sentences (see (6)), but also the unit (say, *nava-*) that has the same case ending as another unit (*ḥvāra-*) even in one single sentence (see (14b)). It is the latter possibility that is relevant in determining which compound-member satisfies the condition of being *ekavibhakti* in *karmadhārayas* like *nava-ḥvāra-*. Moreover, I have argued that the condition of being *ekavibhakti* should be relativised to (i.e. should be satisfied at) derivational stage S_1 , namely to

a derivational stage where only one of the two units between which a *sāmānādhikaraṇya* relation holds is case-marked. In the specific context of *nava-jvāra-*, S_1 corresponds to a sentence in which *nava-* lacks a case ending whereas *dvāra-* is assigned case in accordance with a rule of the A 2.3: for instance, in (15), *dvāra-* is assigned accusative case by A 2.3.2 (i.e. *dvāra-Ø^{ACC}*) whereas *nava-* is non-case-marked.

I have shown that the rule governing present participles (i.e. A 3.2.124) justifies the existence of the case-copying operation – which applies at S_1 – in the *Aṣṭādhyāyī*. Exploiting this operation, I have then suggested that *nava-* (= *nava-?*) copies the case attached to *dvāra-* (= *dvāra-Ø^{ACC}*) in (15). In this way, there is a very precise sense in which *nava-* satisfies the condition of being *ekavibhakti* in (15): *nava-* has the same case as *dvāra-* (i.e. is *ekavibhakti* with respect to *dvāra-*) insofar as *nava-* (= *nava-?*) copies the case attached to *dvāra-* (= *dvāra-Ø^{ACC}*) in (15), thereby showing up as *nava-Ø^{ACC}*.

Since the *upasarjana* is defined as the *ekavibhakti* unit in A 1.2.44, *nava-* can now be considered as the *upasarjana* of *nava-jvāra-* in accordance with A 1.2.44. Thus, the ambiguity of *ekavibhakti* makes it possible to reconcile A 2.1.49 (considered in conjunction with A 1.2.43), which singles out *nava-* as the *upasarjana* of *nava-jvāra-*, with A 1.2.44, thereby resolving the apparent contradiction between these rules. The definition of *upasarjana* as the *ekavibhakti* unit (A 1.2.44) can now be seen to hold in both *tatpuruṣas* like *aśva-śapha-* and *karmadhārayas* like *nava-jvāra-*, and possibly in any other compound type: the *upasarjana* is the *ekavibhakti* unit, i.e. the unit that has the same case ending as other tokens of that unit across different sentences (as in *tatpuruṣas*), or the unit that has the same case ending as another unit even in one single sentence (as in *karmadhārayas*).

From a contemporary perspective, one way of seeing the *upasarjana* is as the unit U such that the case ending of U is determined not by the grammatical function that the NP to which U belongs fulfils within the sentence, but by the grammatical function that U fulfils within that NP: e.g. the case ending of *aśva-* (= *aśva-Ø^{GEN}*) in *aśva-śapha-* is determined by the grammatical function of possessor fulfilled by *aśva-* within the NP *aśva-Ø^{GEN} śapha-Ø^x*; the case ending of *nava-* (= *nava-Ø^x*) in *nava-jvāra-* is determined – via the operation of case-copying – by the *sāmānādhikaraṇya* relation that *nava-* bears to *dvāra-* within the NP *nava-Ø^x dvāra-Ø^x* (see Pontillo 2003b, 27).

5 Conclusion

In this study, I have addressed a puzzle posed by Pāṇini's analysis of *karmadhāraya* compounds like *nava-jvāra-*: while A 2.1.49 – considered in conjunction with A 1.2.43 – provides for *nava-* to be designated as *upasarjana* in *nava-jvāra-*, A 1.2.44 seems to suggest that neither *nava-* nor *jvāra-* gets the designation *upasarjana* in *nava-jvāra-*. Specifically, A 1.2.44 defines the *upasarjana* as the *ekavibhakti* unit, i.e. in the light of work by Candotti and Pontillo (see, among others, Pontillo 2003b; Candotti, Pontillo 2019), as the unit U such that the case ending of U does not change when the grammatical function of the NP which U belongs to changes. And yet, both the case ending of *nava-* (e.g. *nava-Ø^{ACC}*) and the case ending of *jvāra-* (e.g. *jvāra-Ø^{ACC}*) change when the grammatical function of the NP which these units belong to (i.e. *nava-Ø^x jvāra-Ø^x*) changes. Therefore, *nava-* cannot qualify as *ekavibhakti* in *nava-jvāra-*, and hence cannot qualify as *upasarjana* either, in apparent contradiction with 2.1.49.

I have argued that *ekavibhakti* is ambiguous, in the sense that it conveys the meaning 'having one (*eka-*) case ending (*vibhakti-*) with respect to – i.e. the same case ending as – another unit Z', where Z is a variable ranging over different kinds of objects. This makes it possible to consider *nava-* as *ekavibhakti* in *nava-jvāra-*, in that *nava-* has the same case as – i.e. copies the case ending of – *jvāra-* in the derivation of this compound; I have provided evidence from A 3.2.124 (i.e. the rule governing present participles) in favour of the existence of the operation of case-copying in Pāṇini's grammar. Insofar as the *upasarjana* is defined as the *ekavibhakti* unit by A 1.2.44, *nava-* gets the designation *upasarjana* in *nava-jvāra-* in accordance with A 1.2.44. In this way, the contradiction between A 1.2.44 and 2.1.49 (considered in conjunction with A 1.2.43) dissolves: A 2.1.49 and 1.2.44 can now be seen to converge in designating *nava-* as the *upasarjana* of *nava-jvāra-*.

The sketch of Pāṇini's classification of compounds presented here is short, partial, and incomplete, focusing in fact on subordinate endocentric compounds (*tatpuruṣas* proper) and attributive endocentric compounds (*karmadhārayas*) only. Nonetheless, I hope that this sketch suffices to show that Pāṇini's classification of compounds cannot be considered as a purely semantic classification, as has instead been claimed by contemporary scholars of compounding (see, e.g., Tribulato 2015, 53 and Bauer 2017, 107-12): one of the defining features of *tatpuruṣas* and *karmadhārayas* is the fact that they contain exactly one *upasarjana*; since the *upasarjana* is defined on purely syntactic (or morpho-syntactic) grounds, along the lines suggested in § 4, the classification of a compound as *tatpuruṣa* or *karmadhāraya* must be considered, at least in part, as syntactic. This is not to deny the role of semantics in Pāṇini's classification of compounds: the fundamental

difference between *tatpuruṣas* (proper) and *karmadhārayas* is the fact that the *sāmānādhikarāṇya* relation – i.e. a semantic relation – holds between the members of a *karmadhāraya*, but not between the members of a *tatpuruṣa*.

Thus, Pāṇini's model of compounding appears to be more complicated than has been thought before, involving both syntactic (= *upasarjana*-based) and semantic criteria of classification, as well as powerful grammatical tools such as silent case endings, abstract derivational levels, and the case-copying operation.

Abbreviations

1	first person
2	second person
3	third person
AP	adjectival phrase
ACC	accusative
ABL	ablative
CAUS	causative
DAT	dative
DU	dual
F	feminine
GEN	genitive
IMPF	imperfect
IND	indicative
LOC	locative
M	masculine
N	neuter
NOM	nominative
NP	noun phrase
PL	plural
PRS	present
PTCP	participle
SG	singular

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Section 2

(De)Coding Hodgson's Kiranti Grammars and Verbal Paradigms

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Abstract This article presents the process, challenges and results of reconstructing hierarchised tables of contents for two grammar sketches written by B.H. Hodgson of the Vayu (1857) and Bahing (1858) languages. The process has involved making sense of the ontological systems used by Hodgson in organising his materials and analyses, and has been complicated by the dual factors of occasionally opaque terminological choices and of inconsistent physical presentation of the materials. The resulting tables of contents, presented in the appendix, make it possible to compare these sketches to others from the same time period and/or linguistic area.

Keywords Kiranti language descriptions. 19th century grammaticography. Describing a language 'on its own terms'. Hierarchised tables of contents. Verbal paradigms.

Summary 1 Introduction. – 2 Types of Interpretational Difficulties. – 2.1 Content. – 2.2 Physical Presentation of Materials. – 3 Discussion of Reconstructed Organisational Schemes. – 4 Conclusion.



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1 Introduction

Brian Houghton Hodgson was an officer of the East India Company and was stationed in Nepal for most of the period from 1824–43 (Waterhouse 2004a). A good general biography of his life is Hunter (1896), and a volume describing Hodgson's contributions to a number of scientific fields was edited by Waterhouse (2004b). Although Hodgson's movements were restricted by the Nepal government to the Kathmandu Valley, he was able to gain access to speakers of a number of Tibeto-Burman languages and to collect data on them.

Hodgson's most often-cited linguistic contributions are probably his sketches of two languages of the Kiranti group of Eastern Nepal, Vayu (now usually referred to as Hayu, as per Michailovsky (1988), or Wayu, as per Glottolog (Hammarström, Forkel, Haspelmath 2020) and Bahing, published in 1857 and 1858 respectively, in successive issues of the *Journal of the Asiatic Society of Bengal*. The two grammatical descriptions are of relatively similar length, of 57 and 50 pages respectively.

Their focus is on verbal morphology and they are largely made up of paradigms for the verb classes which Hodgson identifies for the two languages.¹ The main categories that the grammars are organised around are voice, mood and tense. The grammars also contain a brief overview of nominal and pronominal morphology, a specimen text and its translation.

The grammars, although they receive a cursory mention in most subsequent work on Kiranti languages, are rarely cited for their data.² This can probably be related to the challenges arising from the interpretation of, on the one hand, the linguistic content, which reflects the indexation of two arguments on transitive verbs and many verbal categories, described using the traditional terms that are inadequate considering the data, and, on the other hand, the material presentation of the data, which includes inconsistencies of various sorts (typographical, organisational) and ellipses. The result of these is that it is frequently difficult, in reading the grammars, to

1 From a current-day typological perspective, one of the key features that characterise these languages is their complex verbal morphology: this involves indexation of both the subject and the object on transitive verbs; verb stem alternations; derivational morphology to express what is now often labelled Associated Motion, Aspect and *Aktionsart*, and valency changes (see, e.g., Michailovsky 2017).

2 Exceptions are Grierson's *Linguistic Survey of India*, volume 3.1 of which bases a number of grammatical sketches on Hodgson's data (Grierson 1909), and Michailovsky's analyses and discussion of Hodgson's Limbu (2001) and Hayu paradigms (1988). Another notable exception is a recent article (Sims 2023) which makes use of Hodgson materials on 'Thochu' to better understand the historical phonology of Rma (of which Thochu is considered a variety) and in doing so presents a list of types of 'abstractions' needed to make use of the data.

understand what categories the data pertain to, a fact which is compounded by the absence of hierarchised tables of contents to guide the reader.

It is not as if there is no information allowing a reader to extract a hierarchised organisational scheme from the grammars: indeed, we find what are clearly headings for sections, as indicated by centring, indentation, with full capitalisation or italics, and sometimes even with number labels. The issue is that the inconsistency of these practices, coupled with an opaque ontological system for the verbal categories (which is likely due to the mismatch between the available categories and the linguistic data from these languages), results in a significant effort being necessary to map Hodgson's data onto modern descriptions of related languages.³

Figure 1 below is taken from the very beginning of the presentation of the section on verbal morphology in the Vayu grammar (1857) and shows a number of these headings and their typographical treatment [fig. 1]. A fully capitalised "Vayu Verbs" is followed by a numbered "Conjugation of neuters, conjugated from the Sheer root. Verb *Phi to come*". This is followed by a number of headings, all centred and italicised: "*Infinitive Mood*"; "*Gerunds*"; "*Participles*"; "*Imperative Mood*"; "*Indicative Mood*"; "*Future tense, used also for the present*"; "*Preterite tense*". Other labels are also present, such as "*Singular*", "*Dual*", "*Plural*", but their position above sections of the presented paradigms suggests that these are not to be taken as sections of the grammar, but rather as labels for data. While the size of the font of some headings suggests a hierarchy - this is the case for "*Future tense*" and "*Preterite tense*" headings, both of smaller font than the "*Indicative Mood*" heading they are positioned under - this is not a consistent practice. It does not, for example, apply to the headings "*Gerunds*" and "*Participles*", both of which are subordinate to the "*Infinitive Mood*".

3 As a test of this, the reader is invited to study the central column of the tables in the appendix, which reproduce all the section headings in the grammars, without reference to the left-most column, and to attempt to get a sense of the organisation of the material.

VAYU VERBS.

1st.—Conjugation of neuters, conjugated from the Sheer root.
Verb *Phi* to come.

Infinitive Mood.

Affirmative.—Phit'mung to come or to have come, aoristic.*
Negative.—Máng phit'mung, not to come, &c.

Gerunds.

Phit'he	} Present. Coming	{	Phit'he with verbs in present tense.
Phit'nung			Phit'nung with verbs in preterite.
Phit'hephit'he, or Phit'nung phit'mung, continuative present.			
Phit'phit'ha. Past, having come.			
Phit'singhe. Present or Future, when coming.			
Phit'khen. Past, after coming, after having come.			

Participles.

Phit'vi. Present and future, who or what comes or will come. Also the comer
substantival.

Phis'ta. Past, who or what has come or came.	} These forms expressing respectively <i>passive</i> futurity or fitness or habit, and instrumentality, locality and time, are hardly or not at all useable, save with verbs more or less transitive. See on to them in sequel.
Phit'táng,	
Verbal nouns,	
Phit'chyang,	
Phit'lung,	} See on to them in sequel.
Phit'sing.	

N. B.—The medial t' and s' are merely enunciative, not formative.

Imperative Mood.

<i>Singular.</i>	<i>Dual.</i>	<i>Plural.</i>
Phí.	Phíehhe.	Phíne.
	<i>Negative.</i>	
Thá phí.	Thá phíehhe.	Thá phíne.

Indicative Mood.

Future tense, used also for preesent.

<i>Singular.</i>	<i>Dual.</i>	<i>Plural.</i>
1. Phígnom.	{ Phí chhokmi, excl.	{ Phíkokmi, excl.
	{ Phí chhikmi, incl.	{ Phíkem, incl.
2. Phími.	Phí chhikmi.	Phínem.
3. Phími.	Phí chhikmi.	Phímém.
	<i>Preterite tense.</i>	
1. Phísungmi.	{ Phí chhonem, excl.	{ Phí kikóngmi, excl.
	{ Phí chhingmi, incl.	{ Phí kikengmi, incl.
2. Phími.	Phí chhem.	Phínem.
3. Phími.	Phí chhem.	Phímém.

Figure 1 Extract from Vayu grammar: beginning of the section
on verbal morphology (Hodgson 1857, 436)

It is for this reason that I feel there is value in providing a hierarchised table of contents for each of the two grammars. This not only makes it possible to use the linguistic data more easily, but to better understand the terminological and categorical choices made by Hodgson when confronted with these complex verbal paradigms. This initiative is also motivated by an ongoing project seeking to understand the grammaticographical models underlying linguistic descriptions, and which relies on hierarchised tables of contents for their comparison (Kelly, Lahaussais 2021; Lahaussais 2021).⁴

⁴ Within the framework of the project *Taxogram* (<https://taxogram.huma-num.fr/home.html>), we refer to the activity of inputting tables of contents into our database

The methodology that has been adopted in seeking to decipher the organisational scheme of the grammars is the following: any label which is centred on the page is considered to be the heading for a new section. (Labels which are indented, but not centred, are also considered as candidates, depending on the content.) In some cases, these headings also include numbering indicative of their place within the hierarchy of the table of contents, but this is an infrequent occurrence. These headings are all extracted (including 'subtitles' when relevant; this is typically the example verb used to illustrate a verb class, as in figure 1's "*Verb Phi to come*") and entered into a table, respecting capitalisation, italics, numbering and any additional typographical conventions. Page numbers for each new heading are recorded, as they can be used to calculate the relative size of the sections with respect to one another. An additional column holds a reconstructed numbering scheme which organises the material into a hierarchised table of contents, featuring a chapter level and multiple nested section levels.

While I generally consider as a section heading only material that is alone on its line and (usually) centre-aligned, this principle is challenged when superordinate sections are, presumably for reasons of space, presented in columns rather than centre-aligned on the page, as in figure 2: when taken in the context of the full description, it becomes apparent that "*Passive potential*" and "*Passive precative*" are both higher-level sections than "*Indicative present singular*" which they appear to be subsumed under, on the basis of the page layout. In this case, the indentation offers evidence of the organisational importance of these labels, in addition to other clues (such as italics), even though they are not centred (and alone) across the page.

as 'coding', hence the title for this article.

<i>Indicative present singular.</i>	
<ol style="list-style-type: none"> 1. Háta nógnom. 2. Háta nónum. 3. Háta nómi. <p style="text-align: center;"><i>Passive potential.</i> (I can be given).</p> <p style="text-align: center;"><i>Present singular.</i></p> <ol style="list-style-type: none"> 1. Há wón̄gnom. 2. Há wón̄mi. 3. Há wón̄tum. <p style="text-align: center;"><i>Preterite.</i></p> <ol style="list-style-type: none"> 1. Há wón̄sungmi. 2. Há wón̄mi. 3. Há wón̄tum. 	<p style="font-size: 2em;">}</p> <p>And so on through the verb nó, to be—an irregular verb which is given in the sequel. <i>Remark.</i>—To this responds hávi nógnom of the active voice.</p> <p style="font-size: 2em;">}</p> <p style="text-align: center;"><i>Passive precative.</i> (That I may be given).</p> <p style="text-align: center;"><i>Present singular.</i></p> <ol style="list-style-type: none"> 1. Hágnoyu. 2. Háyu. 3. Hátoyu. <p style="text-align: center;"><i>Preterite.</i></p> <ol style="list-style-type: none"> 1. Hásungyu. 2. Háyu. 3. Hátoyu.

}

And so on through dual and plural, the passive of wón̄to being conjugated like that of háto.

}

And so on through dual and plural, according to the passive forms of háto less the final mi, or in which is dropped, and the immutable verbal particle yú, subjoined.

Remark.—Observe that in the potential mood, as in the causal below, the expression of the passivity is transferred from the truncated main verb, which shows only its crude root, to the secondary verb.

Figure 2 Extract from Vayu grammar (Hodgson 1857, 446)

Figures 1 and 2 give the reader a sense of some of the difficulties in interpreting the grammars. In order to make the grammars more transparent to readers and ensure that the material can be compared with other grammars, I have reconstructed with hierarchised tables of contents. This article presents the process whereby I arrived at the organisational schemes provided in the Appendix. The structure of this article is as follows: section 2 details the types of issues I have encountered in attempting to reconstruct the hierarchised organisational schemes of the two grammars, which can be grouped into questions of content, including terminology, and questions of physical presentation. Section 3 presents a discussion of the principles and decisions that resulted in the reconstructed tables of contents (which are provided in the appendix). Section 4 offers a conclusion.

2 Types of Interpretational Difficulties

The difficulties in interpreting the underlying hierarchy of the descriptions can be grouped into types, which divide into content-related issues and presentation-related issues. Among the content-related issues are terminological choices and the hierarchies underlying the organisation; among the presentation-related issues are questions relating to typesetting and to missing headings.

2.1 Content

As the descriptions largely centre on the verbal morphology, the categories that I will primarily focus on are verbal. The organisation of the presentation of verbal morphology in both grammars is similar: the verbs of the language are grouped in verb classes, each verb class being illustrated by a single verb, which is presented through the categories of voice, mood and tense. Person and number inflection is marked in the paradigms, with number usually identified through a label over the relevant part of the paradigm ('singular', 'dual', 'plural') and person identified through a number ('first', 'second', 'third') and/or a gloss.

2.1.1 Terminological Choices

This section presents the terminology used for the categories of voice, mood and tense and their subcategories in the two grammars. They are presented according to the hierarchy found within the grammar, namely voice > mood > tense.

2.1.1.1 Voice

The three voice categories we find in Hodgson's descriptions are active, passive and middle (the latter is sometimes labelled "reflex transitive"). In a note in the Bahing grammar, Hodgson spells out his use of the different voice notions:

of the active voice of the transitive the object is him or her or it; of the middle voice the object is self; and of the passive voice the object is me, but that the order of arrangement of agent and object is reversed in the passive as compared with the active voice and so also in the indicative mood. This is done in conformity to the genius of the language which requires the attention to be primarily fixed on the agent in one voice, on the object in the other. (1858, 415)

Hodgson uses "passive voice" as a semantic notion, to describe verb forms for which a 3rd person agent is acting on a speech act participant.⁵ As a result, it is only transitive verbs that show voice distinctions, as these are the only ones with an object.⁶

⁵ Note that Kiranti languages are now considered to have a person hierarchy of 1st person > 2nd person > 3rd person. According to this hierarchy, transitive configurations where the agent is lower-ranked than the patient are currently referred to as 'inverse' (Cristofaro, Zúñiga 2018a; DeLancey 2018; Jacques, Antonov 2014), subsuming both Hodgson's passive and special forms (see § 2.1.1.1.1).

⁶ One interesting comment in the Errata for the grammars concerns the term 'passive': "Now turn to the passive voice and you will see the positions of these personal

Tables 1 and 2 present the use of voice terminology in section headings within the descriptions of the various verb classes across the two descriptions [tabs 1-2]. The verb classes are given the same labels (including number) as appear in the text. Table 1 shows that the transitive conjugations (which are grouped in the second column) are presented with an active-passive voice dichotomy (although the label 'active' does not always appear; see § 2.1.2.1) in the Vayu grammar, while intransitive or neutral verbs and irregulars (first column) are not described in terms of voice. (The verb 'to eat' in the first column is discussed in § 2.1.3 below.)

Table 1 Voice distinctions used in section headings across different verb classes in Vayu description

No voice labels	[active] ¹
	[passive]
<ul style="list-style-type: none"> • 1st conjugation of neuters, conjugated from the Sheer root (p. 436 ff.) • 2nd conjugation of neuters with a conjunct guttural (p. 438 ff.) • 3rd conjugation of neutral with a conjunct labial (m or p) (p. 439 ff.) • 4th conjugation of neuters with conjunct dental (p. 440 ff.) • 5th conjugation of reflex or active intransitive verbs in <i>che</i> • 12th conjugation (of irregulars) (p. 469 ff.) • 13th conjugation (of Irregulars) (p. 470 ff.) • 14th and 15th conjugations (of irregulars) being those of the verb <i>lá</i> 'to go', as used in combination with other verbs (p. 470 ff.) • The verb <i>já</i> 'to eat' (p. 471 ff.) 	<ul style="list-style-type: none"> • 6th conjugation of transitives in <i>to</i> not having a precedent sibilant (p. 442 ff.) • 7th conjugation of verbs in <i>to</i> having a precedent sibilant [...] (p. 447 ff.) • 8th conjugation of transitives in <i>po</i>, not having a nasal (n, ng, m) before it (p. 453 ff.) • 9th conjugation of transitives in <i>po</i> having a nasal (m, n, ng) before it (p. 457 ff.) • 10th conjugation of transitives in <i>ko</i> not having any consonant between the sign and the root (p. 462 ff.) • 11th conjugation of transitives in <i>ko</i> having an abrupt tone (equal iterate sign) between the sign and the root (p. 467 ff.)
<p>¹ The bracketing indicates that no such section heading exists in the grammar, but data is presented for the active voice; the category is thus present implicitly.</p>	

endings [of agent and object arguments] reversed, the starting point being the citation of the objects or patients whence the verb becomes passive, so far as that voice can be said to exist. [...] Passivity is denoted by the object: but so also is transitivity; and hence the many forms common to both voices" (Hodgson 1858, 13).

In similar fashion, table 2 shows the active-middle-passive voice distinction found for transitive verbs (first two columns) in the Bahing grammar, but not for intransitive or neuter verbs (third column). In table 2 as well, the labels for the verb classes are those in the text.

Table 2 Voice distinctions used in section headings in different verb classes in Bahing description

active reflex transitive, or middle voice passive	active middle passive	no voice labels	active
Paradigm of verbs transitive in <i>wo</i> : root <i>já</i> 'to eat'. Imperative <i>já-wo</i> (p. 407 ff.)	Paradigm of transitives in <i>to</i> , not changing the <i>t</i> into <i>d</i> (p. 421 ff.)	<ul style="list-style-type: none"> • Paradigm of verbs intransitive or neuter. Not having the sibilant sign (p. 425 ff.) • Paradigm of neuters in <i>to</i> (p. 426 ff.) • [Periphrastic moods] (p. 427 ff.) 	Causal verbs (p. 437 ff.)

The differences in voice labels between tables 1 and 2 are not a matter of the different morphology of the languages, both of which would currently be described as having active and middle/reflexive forms but no passive forms.⁷ In the Bahing grammar, we find clear tripartite voice divisions for transitive verbs, with explicit sections for active, middle and passive, whereas in the Vayu grammar, only the term 'passive' was used explicitly (an 'active' category was implicit but there are no headings for it).

A subcategory within Hodgson's passive voice is labelled "special forms": forms involving two speech act participants as the arguments. As he puts it himself:

there are further special forms of the verb to denote the action which passes from me to thee and from thee to me. These are necessary complements of the passive voice in a language that makes the mention of agents and patients inseparable from that of the action. (Hodgson 1858, 415)

⁷ See Michailovsky 1988, 83 on Hodgson's use of passive.

The sections containing these forms are considered, as per the passage above, to be a subsection of the passive voice for each verb class. The internal organisation of the passive voice sections, however, does not always place the special forms immediately following the indicative mood as might be expected: they sometimes occur after all the other moods of the passive. For example, in the Vayu grammar's "6th. - Conjugation of transitives in 'to' not having a precedent sibilant", the special forms are presented at the end of sections on the passive voice's imperative, indicative, potential, precative, causal, and subjunctive moods, even though the special forms given in the paradigm are all indicative. This is perhaps in keeping with the 'special' label he gives them, indicating they are treated separately, but it does not help the reader to find the 'passive' indicative forms divided based on the arguments involved.

2.1.1.2 Mood

Mood divisions are numerous, and across the two grammars we find the following categories (in order of appearance): infinitive, imperative, indicative, subjunctive (sometimes also called conditional), interrogative, negative, potential, precative, optative, inchoative, finitive, causal, continuative, reciprocal, contingent, inceptive, iterative.

The mood labels are sometimes accompanied by glosses, examples, and explanatory remarks. We find the term *precative* accompanied by the following examples of metatext: "The first ordinary form of the precative may be best rendered in English by O! that I may or might come, &c." (1857, 437), "That I may give" (444), "That I may kill" (450). This is also the case for other mood levels, such as the *optative*: "Duty, necessity and propriety, as well as desire, are expressed by this mood..." (437), "Wish, desire" (432); the *subjunctive* or *conditional*: "If, or should, I come" (428); the *contingent*: "I may (perhaps) go" (429); the *Passive causal*: "I am caused to be given (or to give)" (446) and the *Passive subjunctive* "If I be given" (447).⁸ These definitions are important because the modal notions in the languages being described do not overlap with the English, and the glosses are a way to clarify their scope.

The order in which the moods are presented is not consistent across the various verb classes: some categories get reordered, and more and more are omitted as the Vayu grammar progresses. The decrease in the number of moods described per verb class suggests that the categories are not found to be entirely relevant for the language being

⁸ In one instance, instead of a mood label for Bahing, the heading for the section is just the gloss: "Duty, necessity; I must or ought" (1858, 431).

described. The changes in the mood categories and their order across the verb classes of the Vayu description are shown in table 3 [tab. 3]. Verb classes are identified in the column headers by their number and the full label for each class can be found in table 1; classes for which the moods are the same (number, type and order) and grouped together in the same column. The same colour shading is used for equivalent mood categories⁹ in order to make the reordering apparent.

This reveals that while the infinitive, imperative and indicative moods are always ordered in the same way, when all three are present, none of the other moods are ordered consistently from one verb class to another.

Table 3 Mood categories found in sections presenting the different verb classes in the Vayu description, colour coded to show changes in order of appearance

1st	2nd	3rd, 4th, 12th, já	5th	6th	7th	8th	9th	10th	11th	13th	14th and 15th
inf.	inf.	imp.	inf.	[inf.]	inf.	inf.	inf.	inf.	inf.	[ind.]	imp.
imp.	imp.	ind.	imp.	imp.	imp.	imp.	imp.	imp.	imp.		
ind.	ind.		[ind.]	ind.	[ind.]	[ind.]	ind.	ind.	ind.		
subj.				neg.	neg.	inter.	prec.	cont.	pass. imp.		
inter.				pot.	inter.	pot.	cont.	rec.	pass. ind.		
neg.				opt.	pot.	prec.	rec.	pass. imp.			
pot.				prec.	opt.	cont.	caus.	pass. ind.			
prec.				subj.	opt.	rec.	pass. imp.	pass. neg.			
opt.				cont.	subj.	caus.	pass. ind.	pass. opt.			
inch.				rec.	cont.	pass. imp.	pass. neg.	pass. inter.			
fin.				caus.	rec.	pass. ind.	pass. opt.	pass. subj.			
caus.				pass. imp.	caus.	pass. inter.	pass. inter.	pass. pot.			
cont.				pass. ind.	pass. imp.	pass. pot.	pass. subj.	pass. caus.			
rec.				pass. pot.	pass. [ind.]	pass. prec.	pass. pot.	pass. cont.			
				pass. prec.	2nd pass. inf.	pass. caus.	pass. prec.				
				pass. caus.	2nd pass. imp.		pass. caus.				
				pass. subj.	2nd pass. [ind.]						
					2nd pass. prec.						
					2nd pass. caus.						

⁹ For legibility, the labels in table 3 are abbreviated as follows: inf. = infinitive; imp. = imperative; ind. = indicative; subj. = subjunctive; inter. = interrogative; neg. = negative; pot. = potential; prec. = precative; opt. = optative; inch. = inchoative; fin. = finite; caus. = causal; cont. = continuative; rec. = reciprocal; pass. = passive.

The use of mood in the Bahing description is more consistent and systematic than in the Vayu grammar. Table 4 reveals that the moods are presented in the same order across the different verb classes (the label for which heads each column): imperative, indicative, infinitive, replicated for each voice distinction across the verb classes identified for the language. The other moods are, for the most part, presented under a special section on periphrastically expressed moods, which treats them in the order subjunctive, contingent, potential, “duty, necessity”, optative, precative, interrogative, prohibitive and negative, inceptive, finitive, continuative, iterative. The decision to consider periphrastic forms as moods is stated expressly by Hodgson, who says that the “modifications, of course, have periphrastic means of expression, I shall call them moods” (Hodgson 1858, 427; also mentioned again on page 431).

Table 4 Mood categories across the different verb classes in the Bahing description

“Paradigm of verbs transitive in ‘wo’” (p. 407 ff.)	“Paradigm of transitives in ‘to’” (p. 421 ff.)	“Paradigm of verbs intransitive or neuter” (p. 425 ff.)	“Paradigm of neuters in ‘to’” (p. 426 ff.)	[Periphrastic moods] (p. 427 ff.)	“Causal verbs” (p. 437 ff.)
active imperative	active imperative	imperative	imperative	subjunctive	imperative
active indicative	active indicative	indicative	indicative	contingent	indicative
active infinitive	active infinitive	infinitive	infinitive	potential	infinitive
reflex imperative	passive imperative			duty, necessity	
reflex indicative	passive [indicative]			optative	
reflex infinitive	passive infinitive			precative	
passive imperative				interrogative	
passive indicative				prohibitive and negative	
passive infinitive				inceptive	
				finitive	
				continuative	
				iterative	

Several terms for moods are new in the 1858 Bahing description, not having appeared in the 1857 Vayu description: these are the contingent, the inceptive, the iterative.

The contingent mood receives a gloss: “I may (perhaps) go” (1858, 429). This mood is in fact made up of a sequence of an affirmative and negative form of the same verb: “I shall go, I shall not go”.

The inceptive mood is given a description very similar to that found for Vayu inchoative, and the terms thus appear to be interchangeable: compare, in the Vayu grammar, “this mood being constructed

from the root of the main verb and the reflex form of the verb to begin" (1857, 437) and, in the Bahing grammar, "Inceptive mood. It is formed by subjoining the ordinary infinitive for (cho) of the main verb, the subsidiary intransitive verb *prénso*, to begin, or the transitive *páwo*, to do, to make" (1858, 433)

The iterative mood is followed by a glossed verb form, "raise repeatedly" (Bahing 1858, 435), making it clear what the semantics of this mood are.

2.1.1.3 Tense

The tense divisions found in the two descriptions are more straightforward than the voice and mood categories, with a bipartite system of present and/or future, usually described as 'present and future', sometimes 'present or future' (e.g. Bahing 1858, 418; see also "*Future tense, used also for present*", 1857, 436) vs. preterite. Both notions in the dichotomy are usually present as paired headings for relevant sections in both grammars, although in the later part of the Vayu grammar (1857, 456 ff.), present/future tends to be treated as a default tense category, insofar as it is not labelled, while preterite is explicitly used as a section heading. The Bahing grammar is more consistent in this respect, with both members of the pair almost always present in the relevant sections.

As discussed by van Driem, past and non-past, found in a great many modern-day descriptions of Kiranti verb morphology,¹⁰ are not entirely appropriate labels for finite verb tenses; preterite vs. non-preterite are preferable, "because these tradition terms can be taken to suggest a distinction between a realised and a non-realised event or perception" (van Driem 2001, 657).

Other tense-related terms in Hodgson are 'past' and 'aoristic'. The term 'past' is found only with the infinitive mood, gerunds and passives. The term 'aoristic', on the other hand, appears in paradigms, where it is in contrast with forms identified as 'present tense' and 'preterite', as shown in figure 3 [fig. 3].

¹⁰ The division is largely between grammars by van Driem and his students, which use a preterite/non-preterite opposition, and all other grammars, which use past/non-past.

<i>Special forms.</i>		
Active or passive, = agento objective.		
1st.—I to thee.		
Hánum.	Give or gave to thee I only.	} Aoristic.
Hánochhem.	Give or gave to you two I only.	
Hánonem.	Give or gave to you all I only.	
2nd.—Thou to me.		
γHáguom.	Givest to me thou (or he).	} Present tense.
γHánochem.	Give to me ye two (or they two)	
Hánonem.	Give to me ye all only.	
γHásungmi.	Gavest to me thou.	} Preterite.*
γHasungchhem.	Gave to me ye two.	
Hásungnem.	Gave to me ye all.	

Figure 3 Extract from Vayu grammar (Hodgson 1857, 447)

These examples suggest that ‘aoristic’ is used by Hodgson for verbs with a single form for several tense/aspect distinctions: for the forms in the “I to thee” section, labelled as “Aoristic”, a single form receives both present and preterite glosses, where for the “Thou to me” section, distinct forms are found for each tense. A more explicit definition for the ‘aoristic’ is found in the following: “Háto, to give, being aoristic hátum, is equally present and preterite” (1857, 480).

2.1.2 Unclear Hierarchies

The materials discussed in this section concern practices which directly result in an unclear hierarchy in the organisation of materials. The various points which will be discussed are: the omission of section headings for default categories, and the recursivity found in the presentation of some verbal categories.

2.1.2.1 Omission of ‘Default’ Categories

In a number of situations, there are section headings that are missing from the grammars. The cases discussed here are those where the omission is the result of a category being assumed to be the default or basic category within a bi- or multipartite taxonomy.

An example is found on the very first page of the Vayu grammar (1857, 429): the section on pronouns has a subsection with a heading “*Personals. Singular*”, but with no mention (apart from the glosses) of the nature of the person - the first person - which the data pertain to. This can be seen in figure 4 [fig. 4].¹¹

¹¹ Note that the “1st of Pronouns” in figure 4 does not to the nature of the person but to pronouns being described before nouns.

VAYU DECLENSION.	
<i>1st of Pronouns.</i>	
<i>Personals. Singular.</i>	
N.	I, Gó.
G.	Of me, Ang, conjunct, = my.* Angmu, disjunct, = mine.
D.	to me
Ac.	me } Gó. No sign.
L.	{ In, at } Ang be.
	{ into, me }
Ab.	from me, Ang khen.
Ins.	by me, G'há (go-ha).
Soc.	with me, Angnung.
Priv.	without me, Ang má nosa.†
<i>Dual.</i>	
N.	Gó nakpu, m. f. Gó nárgung, n.‡

Figure 4 The (unlabelled) first person singular pronouns in Vayu (Hodgson 1857, 429)

This is in opposition to headings, on the following page, which specify “*Second person*” and “*Third Personal*”, as in figure 5 [fig. 5].

<i>Second person.</i>	
N.	Gon.
G.	Ung, conjunct = Thy. Ungmu, disjunct. = Thine.
D. Ac.	Gon. No sign.
L.	Ung be.
Ab.	Ung khen.
Ins.	Gon ha.
S.	Ung nung.
<i>Dual.</i>	
N.	Gonchhe.
G.	Ungchhi, conj. Ungchhimn, disj.
D. Ac.	Gonchhe. No sign.
L.	Ungchhi be.
Ab.	Ungchhi khen.
Ins.	Gonchhe ha.
Soc.	Ungchhi nung.
<i>Third Personal.</i>	
N.	Wathi. All 3 genders.
G.	Wathim, conj. Wathimmu, disj.
D. Ac.	Wathi, No sign,
L.	Wathim be.
Ab.	Wathim khen.
Ins.	Wathi ha.
Soc.	Wathim nung.

Figure 5 The second and third person pronouns in Vayu (Hodgson 1857, 430)

There are two types of situations where we find omissions of this kind: when the heading is omitted outright, as in figure 4; and when a single heading combining elements from two different levels is found instead. An example is “Indicative present”, with a counterpart “Preterite”, with the former clearly a shortcut for Indicative Mood and Present [tense].

The most commonly found outright omissions among headings are the first member of the following sets: active/passive; indicative/infinite/imperative/et al.; present/preterite; singular/dual/plural. These happen to be the categories which are morphologically unmarked in the languages in question (apart from mood, as indicative, infinitive and imperative are all equivalently morphologically unmarked, in opposition to the other moods). They are also, possibly due to their morphological unmarkedness, the categories which are presented first in the grammar.

The missing headings, whatever their cause, result in some sections of the grammars not being labelled, with the interpretation of the content based on an implicit organisational scheme which is not always transparently accessible to the reader.

There are differences between the two grammars in terms of the omission of headings for default categories. In the Vayu grammar, the heading ‘active voice’ is often omitted, with its counterpart passive explicitly labelled; in the Bahing grammar, Active, Middle and Passive Voice tend to be presented in explicitly labelled sections.

In the 14 pages of errata, corrigenda and addenda provided by Hodgson for both descriptions, the majority concern Bahing and Vayu transcriptions, but occasional notes refer to omitted headings, such as “Page 449 after negative mood add of indicative singular” (Hodgson 1858, 13). There are only a handful of corrections of this type in the errata, but they do indicate that Hodgson too saw the omission of certain section headings as constituting errors and rendering the grammars less legible.

As for the second type of missing heading, where a heading combines elements from two different levels in the hierarchy, these are corrected for in the reconstructed table of contents in order to preserve the numbering hierarchy. By far the most common heading of this type is when we find ‘Indicative present’, between the headings ‘Imperative mood’ and ‘Preterite’. ‘Indicative present’ here is a shortcut heading combining a heading ‘indicative mood’ with a subsection on the ‘present’ (of the same hierarchical level as the following ‘preterite’). The neutralisation of hierarchical levels by combining them within the same heading can be problematic when one arrives at the following section heading, and is not sure what mood to subsume the data within.

2.1.2.2 Recursive Hierarchies

As seen in § 2.1.1.2, some of the mood categories in the two grammars are expressed through periphrastic forms,¹² involving a non-finite form of the main verb and an inflected auxiliary. The auxiliary can appear in different voices and moods, as part of its expression of these periphrastically constructed moods. This prompted Hodgson (1858, 431) to remark: “The precedent is given in full [...] because it demonstrates that these so-called moods are merely compound verbs which (like the case signs) can be multiplied ad infinitum”.

The result is that sections of the grammars on periphrastically expressed moods can include recursive hierarchies, with the full set of voice and mood categories of the auxiliary presented. An example of this is found in the Bahing grammar's section on Potential Mood (Hodgson 1858, 429 ff.), shown in table 5 [tab. 5]. This heading subsumes sections on the three voices (active, middle, passive) and on several moods (imperative, indicative, infinitive), all nested within the description of the potential mood.

Table 5 The Potential Mood in the Bahing grammar

Reconstructed section numbering	Headings (original)
3.5.3	POTENTIAL MOOD
3.5.3.1	[Active voice]
3.5.3.1.1	<i>Imperative</i>
3.5.3.1.2	[Indicative]
3.5.3.1.2.1	<i>Indicative present</i>
3.5.3.1.2.2	<i>Preterite</i>
3.5.3.1.3	INFINITIVE
3.5.3.1.3.1	<i>Participles</i>
3.5.3.1.3.2	<i>Gerunds</i>
3.5.3.2	<i>Middle voice</i>
3.5.3.3	PASSIVE VOICE
3.5.3.3.1	<i>Imperative mood</i>
3.5.3.3.2	[Indicative]
3.5.3.3.2.1	<i>Indicative present</i>
3.5.3.3.2.2	<i>Preterite</i>
3.5.3.3.3	<i>Infinitive</i>
3.5.3.3.3.1	<i>Participles</i>
3.5.3.3.3.2	<i>Gerunds</i>

12 Analysing periphrastic forms as mood is something dating back to at least Lily's grammar (first edition, 1548-49; https://ctlf.huma-num.fr/n_fiche.php?n=327), according to van Auwera, Zamorano Aguilar 2016, 22.

Because the general organisation of the sections on verbal morphology adopts a hierarchy of voice > mood > tense, it is necessary to understand that these hierarchies can be recursive in order to be able to reconstruct a table of contents from the materials, and to not treat a heading referring to voice or another mood as a new (superordinate) section of the grammar.

2.1.3 Evolving Paradigm Organisation

In the previous sections, we have seen examples of Hodgson applying traditional linguistic terminology to verbal categories that in modern-day grammars receive different treatment: an example is the use of the passive voice to describe verb forms with a speech act participant as the object; another example is the use of 'aoristic' for verb forms which are undifferentiated with respect to tense. There is no doubt that Hodgson was keenly aware of how unique the verbal morphology of these languages was, and how this posed a challenge for the existing descriptive apparatus: this comes through strongly in the reorganisations that Hodgson makes to the verbal paradigms.

These reorganisations take two forms: the first is found *within* the Yayu description. After 34 pages (out of a total of 57 for the grammar) devoted to presenting verbal paradigms, Hodgson comments (1857, 470) that "It may now be of use to exhibit the whole matter of conjugation in another shape seemingly more accommodated to the genius of the language". He proceeds to present a completely reworked paradigm (referred to as 'diagram', p. 479) of the verb 'eat', in which the main structuring scheme is mood - imperative vs. indicative - and, for the indicative mood, a tense dichotomy - 'present and future' vs. preterite. Within these categories, the organisational principle is the number of the subject (singular, dual or plural), and the forms in each section are then listed according to the nature (person, number) of the object.

This very simple presentational device does away with voice, as well as with mood categories other than imperative and indicative. Forms formerly described as passive (including special forms) are integrated into the inflectional paradigm alongside other combinations of arguments; Reflexive forms are folded into the possible person/number inflections (with 'self' being one possibility for the object). The bipartite tense system means that notions such as aoristic and past also fall away, although this is in part because infinitives, participles and gerunds are not presented in the new paradigm.

The new organisation is such that only the morphologically significant verb forms and categories are captured, and to show all possible combinations of subject and object arguments. The result does not adhere to traditional grammar schemes, and shows an ingenious

adaptation to the realities of the language being described. A number of aspects of Hodgson's new paradigm are in fact still used by Kirantologists today, notably the relevant categories in presenting paradigmatic verbal data. This is presented in more detail in Lahaussais (2020).¹³

The second reorganisation we see is across the two grammars, with differences in the use of the categories of voice, as illustrated in tables 1 and 2, and of mood, as shown in tables 3 and 4. The changes from the 1857 to 1858 grammars result in greater readability, and many inconsistencies (see for example Section 2.1.2.1) are improved upon.

One interesting aspect of the change from one grammar to the next is that the improved presentational style for Vayu paradigm is not reprised in the 1858 Bahing grammar. It is however possible that the Bahing verbal paradigms, which are presented more consistently than the initial Vayu ones, benefitted from the process of distillation of verbal categories which the reorganised Vayu paradigm shows.

2.2 Physical Presentation of Materials

The physical presentation of the materials is another dimension, in addition to the conceptual, which opacifies the underlying organisation of the descriptions. The main aspects we examine here are those relating to typesetting (§ 2.2.1) and to the absence of expected headings indicating sections (§ 2.2.2). It is unsurprising to find these types of issues considering the material was provided to the editors in the form of a handwritten manuscript, and one presented in a state that elicited printed commentary from the publishers of the journal.¹⁴

2.2.1 Typesetting Practices

The typesetting practices adopted for the purposes of establishing the organisational scheme of the descriptions consist of all-capitals, italics, font size and indentation. Numbering is occasionally used. Both typesetting and numbering are marked by inconsistency, as can be seen in the Vayu sections illustrated below in table 6: the two

13 For more discussion of issues in organising paradigms based on more recent material from Khaling, a related Kiranti materials, see Lahaussais 2018.

14 A notice, inserted before the first page of Hodgson's article on Vayu in the 1857 issue of the *Journal of the Asiatic Society of Bengal*, reads: "The Secretaries wish to add that they cannot hold themselves responsible for any misprints in the earlier part of these Vocabularies, especially those in no. V. The MSS which Mr. Hodgson left with them, when he quitted India, were in such a confused state from ink and pencil inter-lineations that it was hopeless to avoid errors."

reproduced headings present pronouns, on the one hand, and nouns, on the other; they are both of the same hierarchical level, but make use of different typesetting and numbering practices [tab. 6].¹⁵

Table 6 Two same-level headings from the Vayu grammar

Headings (original)	Page number
1st of Pronouns	429
II. – DECLENSION OF NOUNS. <i>Substantive.</i>	433

Inconsistency in the typographical form of headings of the same hierarchical level is found throughout both grammars: in some cases, all-capitalised headings are superordinate to italicised headings; in other cases, the reverse is found.

Another example of these types of inconsistencies can be seen in figure 6. In the extract shown, one might assume that the highest-level headings are those in all-capitals (“GERUNDS” and “IMPERATIVE MOOD”), with the other centred material being subordinate. Instead, within the context of the rest of the grammar, it becomes clear that highest level heading is “Paradigm of verbs intransitive or neuter”, introducing a new verb class, which, while centred, is otherwise difficult to make out as a significant heading for a new section.

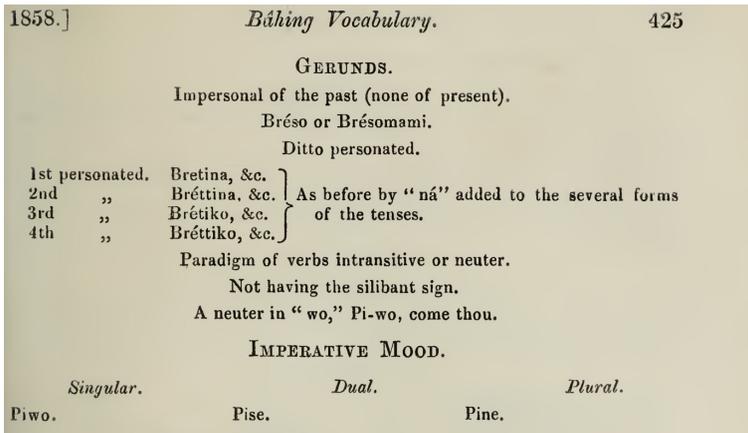


Figure 6 Extract from the Bahing grammar (Hodgson 1858, 425)

15 The following are reproductions of the originals:

<i>1st of Pronouns.</i>	II.—DECLENSION OF NOUNS. <i>Substantive.</i>
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The texts of both grammars are replete with typographical practices that obscure the underlying structure of the grammar and result in difficulties in parsing their organisation.

2.2.2 Missing Section Headings

A frequent occurrence across the two descriptions is the missing heading. This can be attributed to a variety of causes: a) the section heading has been turned to prose; b) the section heading is omitted because the category is seen as a default (this was discussed in § 2.1.2.1); c) it is unclear whether something is a section heading or instead a label on a paradigm.

An example of a) from the Vayu grammar (reconstructed as Section 2.5 in the appendix to this article) is seen in the passage below:

5th. - Conjugation of reflex or active intransitive verbs in che, that is, which have this (the only) reflex sign added to their root in the imperative which always strikes the key note to the several conjugations always having the formative affix whenever there is one. (1857, 441)

The material presents a new verb class, and even happens to have a number (which allows it to be aligned with other verb classes), and as such, one expects a heading but instead finds a prose passage.

This type of situation is a frequent occurrence in the descriptions - most often without the numbering that here allows it to be identified as a new section. Some non-numbered cases involve one-line paragraphs, which begin with the expected heading (on the basis of patterns established earlier in the grammar). Examples (all from the Vayu grammar, 1857, 459) include:

“Negative mood prefixed by má.”

“Optative mood by conjugation of the verb dák suffixed to the root (hom) of the main verb Hom dák gnom, &c.”

“Potential mood by conjugating the aoristic transitive wonto after the root hom.”

These have the appearance of notes Hodgson may have taken during fieldwork sessions, which he neither organised into sections with headings nor wrote out as full sentences. This type of material has not been included in the hierarchical schemes in the appendix, as the stipulation for inclusion was that headings be identified by centring or indentation on the page.

An example of c) - the situation where it is difficult to decide whether a centred title is a section heading or a paradigm label - can be seen in figure 7 [fig. 7]. “Causal Mood” is identified as a heading, on the basis of its centring on the page and capitalisation, and is as such integrated into the reconstructed hierarchy for the table of contents. It is less clear what to make of the status of “Present” and “Preterite”, under “Causal Mood”, as these both appear to be labels for the paradigms underneath them.

<i>Causal Mood.</i>		
<i>Present.</i>	<i>Preterite.</i>	
<ol style="list-style-type: none"> 1. Phit' pingsungmi, 2. Phit' pingmi, 3. Phit' pingmi, 	<ol style="list-style-type: none"> Phit' ping kungmi, Phit' ping kum, Phit' ping kum, 	{ and so on for dual and plural throughout the verb pingko, which see. The root of the primary verb is prefixed.
<i>Continuative Mood.</i>		
<i>Present Tense.</i>		
<i>Singular.</i>	<i>Dual.</i>	<i>Plural.</i>
<ol style="list-style-type: none"> 1. Phína phit'nognom. 2. Phína phit'nonum. 3. Phína phit'nomi. 	<ol style="list-style-type: none"> { Phína phit'nochhokmi. Phína phit'nochhikmi. Phína phit'nochhikmi. Phína phit'nochhikmi. 	<ol style="list-style-type: none"> { Phína phit'nokokmi. Phína phit'nokem. Phína phit'nonem. Phína phit'nomem.

Figure 7 Extract from the Vayu grammar (Hodgson 1857, 438)

On the other hand, “Present Tense”, under “Continuative Mood” in the lower half of figure 7, is centred on the page, in the manner of a heading, and creates a section which encompasses several paradigms. This leads to two different interpretations for the presence within the organisational hierarchy of what is in fact material of the same level.

3 Discussion of Reconstructed Organisational Schemes

The tables of contents I have reconstructed for the grammars are provided in the appendix to this article. They include, in the right-most column, the pagination in the original 1857 and 1858 issues of the journal, and, in the central column, the original headings for sections (as defined by centring, and sometimes indenting, on the page; § 2.2 above discussed some challenges in using these criteria). Any numbering present in the original is also listed in the central column, along with the section heading. The numbers in the left-most column are those I have reconstructed in order to impose a hierarchised scheme onto the materials. Any headings not in the original have been added in square brackets: these are attempts to reinsert consistency into the hierarchy, when expected headings have been omitted (see § 2.1.2.1).

This discussion of the reconstruction of hierarchised tables of contents will address three main topics: the macro-structure of the

grammars, in other words their top-level organisation, which is relatively transparent in the published materials; decisions that I made about the lower-level organisation of sections within the tables of contents; and a discussion of section headings that were introduced into the table of contents, even though they were not present in the original materials.

The **macro-structure of the grammars** is very similar across the two grammars: both begin with a chapter¹⁶ on nominal and pronominal morphology. This is followed, in the Vayu grammar, by a chapter on verbal morphology, the main sections of which are individual verb classes. The Bahing grammar divides the discussion of verbal morphology into two chapters: chapter 2 presents the language's verb classes, with chapter 3 presenting the verb paradigms. A language specimen, accompanied by its translation, makes up the final chapter in each grammar: the third in the Vayu grammar and the fourth in the Bahing.

As was discussed in § 2.2 above, relying on the typography of the materials is not sufficient for the determination of the organisational hierarchy of the grammars. For the most part, however, the sections in the grammars that align with what I have assigned chapter-status, in other words the top-level of the table of contents, are in all-capitals in both grammars.

Table 7 Top-level chapters in the two grammars

Vayu grammar	Bahing grammar
Vayu declension ⁱ	Declension of Bahing pronouns and of nouns
Vayu verbs	Classification of Bahing verbs
A specimen of the Va'yū language	Conjugation of Bahing verbs Specimen of the Kiránti language (Báhing dialect)

ⁱ A number of other headings are also in all capitals, interestingly often the sections on the passive voice, but these are clearly subordinate to verb classes and I do not give them chapter status.

While the heading for the Bahing language specimen is in italics, and not in all-capitals, I nonetheless treat it, together with its translation, as a separate chapter, following the principle that a specimen is not a subsection of verbal morphology and on the basis of the all-capitals heading for the equivalent section of the Vayu grammar.

The reconfigured verb paradigm in the Vayu grammar (discussed in § 2.1.3 above), illustrated with the verb 'eat', is treated as

16 'Chapter' here is the highest level of the hierarchy, signalled by a single number (1, 2, 3...).

a subsection of the 'Vayu verbs' chapter, at the same level as the other verb classes. It could have been assigned to its own chapter, on par with the text specimen – this would parallel the current practice among some Himalayanists of providing verb paradigms and text collections as appendices to a grammar (Lahaussois 2020). The decision to have this additional paradigm as a section matching other verb paradigms stems from the fact that I see it as constituting another aspect of the analysis of the verbal morphology of the language, albeit a new analysis, and not as a specimen.

Because the bulk of the two grammars discusses verbal morphology, most decisions in reconstructing the tables of contents involve understanding how Hodgson uses verbal categories. Looking carefully at his grammars makes it clear that a governing **principle for sub-level organisation** is, within each verb class, a hierarchy of voice, then mood, then tense.¹⁷

This hierarchy is not always as transparent, because there are limitations on the occurrence of certain categories: the category of voice is only present when the verb is transitive, on account of Hodgson's use of the notion of passive to describe inverse scenarios (those involving speech act participants as objects), and intransitive verbs are presented according to a mood > tense hierarchy. Furthermore, certain moods are not associated with tenses, such as the infinitive and imperative moods. The particularities of some verbal categories, which do not combine with others, obscures the voice > mood > tense hierarchy, but understanding this to be an underlying organisational principle to the presentation of verb forms makes it considerably easier to interpret the data, despite typographical inconsistencies.

My **introduction of new section headings** in the hierarchised tables of contents in the appendix is limited to sections with obvious omissions. These were identifiable by virtue of material being presented without a heading, or without a heading of the right level with respect to neighbouring content. The types of omission of headings were discussed in § 2.1.2.1. The headings which I have introduced are all bracketed in the tables of contents in the appendix, so they can be readily identified.

There are 34 headings introduced into the Vayu grammar, and 12 in the Bahing grammar, these numbers confirming the impression upon reading the two grammars that the organisation and presentation of the Bahing grammar is more consistent than the Vayu.

In the Vayu grammar, the headings which are most frequently omitted are, for nouns and pronouns, singular (whereas "Dual" and "Plural" are consistently present); for verb paradigms, "Active voice"

¹⁷ See, however, § 2.1.2.2 on recursive hierarchies which insert voice and mood sections within descriptions of moods.

(when the counterpart “Passive voice” is found later in the paradigm), “Indicative Mood”, and “Present tense”. Note that these are the categories which are morphologically unmarked in these languages with respect to their counterparts, and in this sense, it is understandable that they should be treated by Hodgson as default categories. Although the Bahing grammar is more consistent in assigning headings to all sections containing data, even those that describe morphologically unmarked categories, occasionally some of the same categories as for Vayu are missing section headings. The most significant decision regarding the Bahing grammar is my introduction of Section 3.5 and its heading “Periphrastic moods”, in order to group together all the material presenting moods which are expressed not through a formative but through periphrasis.

4 Conclusion

The exercise of reconstructing hierarchised tables of contents for Hodgson's grammars has made it possible to take stock of some of the problems that arise when making use of older grammatical descriptions. Hodgson's grammars of Vayu and Bahing, as the first descriptions of Kiranti languages, are of great importance not only for the record they represent of the nineteenth century state of two currently endangered languages but also for how they have contributed to the history of descriptive practices in the Himalayan region. Hodgson's grammars are almost universally present in the bibliographies of descriptive work on languages from the area through to the present day but the data is almost never cited. This is at least in part due to the difficulties in reading his grammars, which I have attempted to alleviate by reconstructing the hierarchy of the organisation principle underlying the two descriptions.

Throughout this process of reconstruction, I have sought to understand the organisation and content of Hodgson's two grammars. It is of particular interest that the grammars, even though published in two successive years, show strong evidence of the author's evolving ontological system. This can be inferred from changes that are apparent both within the first grammar and across the two grammars. Evidence comes from the choice of verbal categories that are presented and from how the material, essentially in the form of verbal paradigms, is organised. This appears to be a convincing example of describing the language on its own terms, with the transition to a presentation better adapted to the language data evident over the course of the two descriptions. This allows us insight into theoretical and practical aspects of language description at the time, especially for languages with complex verbal morphology for which there was not a widely circulating preestablished descriptive framework.

The main conclusion I draw from the work of decoding the hierarchies underlying the structures of the descriptions is that these grammars show the influence of a traditional grammatical framework with an overlay of innovative thinking about categories. This leaves a reader to ponder the change in the presentation of this data over the course of the two grammars: why did Hodgson not rewrite the grammars to only include the elegant adaptive solutions he came up with, rather than having data presented in different ways? One of the goals of the reconstruction of the tables of contents for these grammars was to outfit them with tools allowing for comparison with other grammars from the linguistic area and/or from the same time period - to 'code' them in the same way as we have done for others within the context of the Taxogram project -, and such comparison will perhaps uncover the answer to this question.

Appendix

In the reconstructed hierarchised tables of contents presented below, the titles of sections are those found in the manuscript, together with the typeset of the original (caps, italics, normal font), except where material is either bracketed or shows ellipses, both of which are explained below. The part of the table of contents which is reconstructed is the numbering scheme, which shows the hierarchy of how the sections that make up the grammars relate to one another. Any numbering present in the original is found as part of the section heading. (The unbracketed material in the section heading column thus represents what is originally found in Hodgson's grammars.) All the titles presented in the reconstructed tables of contents below are centred in the page, suggestive of their status as headings; this is in fact the principle that was used to determine that these are considered headings of sections. (The exceptions to this are discussed, and are found when the material is in two columns on the page, such as in the Vayu grammar on page 446, as shown in figure 8 [fig. 8]. The reason to make an exception is because equivalently-titled sections for other verb classes were centred.)

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The Pre-Toda Verb A Reconstruction

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Abstract Toda is a Dravidian language that is well known for its aberrant phonology, namely due to ubiquitous vowel dropping, simplification of consonant clusters, and phonemic diversification. Although efforts have succeeded to some extent in mapping these phonemes to those of related languages, the origins and implications of Toda morphology have not yet been explored in detail. This work aims to reconstruct key aspects of the Pre-Toda verb in order to provide a dataset to be faithfully used in comparative Dravidian linguistics. Here, the formation of the secondary stem and the nonpast suffixes are demonstrated to show more affinity towards Old Kannada rather than Old Tamil. At the same time, the tenseless and dubitative conjugations, along with personal terminations, are found to retain archaic Dravidian suffixes.

Keywords Dravidian. Toda. Verb morphology. South Asian linguistics. Reconstruction.

Summary 1 Introduction. – 2 Phonological Considerations. – 2.1 V_1 Umlaut. – 2.2 A Three-Fold Model for Intervocalic Plosives. – 3 Secondary Stem Formation. – 4 Finite Verbs. – 4.1 The Nonpast. – 4.2 The Past and the Dubitative. – 4.3 The Voluntative. – 4.4 The Tenseless Conjugation. – 4.5 The Imperative. – 4.6 Negatives. – 5 Conclusion.



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1 Introduction

Toda is a Dravidian language spoken by approximately 1,600 people in the Nilgiri and Kunda hills of Tamil Nadu. It is a member of the Tamil-Kannada subgroup within the South Dravidian branch (*Ethnologue* 2022). The Todas themselves are a well-documented people group (Emeneau 1984, 1), and, as such, three grammars of their language have been written over the past two centuries (Hammarström et al. 2022). Emeneau's, the most extensive of these, is an invaluable resource, providing a definitive verb list and an elaborate description of verb morphology (1984) from which much of this report derives.

The language has been subject to some theoretical phonology research, namely because it contains phonemes, such as the three coronal trills [r], [r̥], and [r̥̥] that are not known to contrast anywhere else in the world (Ladefoged, Maddieson 1996, 223). However, even more of the phonemic inventory is atypical in the context of other Dravidian languages, given that it features a wide range of fricatives (Krishnamurti 2003, 66) while only one (*H) can be reconstructed for Proto-Dravidian (Krishnamurti 2003, 91). Although much of the origins of these phonemes has been solved, reconstructions are still subject to ambiguities. Namely, Toda, along with its closely related neighbour Kota, commonly drops all short vowels and shortens all long vowels in non-initial syllables (Emeneau 1957, 63), resulting in reconstructions with a lessened ability to provide detailed value in comparative Dravidian linguistics.

Work on historical morphology in Toda has been limited and usually restricted to propositions described within grammars. Aside from this, comparative works on Dravidian linguistics have used examples from Toda to posit reconstructions for Proto-Dravidian, although these are sometimes misattributed.¹ Given the plentiful corpus available for this language, there is a need for a more complete deconvolution of its phonology and morphology, so that it can provide more nuance to reconstructions of historical stages of Dravidian.

As such, this work has two main focuses: (1) reconstructing the components of the finite verb in Pre-Toda,² and (2) working out certain issues in phonology to assist (1).

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1 For example, Krishnamurti (2003, 298) endorses Emeneau's (1957, 46) interpretation of the sibilant origin of Toda's past stem, and he uses it as evidence to posit *-cc- as a past morpheme for Proto-Dravidian. However, the phoneme identified within the past suffix, [ʃ], is acknowledged by Emeneau to be a reflex of Proto-Dravidian *ʒ and *r (1970, 112).

2 As the ages of these precursor forms are relative, it is impossible to determine which specific stage each belongs to (i.e. Proto-South-Dravidian, Proto-Tamil-Kannada, etc.) with just Toda forms. As a result, a blanket term "Pre-Toda" is used within this study.

2 Phonological Considerations

Verb inflection evolves in various ways throughout the Dravidian family tree. Finding similarities amongst these diverse manifestations requires precise phonetic information around the environment where the inflection occurs. In Dravidian languages, since there are no prefixes and only suffixes (Krishnamurti 2003, 28), this ‘inflectional environment’ is usually comprised of the final one or two phonemes of a verbal base and all suffixes that follow it. Seven out of nine tense suffixes that Krishnamurti posits for Proto-Dravidian contain stops, and three contain vowels (291-307), meaning that understanding the distribution of reflexes of vowels and stops in Toda may provide crucial information on how verbs inflected in Pre-Toda.

Two remaining problems in the origins of Toda phonology are directly related to the reconstruction of vowels and plosives, and they will be addressed in this section accordingly. The first results from the loss of short vowels in non-initial syllables, as described earlier (Emeneau 1957, 63). These vowels can be recovered to some extent, as Pre-Toda vowels in non-initial syllables (mainly $*V_2$) can affect the vowel quality of Toda vowels in initial syllables (V_1). This phenomenon, referred to here as ‘ V_1 -umlaut,’ has been partially described by Gopinathan Nair (2009), and below is included a more in-depth evaluation of this hypothesis. The second problem, stemming from homorganic consonant cluster simplification, already has a solution, but this study revisits that, scrutinising the alleged common descent paths of a couple of members of two distinct consonant series: (1) voiced plosives & affricates, and (2) fricatives and trills.

Toda transcription is not standardised, since many of its phonemes are not featured in the ISO15919 transliteration scheme for Indic scripts. This report uses the scheme used in Emeneau’s grammar, with three changes: [c] generally represents a voiceless (alveolo-)palatal affricate in Indic languages, and, as such, it is used here to represent the voiceless alveolo-palatal affricate in Toda, in lieu of Emeneau’s [č]. At the same time, Emeneau also represents post-dental affricates with [c] and [z]; this is replaced with [ʃ] and [ʒ] to distinguish from the aforementioned alveolo-palatal affricate, and for phonological consistency (i.e. a swash tail makes the sibilant an affricate) (1984, 11). Finally, long vowels are represented with superposed macrons rather than following interpuncts.

2.1 V₁ Umlaut

Toda vowels in initial syllables generally exhibit the following sound changes (Emeneau 1970, 8-27):

- **a*; **ā* > [o], [a]; [ō], [ā]
- **i*; **ī* > [i], [i]; [ī]
- **u*; **ū* > [ū], [u];³ [ū]
- **e*; **ē* > [ö], [e]; [ē], [ē]
- **o*; **ō* > [wī], [wa]; [wī], [wā]⁴

Aside from [ī] and [ū], each vowel has two reflexes, implying that each Pre-Toda vowel has a basic ‘unconditioned’ reflex (henceforth, V^u), as well as a ‘conditioned’ reflex (V^c). To isolate the vowel qualities that can be considered V^u, first, the verbs being considered must be monosyllabic to ensure that there are no other vowels that can influence V₁.

Dravidian verbs that are monosyllabic can have either a long or short V₁ (Krishnamurti 2003, 378), but the loss of vowels in non-initial syllables makes it difficult to separate those that are originally monosyllabic and polysyllabic. It is uncommon for verbal bases with a long V₁ to be longer than a single syllable⁵ within Dravidian, as roots with long V₁ usually shorten when are followed by a [vowel-initial] derivative suffix (Krishnamurti 2003, 96). Therefore, this section begins by examining all bases with long vowels.

V̄₁ mostly retains its length in Toda (Emeneau 1970, 8-27), although some instances of long vowels in Toda result from the dropping of C₂ in a Pre-Toda base of structure *C₁V₁C₂V₂C₃,⁶ wherein V₂ is elided and V₁ is lengthened (Emeneau 1957, 60-3). This is identifiable when the C₂ attested elsewhere in Dravidian is not present in a Toda cognate.⁷ Sometimes an extension can be added to the base to add more

³ [wī] and [wa] are listed erroneously as reflexes of **u* in Emeneau (1970, 17), although the example given to corroborate this – *wīd-* (*wīd-*) “to exist, to be in a place” – clearly descends from an **o*, given analogous Kota *ol-* (*od-*) “id.”. This source also does not acknowledge the presence of [ū] in Toda altogether, but it is included as a reflex of **u* based on forms given in Emeneau 1984.

⁴ Initial [w] cannot appear after [p] (1984, 19), which is why Emeneau also lists [ī], [i], and [a] as reflexes, as well.

⁵ Many Dravidian languages, and also Proto-Dravidian, add an epenthetic, or ‘enunciative’, vowel after word-final plosives, although this vowel is not phonemic (Krishnamurti 2003, 90). This means that these bases can still be considered monosyllabic. This vowel is reconstructed for Toda, since final plosives in monosyllabic verbs take the same form as the intervocalic variant, eg. *pōr-* ‘to sing’ < Pre-Toda **pātə*, which demonstrates {*V̄V > [r]}.

⁶ C[?] refers to a consonant or a consonant cluster, whereas V[?] indicates either a vowel or a diphthong.

⁷ Exceptions to this include loanwords, such as *ōt-* “to stick to” (DEDR 4034; < PS-Dr **pat̪t̪ə*), which is likely loan from Badaga, since {**t̪* > [t]} is not a common sound

information about valency, such as $-(v)i \sim -(p)pi$ in Tamil and Malayalam (McAlpin 1981, 45). A common extension in Toda is the causative suffix $-\xi$, which seems to be closely related to, if not borrowed from, Kannada $-isu$ (Subrahmanyam 1971, 86). $\bar{o}r-\xi$ “to reopen settled dispute because the settlement was unjust”, for example, is attested as a causative form of $\bar{o}r$ - ‘to cool’. Since [r] in the extended base warrants Pre-Toda $*V\bar{t}V$ – that is, an intervocalic plosive (Emeneau 1970, 68) – this suggests either the addition of an epenthetic vowel in between these two suffixes or that the suffix had an initial vowel, possibly [i], like in the Kannada equivalent $-isu$. These verbs are omitted to ensure the lack of a conditioning V_2 .

Finally, reflexes of $*\bar{i}$ and $*\bar{u}$ are not considered in this analysis, as they each only have a single alloform in Toda. This further makes it more difficult to explain the reflexes of short $*i$ and $*u$, so these vowel qualities are beyond the scope of this study.

From the verb list, it was shown that the majority of Pre-Toda monosyllabic verbs with the long vowels $*\bar{a}$, $*\bar{e}$, or $*\bar{o}$ resulted in Toda $[\bar{o}]$, $[\bar{\bar{o}}]$, and $[w\bar{i}]$. There was one such verb with $[\bar{a}]$, six verbs with $[\bar{e}]$, and none with $[w\bar{a}]$, whereas 34 had $[\bar{o}]$, 13 had $[\bar{\bar{o}}]$, and 11 had $[w\bar{i}]$. The one verb with $\{*\bar{a} > [\bar{a}]\}$, $n\bar{a}\xi$ - “to play” (DEDR 3612) was likely a loan: the Kota ($nay!$ - “id.”) and Malto (lal - with past in lad - “to dance”) equivalents suggest a retroflex lateral for Proto-Dravidian, even though the placement of the DEDR entry implies a root of $*nal$ (Burrow, Emeneau 1984, 319), whereas the Toda form warrants an alveolar lateral. On the other hand, only one of the six verbs with $\{*\bar{e} > [\bar{\bar{e}}]\}$ could be explained: $t\bar{e}\bar{t}$ - “fold (leaf for drinking cup)” could be better placed with DEDR 3245, implying Pre-Toda $*terat\bar{t}\bar{e}$, instead (cf. Ko. $ter\bar{t}$ - “to make round”).

Thus, it was shown that $[\bar{o}]$, $[\bar{\bar{o}}]$, and $[w\bar{i}]$ are unconditioned reflexes of $*\bar{a}$, $*\bar{e}$, and $*\bar{o}$, respectively, with the caveat that $\{*\bar{e} > [\bar{\bar{o}}]\}$ is an irregular sound change and must be looked into further. See below (Badugu examples from Hockings, Pilot-Raichoor 1992):

$*(C_1)\bar{a}C_2\bar{?}(\bar{e}) > (C_1)\bar{o}C_2\bar{?}$

1. Toda $k\bar{o}\bar{t}$ - “to show” < Pre-Toda $*k\bar{a}\bar{t}\bar{t}\bar{e}$ (DEDR 1443). Cf. Ta. $k\bar{a}\bar{t}\bar{t}u$ and Ko. $k\bar{a}\bar{t}$ - “id.”.
2. Toda $k\bar{o}y$ - “to bear fruit” < Pre-Toda $*k\bar{a}y$ (DEDR 1459). Cf. Ta. $k\bar{a}y$ “id.” and Ka. $k\bar{a}y$ “[of fruit] to grow or develop”.

change in Toda. However, loanwords should similarly not be considered, since it is unclear whether they were borrowed before or after the V_1 -umlaut sound change took place. Therefore, those bases that are clearly loanwords (i.e. those marked as such by Emeneau or that do not follow known established sound changes) are omitted, as well.

3. Toda *nōt̄-* “to make to get wet in rain” < Pre-Toda **nā(n)t̄t̄ə* (DEDR 3630). Cf. Ko. *nāt-* “to make to become wet in the rain” and Ka. *nādu* “to moisten”.

$*(C_1)\bar{e}C_2^?(\bar{a}) > (C_1)\bar{o}C_2^?$

1. Toda *ōx-* “to scream” < Pre-Toda **ēkə* (DEDR 879). Cf. Ta. *ēñku* “to sound”.
2. Toda *ōl̄-* “to be fat” < Pre-Toda **ēl* (DEDR 916). Cf. Ta. *ēl* “to be excessive”.
3. Toda *kōšt̄-* “to lean against (tr.)” < Pre-Toda **kērt̄t̄ə* (DEDR 2012).

$*(C_1)\bar{o}C_2^?(\bar{a}) > (C_1)w\bar{i}C_2^?$

1. Toda *wiṭ̄-* “to drive calf” < Pre-Toda **ōṭ̄t̄ə* (DEDR 1041). Cf. Ta. *ōṭ̄tu* “to cause to run”.
2. Toda *twiṭ̄y-* “to wash” < Pre-Toda **tōy* (DEDR 3555). Cf. Ta. *tōy* “to dip”, Ko. *tōy-* “to wash clean”, Bad. *tai* “to wet”, and Ka. *tōyu* “to wet”.
3. Toda *nwiṭ̄-* “to look at” < Pre-Toda **nōṭ̄t̄ə* (DEDR 3794). Cf. Ko. *nōṭ̄-* “to look at”.

This sound change can be further extrapolated to short vowels, suggesting that [a], [e], and [wa] are the conditioned counterparts of [o], [ö], and [wī], respectively. In order to recover the vowel(s) that cause V_1 -umlaut, the cognates of Toda verbal bases that possess this sound change can be examined. Although there are quite a few exceptions, Toda verbs with V^c were found to generally have a $V_2^?$ of either [a] or [ai] in Tamil, and [a] or [e] in Kannada. Therefore, **a* and (**ay* >) **e*⁸ can be posited as initial candidates for the conditioning $V_2^?$ that is later elided. The other possible vowels include **i*, **u*, and **o*,⁹ of which the latter two are never found in the $V_2^?$ position. Aside from certain cases,¹⁰ **u* and epenthetic **ə* become complementary in the Tamil-Kannada subgroup and often fully merge in Modern Tamil and Kodava, amongst others, in all word-final syllables (Krishnamurti 2003, 49-51). For that reason, it is unlikely that an epenthetic vowel influences a preceding vowel, rather than the reverse. Finally,

8 Kannada [e] (Krishnamurti 2003, 119) and Tamil [ai] (Krishnamurti 2003, 48) both come from earlier **ay*. However, reconstructing **ay* or **ai* for Pre-Toda would be problematic in that **y* and **i* both always reflect as [y]. Even in later Tamil loans, [ai] seems to be approximated with Toda [y]: To. *kōṇiky* “offering to a Hindu temple or to Kurumba” and Ta. *kāṇikkai* “gift to a temple” (DEDR 1443).

9 Long vowels are rarely found in the V_2 position of verbal bases in Dravidian (Krishnamurti 2003, 277).

10 The one oft-described example in Old Tamil is *nūntai* “your father” (Rajam 1992, 45), which contrasts with *nuntū* “to propel” (*Tamil Lexicon* 1924-36).

*i, as described in footnote 8, leads to Toda [y] (Emeneau 1979, 225), meaning that, although the vowel is lost, its reflex is rarely elided.

Although Kannada has both [a] and [e] and Tamil has both [a] and [ai], their distribution is to some extent patterned. In cognates to Toda bases with V_1 -umlaut, Kannada [e] was found to appear in the V_2 of all but the past stems of some Kannada bases with the shape $C_1V_1C_2V_2^?$, and [a] appears everywhere else. Tamil [ai] and [a] can both be found in $C_1V_1C_2V_2^?$ verbs, although the V_2 of verbs with a $C_3^?$ are almost always [a]. Therefore, Pre-Toda verbs with a third $C^?$ likely also had a V_2 of *a, whereas all other situations are subject to ambiguity. Reconstructions in this study follow this model, and where unknown, this vowel is represented as a small-caps a, since Krishnamurti uses this same symbol to describe an analogical situation in Proto-Dravidian (2003, 143).

The following summarises the three umlaut rules concluded by this section, while also providing examples thereof:

* $(C_1)aC_2^?A\# > (C_1)aC_2^?\#$

1. Toda *kaṛt-* “to send” < Pre-Toda **kaṛattə* (DEDR 1109). Cf. Ta. *kaṛattu* “to cause to go”, and Ko. *kaṛt-* “to make to cross”.
2. Toda *partu-* “to pray” < Pre-Toda **parattə* (DEDR 3951).
3. Toda *taṛ-* “to get stuck” < Pre-Toda **taṛA* (DEDR 3142). Cf. Ta. *taṛai* “to rivet”.
4. Toda *pax-f-* “to distribute” < Pre-Toda **pakA-wə* (DEDR 3808). Cf. Ma. *pakayuka* “to distribute”.

* $(C_1)eC_2^?A\# > (C_1)eC_2^?\#$

1. Toda *eṛt-* “to overcome in contest” < Pre-Toda **eṛattə* (DEDR 515).
2. Toda *teṛ-* “to open” < Pre-Toda **teṛA* (DEDR 3259). Cf. Ta. *tira*, Ko. *terv-* “id.”, and Ka. *tere* “to be unclosed”.
3. Toda *neṛ-* “to become full” < Pre-Toda **neṛA* (DEDR 3682). Cf. Ta. *nirai* “to become full”, Ko. *nerv-* “[of a girl] to reach puberty”, Bad. *nerē* “to become accomplished”, and Ka. *nerē* “to become entire”.
4. Toda *peṛ-* “to grow (intr.)” < Pre-Toda **beṛA*¹¹ (DEDR 5437). Cf. Ta. *viṛai* “to be produced”, Ko. *veṛv-* “to grow”, and Ka. *beṛē* “to grow (intr.)”.

¹¹ PDr *w becomes *p-* initially and *-f-* elsewhere in Toda (Emeneau 1970, 89), and *p-*, whether from PDr *p or *w, may become *b-* (optionally after nasals) or *f-* (elsewhere) when not sentence-initial (Emeneau 1984, 34). This directly parallels the Kannada sandhi rule wherein word-initial *p-* and *b-* (< PDr *w) may become *-v-* when preceded by a vowel. As such, the sound change PDr *w- > Pre-Toda *b- > Toda *p-* is better supported, and therefore *b- is used in Pre-Toda internal reconstructions.

$*(C_1) \circ C_2^? A \# > (C_1) wa C_2^? \#$

1. Toda *war̥x-* “to sleep” < Pre-Toda **oṭakə* (DEDR 707). Cf. Ta. *uraku*, Ko. *org-*, Bad. *oragu*, and Ka. *oragu* “to sleep”.
2. Toda *war̥-* “to break in pieces” < Pre-Toda **oṭA* (DEDR 946). Cf. Ta. *uṭai* “to crack”, Ko. *oṛv-* “to break (intr.)”, Bad. *oḍe* “to break (intr.)”, and Ka. *oḍe* “to be broken”.
3. Toda *kwar̥-* “to be reduced in size” < Pre-Toda **koṭA* (DEDR 1851). Cf. Ta. *kurai* “to diminish”, Ko. *korv-* “to be reduced in size or number”, and Ka. *kore* “to grow little less or short”.
4. Toda *twalx-* “[of plank] to be out of plumb” < Pre-Toda **tolakə* (DEDR 3519). Cf. Ko. *tolg-* “to be released from debt” and Ka. *tolagu* “to go away”.

2.2 A Three-Fold Model for Intervocalic Plosives

Toda has plosives in six places of articulation – bilabial, dental, alveolar, retroflex, (alveolo-)palatal, and velar – as Krishnamurti (2003, 48) suggests for Proto-Dravidian (Emeneau 1984, 11). These plosives demonstrate voicing contrast, which commonly results from a single vs. geminated (or lax vs. tense) contrast across Dravidian (McAlpin 1981, 23). All word-initial stops are unvoiced, but when preceded by a word of the same sentence, they are spirantised (Emeneau 1984, 34), and, as a result, it has been noted that these fricatives are also reflexes of ungeminated plosives. At the same time, **c*, **ṭ*, and **ṭ̥*, which do not appear word-initially in Toda (34),¹² are lenited intervocalically to [s], [r̥]/[d̥], and [r̥] (Emeneau 1970, 60-8), forming three parallel, six-member series that represent reflexes of Pre-Toda plosives (51-72; 1984, 41):

Table 1 Reflexes of Pre-Toda Stops

PDR phoneme	Voiceless reflex	Voiced reflex	Continuant reflex
<i>*k</i>	[k]	[g]	[x]
<i>*c</i>	[ɕ], [c]**	[z], [j]**	[s]
<i>*ṭ</i>	[ṭ]	[ḍ]	[d̥], [r̥]
<i>*ṭ̥</i>	[ṭ̥]	[ḍ̥]	[r̥]
<i>*t</i>	[t]	[d]	[θ]
<i>*p</i>	[p]	[b]	[f]

** In palatalising environments (preceding **i* > [y]).

¹² **c* is allowed word-initially elsewhere in Dravidian, but an initial $\{*c > [t]\}$ sound shift in Toda removes all inherited (alveolo-)palatal plosives (Emeneau 1970, 58). Any word with an initial [s], thus, must be a loanword.

Proto-Dravidian homorganic consonant clusters can appear in three different forms: NP, PP, and NPP (Krishnamurti 2003, 163). NPP forms the most complex consonant cluster that is possible within Dravidian (90). The existence of a separate NPP category aside from PP is reflected in Kannada and Telugu, although the initial nasal is notably lost in Tamil and Malayalam (34). Toda denasalisation makes impossible the separation of reflexes of *PP and *NPP, and both of them attest as the voiceless plosives [tab. 1]. This study reconstructs all occurrences of these two clusters as *PP, since the existence of a preceding nasal cannot be confirmed.

Emeneau (1970, 53-72) rationalises voiceless and continuant series by suggesting that, for some places of articulation, the continuant descends from *P and its voiced stop from *NP (bilabial, alveolar, palatal), and in others *NP becomes both the continuant and the voiced stop but *P only reflects as a continuant (dental, velar). Finally, the retroflex stop *ʈ lenites into both [d] and [r], while the homorganic cluster *ŋʈ merely denasalises and voices into [d].

Here, it is argued that {*NP > B} applies to all places of articulation. In the same way that vowels that did not undergo umlaut were isolated using monosyllabic verbs, a similar process may be performed to isolate *NP and *P.

Denasalisation of homorganic clusters in Dravidian is also somewhat common outside of Toda. Although it does not happen as much in Tamil, Kannada commonly undergoes this change (Krishnamurti 2003, 167), making it unclear whether the Pre-Toda form for a given reflex was ever nasalised. One place where denasalisation does not occur in South Dravidian (aside from Toda) is in *(C)ṼNP roots (167-70), since removing the nasal changes syllable stress patterns.¹³ Therefore, if the plosives in *(C)Ṽnt and *(C)Ṽnk never become continuants, then that suggests that the {*NP > B} stands for all places of articulation.

Five such verbs that had South Dravidian cognates with [nk] ~ [ng] and [nt] ~ [nd] were found, all of which demonstrated {*nk > [g]} or {*nt > [d]}:

*(C)Ṽnk > CṼg

1. Toda *pīr eg-* “to contract the stomach” < Pre-Toda **enkə* (DE-DR 774). Cf. Ma. *ennuka* “to become contracted”.¹⁴

¹³ The syllable-final epenthetic allows the final consonant to be pronounced in a second syllable, meaning that the first syllable only comprises the sequence *(C)ṼN. If the nasal is dropped, *(C)ṼN, a dimoraic syllable, becomes unimoraic, in *(C)Ṽ.

¹⁴ This term can also be argued to be a loanword and not from **enkə*, especially since the Malayalam form given for comparison is intransitive, whereas the Toda form is transitive. It could be the case that the Toda base was originally intransitive but

2. Toda *tog-* “to be humbled” < Pre-Toda **tankə* (DEDR 3178). Cf. Ta. *tañku* “to be obedient”, and Tu. *dañguni* “to bend”.
3. Toda *nug-* “to gulp down” < Pre-Toda **nunkə* (DEDR 3697). Cf. Ta. *nuñku* “to swallow”, Ko. *nuñg-* “to gulp down”, and Ka. *nuñgu* “to swallow”.
4. Toda *pīg-* “to bubble up” < Pre-Toda **ponkə* (DEDR 4469). Cf. Ta. *poñku* “to boil up”, Ko. *poñg-* “[of water] to spring forth magically”, and Ka. *poñgu* “to boil over”.

*(C)ṽnt > Cṽd

1. Toda *kiḍ-* “to sprinkle” < Pre-Toda **kintə* (DEDR 1546). Cf. Ta. *cintu* “to be strewn”.

A very small sample size was availed in support of $\{*(C)\check{V}_1nt > (C)\check{V}_{1/2}d\}$, but, as described by Emeneau (1970, 77), the occurrence of $[nt] \sim [nd]$ outside of tense suffixes is rare. Therefore, this will be discussed in further detail in section 3 as a rebuttal. For velars, however, Emeneau uses the example of To. *tūx-* “to hang” to explain his proposed $\{*NP > F\}$ by comparing this with Ta. *tūñku* “id.” and various other forms in Dravidian that retain **nk*. However, closely related Kannada loses the preceding nasal (Emeneau 1970, 56). Therefore, the Toda base could be interpreted in three ways, of which the first was chosen by Emeneau: (1) the form was inherited as **tūñkə*, (2) the form was borrowed from Kannada, or (3) the form was inherited as **tūkə*.

Alongside this, there are two minimal pairs that maintain a distinction between $[g]$ and $[x]$ and between $[d]$ and $[\theta]$ and also a distinction in meaning. *ūr-* (DEDR 647) has two secondary stems, wherein *ūd-* means “to disappear suddenly by magic”, whereas *ūθ-* means “to disappear”. At the same time, *wīñx-* means “to wither (intr.)”, although *wīñg-* means “to be scorched”. Since $[d]$ and $[g]$ are definitive reflexes of **nt* and **nk*, respectively (Emeneau 1970, 56, 77), $[\theta]$ and $[x]$ need to have come from **t* and **k* to have retained both semantic and phonetic distinctions.

Table 2 Summary of Proposed Sound Changes

Index	Sound Change
(a)	*#_CA# *a, *e, *o, *ā, *ē, *ō > [a], [e], [wa], [ā], [ē], [wā]
(b)	*#_Ci#, #_Cu# ~ *#_C(ə)# *a, *e, *o, *ā, *ē, *ō > [o], [ö], [wi], [ō], [d̥], [wī]
(c)	*#V_V# *k, *c, *t, *t̥, *p > [x], [s], [r], [r̥], [θ], [f]
(d)	*#N_# *k, *c, *t, *t̥, *p > [g], [z]/[j], [d]/[r], [d̥], [d], [b]

later became transitive, or vice versa with the Malayalam base. However, even otherwise, this does not prove that **nk* can become $[x]$, since this form does not have an $[x]$.

3 Secondary Stem Formation

Fully-inflected verbs in Dravidian languages are made up of a base, an augment, and a termination, or, alternatively, stem-medial-ending (McAlpin 1981, 41). The base is not always a single morpheme, but it is usually the smallest unit that can stand alone. Bases are derived by adding suffixes to a root, although most suffixes aside from those that indicate valency have since lost productivity and sometimes nuance in meaning, as well (Krishnamurti 2003, 277-8). The augment includes all suffixes that mark valency, tense, aspect, and mood but are not incorporated into the base. Finally, the termination is where suffixes that mark subject agreement are placed.

In Toda, the majority of conjugations are based off of two stems, the primary (S¹) and the secondary (S²). Whereas the S¹ is usually only made up of the verbal base, the S² seems to show similarities with the past stem found elsewhere in South Dravidian (Emeneau 1967, 374). But, unlike the rest South Dravidian, both the nonpast and the past conjugations arise from S² (Emeneau 1984, 114), meaning that the nonpast is probably periphrastic. As many other aspects of verbal inflection in Toda are more innovative, S¹ and S² are much easier to compare to other Dravidian languages.

Secondary stems in Toda are generated either by adding either a *-y-* suffix or any of the three dental suffixes *-t-*, *-d-*, or *-θ-* (Emeneau 1967, 376). The *-y-* is clearly related to the Modern Tamil past suffix *-i(ŋ)-* and Kannada converbial in *-i-*, and it takes the same general distribution,¹⁵ so **-i-* can be reconstructed as an S² formative for Pre-Toda. *-t-* is related to the ‘strong pasts’ found in the *Tamil Lexicon*’s classes 9, 10, 11, and 12 (387). They are similar in function, as well, marking the effective counterparts of affective verbs that would take the *-θ-* suffix (Emeneau 1984, 114). In accordance with the described phonological rules, **-tt-* can be reconstructed as an effective past. Some strong verbs, specifically those that do not end in [y], [ʃ], or [ʒ], take an additional *-f-* in the S¹. This is analogical to either the converbs of Old Tamil strong verbs in *-ppa* or those in *-(p) pū* (Rajam 1992, 756, 760). Since some of these verbs do not always have a V₁^c, it is proposed that the final vowel was **ə* in Pre-Toda, but this may have originally come from **a*, which was centralised since it may have been unstressed. See examples below:

¹⁵ Krishnamurti (2003, 296) describes these verbs as ending in plosives and having more than three morae (one of which would be the final syllable added by the epenthetic [ə]).

Trimoraic Pre-Toda bases take -y-

1. Toda *tīrb-*, *tīrb-y-* “to twist (tr.)” < Pre-Toda **tirəmpə*, **tirəmp-i-* (DEDR 3246). Cf. Ta. *tiruppu*, *tirupp-i(ṅ)-* “to cause to return”; and Ka. *tirumpu*, *tirump-i(d)-* “to cause to go round”.
2. Toda *oꝻ-*, *oꝻ-y-* (< *oꝻ-y-*) “to fear” < Pre-Toda **ancə*, **anc-i-* (DEDR 55). Cf. Ta. *añcu*, *añc-i(ṅ)-*; and Ka. *añju*, *añj-i(d)-* “id.”.
3. Toda *pār-*, *pār-y-* “to fly” < Pre-Toda **pātə*, **pāt-i-* (DEDR 4020). Cf. Ta. *pāru*, *pār-i(ṅ)-* “to run”; and Ka. *pāru*, *pār-i(d)-* “to leap up”. Also note Ka. *pār*, *pār-d-* “id.”.

Strong pasts and their weak counterparts

1. Toda *war-*, *war-θ-* “to break in pieces (intr.)” and *war-f-*, *war-t-* “to break in pieces (tr.)” < Pre-Toda **oṭA-pə*, **oṭA-tt-* (DEDR 946). Cf. Ta. *uṭai-nt-* “to break as a pot”; and *uṭai-tt-*, *uṭai-ppa*, *uṭai-ppū* “to break in pieces (tr.)”.
2. Toda *kar-*, *kar-θ-* “to become tight” and *kar-f-*, *kar-t-* “to tighten” < Pre-Toda **kaṭA-pə*, **kaṭA-tt-* (DEDR 1399).
3. Toda *peḷ-*, *peḷ-θ-* “to grow (intr.)” and *peḷ-f-*, *peḷ-t-* “to grow (tr.)” < Pre-Toda **weḷA-pə*, **weḷA-tt-* (DEDR 5496). Cf. Ta. *viḷai-nt-* “to be produced”; and *viḷai-tt-*, *viḷai-ppa*, *viḷai-ppū* “to raise”.

The suffixes in -*d-* and -*θ-* are described by Emeneau, just as in Kannada, to have both come from the same Proto-South-Dravidian past suffix in *-*nt-*, and thus Pre-Toda,¹⁶ based on comparisons with the verbal system in Tamil. This further suggests the rule {**nt* > **d*/[*d*] > [θ]}. He states that instances of *-*nt-* that appear at the end of an initial syllable shift to [d] and all others become [θ] (Emeneau 1967, 383), although both can occur in the same environments (e.g. two verbs with an S' in *ūr-* have secondary stems in *ūd-* and *ūθ-*, respectively).

When the distribution of -*θ-* and -*d-* in Toda is compared to the distribution of -*d-* and -*nd-* in Kannada, however, there are some striking similarities. Kannada -*d-* is much more common than -*nd-*, although, when added to short, monosyllabic verbs with a final nasal or lateral (eg. *uṇ* “to eat” or *koḷ* “to seize”), it can create homorganic clusters (*uṇḍ-* and *koṇḍ-*) (Kittel 1903, 98) which may otherwise be assumed to result from the addition of -*nd-*. However, the sandhi rules [ṅ]/[ṅ] + -*d-* → [ṅḍ]/[ṅḍ] and [l]/[l] + -*d-* → [ḷḍ]/[ḷḍ] are supported by analogous rules in Tamil suggested by Agesthalingom (1971, 122) and Graul (1855, 38).¹⁷ Toda has a similar phenomenon where verbs end-

¹⁶ By stating that Toda is a closer relative to Tamil than Kannada, he also suggests that the merger of **t* and **nt* as past tense suffixes in non-initial syllables took place in Proto-Kannada-Badaga and Toda independently.

¹⁷ The verbal sandhi rules posited for Tamil are essentially the same as those for Kannada: Agesthalingom (1971, 122) posits [ṅ]/[ṅ] + -*t-* → [ṅṭ]/[ṅṭ], and Graul (1855, 38) proposes [l]/[l] + -*t-* → [ḷṭ]/[ḷṭ] by placing verbs that follow this sandhi rule in the

ing in [ŋ] or [l] form their S² by replacing the nasal or lateral with [d], and those ending with [n] or [l] replace the final consonant with [d] (Emeneau 1967, 376). Since [d] < *ŋt̥ and [d] < *nt̥, these can also be considered analogical to the Tamil and Kannada sandhi rules described above.

Therefore, there are only five Kannada verbs that take a past in *-nd-* (Subrahmanyam 1971, 198): *bār, band-* “to come”; *tār, tand-* “to lead or conduct near”; *nō, nond-* “to suffer”; *mī, mind-* “to take a bath”; and *bē, bend-* “to be burnt up”.¹⁸ On the other hand, Toda was found to have eight verbs that take this past suffix, three of which are clearly loans.¹⁹ Four of the other five are cognates with the Kannada *-nd-* verbs [tab. 3].

Table 3 Past stems in Kannada and Toda cognates

DEDR	Reconstructed Gloss	Kannada	Toda
1372	“to steal”	<i>ka , ka d-</i>	<i>ko -, ko d-</i>
3098	“to give to 1st or 2nd person”	<i>tār, tand-</i>	<i>tōr-, tod-</i>
3793	“to pain”	<i>nō, nond-</i>	-
4878	“to bathe”	<i>mī~mīyu, mind-</i>	<i>mīy-, mīd-</i>
5270	“to come”	<i>bār, band-</i>	<i>pōr-, pod-</i>
5517	“to roast, fry, heat”	<i>bē~beyyu, bend-</i>	<i>pōy-, pōd-</i>

Source (glosses): Krishnamurti 2003

Since the distributions of the past suffixes *-d-* and *-θ-* in Toda are almost completely parallel to those of *-nd-* and *-d-*, respectively, in Kannada, it is suggested that only those five Toda verbs with a past in *-d-* can have a reconstructed past of **-nt-* in Pre-Toda, and that all

same class as verbs that take a simple *-t-* in the past (Class I). Agesthalingom actually disagrees with Graul’s lateral approximant sandhi rule, since there are some verbs in Graul’s Class Vb that take a past in *-t̥-* instead of *-nt̥-* (e.g. *kēl̥* “to hear” with a past in *kēt̥t̥-*). Agesthalingom proposes *-t-* for Graul’s Class Vb and *-nt-* for Class I (1971, 125), but *-tt-* for Class Vb and *-t-* for Class I seem to form a much better explanation. For example, *mīl̥* “to return” belongs to Class I, but its effective counterpart *mīl̥* “to liberate” belongs to Class Vb. Agesthalingom’s explanation would suggest loss of a nasal to be an effective marker in this word pair, which is not attested elsewhere, whereas this study’s proposition would imply *-t(t)-* as an effective marker, supported by Krishnamurti’s **-tt-* (2003, 280) effective.

18 There are two more verbs (*aytar-* ~ *eytar-* “to approach” and *ātar-* “to fall upon”) that take this suffix, but since they are derived from converbs followed by either **wār* “to come” or **tār* “to give to 1st or 2nd person”, the author does not include them in this list.

19 These are *sōr-, sōd-* “to arrive” (DEDR 2814); *kwīl-, kwīld-* “to hatch” (DEDR 1835); and *pērf-, ped-* “to be born” (DEDR 4422). Emeneau himself describes *kwīl-* to be a loan from Badugu in the DEDR (Burrow, Emeneau 1984, 166). The other two are likely loans because they do not follow well-established sound changes – *sōr-* would otherwise have an initial dental plosive (**tōr-*) and *pērf-* would instead be **pērf-*.

verbs with a past in *-θ-* took a past in **-t-* in Pre-Toda. Furthermore, more evidence is thus given to solidify the sound change $\{*nt > [d]\}$ and not $\{*nt > [θ]\}$.

4 Finite Verbs

As was described in the previous section, the Toda finite verbal system is divergent from the rest of Dravidian. Although the overall structure of the verb (base-augment-termination) is a retention, the suffixes that are used in the augment are different from those commonly seen elsewhere. As was proven in section 3, both the primary and secondary stems are related to stems in Tamil, but in this section it is shown that the majority of the Toda tenses and moods were originally constructed using periphrasis, but any perception of a separate auxiliary verb has since been lost and it is now incorporated as a formative suffix.

Emeneau's description of Toda lists six main conjugations: the past, the present-future (here, the "nonpast"), the volutative, the dubitative, the tenseless, and the imperative (1984, 114). Alongside this, there are three negative conjugations - one for the tenseless, another for the volutative, and a third for the imperative (131) - that are inflected and not formed using an auxiliary verb. The past and nonpast also feature a second conjugation, which is used in interrogative and quotative contexts (131). Since many of these forms are contractions of their primary equivalents (e.g. primary *pod-p-en* vs. secondary *pod-n* "I go", and primary *pod-šp-en* vs. secondary *pod-š-n*), this paper contends that they were created as a result of the loss of intermediate [p] and shortening of the person-number-gender suffix as a result of stress elsewhere in a sentence, such as on the interrogative particle *-ā* or the quotative verb *in-* "to say".²⁰

The origins of Toda personal terminations have already been addressed to some extent by Emeneau. He reconstructs the Pre-Toda personal endings **-ēn* (1sg), **-ēm* (1pl.excl), **-ōm* (1pl.incl), and **-tti* (2sg) (1979, 228; 1984, 132). To this list, this study initially adds **-i* on the basis of Toda *-y*, **-ir* and **-tir* (2pl) on the basis of Toda *-š* and *-tš*, and **-tə* (3) on the basis of *-θ*. Any further discussions on terminations will be included in the section on whichever paradigm these terminations appear in. It is also worth noting that Toda verbs are

²⁰ This is not always the case, as the nonpast II and past II sometimes take unique terminations in the second and third persons. Such forms will be discussed separately in each conjugation's respective section. Emeneau also groups with these a 'negative II' conjugation, as it is also used in the same environments, although the only difference between it and negative I are the terminations it takes in the second-person singular and third person.

often followed by a declarative clitic =*i* (cf. the Tamil emphatic =*ē*), and this leads to the raising of [e] in some terminations to [i], as well as the loss of final [y] (Emeneau 1984, 131-2). Since terminations can appear without the declarative, the forms without this suffix are used in the following sections for simplicity.

4.1 The Nonpast

In the primary conjugation, the Toda nonpast is formed with the suffixes *-p-* (1 and 2sg) or *-Ø-* (2pl and 3) after the *S*², followed by terminations (Emeneau 1984, 130). Internal reconstruction of the first nonpast paradigm (i.e. ‘Nonpast I’) would imply the following Pre-Toda forms:

(1sg)	<i>S</i> ² - <i>p-en</i> : * <i>S</i> ² -(<i>Ÿ</i>)- <i>pp-ēn</i>
(1pl.excl)	<i>S</i> ² - <i>p-em</i> : * <i>S</i> ² -(<i>Ÿ</i>)- <i>pp-ēm</i>
(1pl.incl)	<i>S</i> ² - <i>p-um</i> : * <i>S</i> ² -(<i>Ÿ</i>)- <i>pp-ōm</i>
(2sg)	<i>S</i> ² - <i>p-y</i> : * <i>S</i> ² -(<i>Ÿ</i>)- <i>pp-i</i>
(2pl)	<i>S</i> ² - <i>Ø-tš</i> : * <i>S</i> ² -(<i>Ÿ</i>)- <i>ttir</i>
(3)	<i>S</i> ² - <i>Ø-t</i> : * <i>S</i> ² -(<i>Ÿ</i>)- <i>ttə</i>

Considering the first four forms, this looks very familiar in the context of Old Kannada. The Old Kannada present is formed by adding a nonpast finite form of the verb *agu* “to be” to a converb (analogous to the Toda *S*²). This results in forms such as *kēḷ-d-a-pp-en* for “I hear” and *kēḷ-d-a-pp-ay* for “you hear” (Kittel 1903, 129). If the Old Kannada present and the Toda nonpast are similar in origin, the **Ÿ* in the Pre-Toda reconstructions must have initially been **a* but later an **ə*, as not all secondary stems have conditioned vowels in the nonpast tense. This may also be a plausible explanation, since an {*[a]* > **ə*} shift occurred in the present tense as early as Middle Kannada, as Old Kannada *appen* “I am”, having already debuccalised the [p] into an [h] in Middle Kannada as in *ahen* “I am” (Steever 1993, 198), displaces the [h] and moves it to the beginning of the word, eliding *V*₁ and lengthening *V*₂ to form *hēnu* “id.” (Kittel 1903, 129-31). This means that the initial [a] was unstressed later in Middle Kannada, which would have primed the conditions for its elision. The same seems to have also happened in Badugu, wherein *V*₂ is only sometimes lengthened, but an epenthetic vowel (of any quality but [u]) is added after the final consonant of personal terminations, as in *gīdane* “I do” (< **geydhanu*) and *gīd-āra* “they do” (Pilot-Raichoor 1991, 468) (< **geyd-hāru*).

Emeneau notes that Todas were in the Nilgiris by at least 1117 AD (1957, 30), whereas Kittel notes that the earliest Middle Kannada composition, Somēśvara’s *Śataka*, was written in 1195 AD ([1894]

1964-71, XX). Assuming that the Toda had just entered the Nilgiris around this time, and that Kannada innovations appeared in spoken dialects prior to appearing in the written language, it is possible that both languages shared this innovation through contact, or that Toda borrowed this construction from Kannada.

At the same time, the second person plural and third person inflections, neither of which use the *-p-* suffix, take the personal terminations *-tš* (2sg), *-t* (3, nonpast I), and *-u* (3, nonpast II). *-tš* (< Pre-Toda **-ttir*) can be compared to the Tamil second-person plural suffix in *-ttir*, which marks both person and number, as well as tense, i.e. a ‘cumulative suffix’ (Ramaswami Aiyar 1938, 768). If Pre-Toda **-ttir* had the same meaning, this would explain why the **-pp-* nonpast in the verb for “to be” is not needed beforehand. *-u* may be compared to Tulu *-u*, a third-person neuter subjunctive suffix (e.g. in *uppu* “it will be”) (Brigel 1872, 106), and perhaps also to the Old Kannada *-kk-um* (> Middle Kannada *-k-u*),²¹ although the loss of the final nasal is somewhat irregular if inherited, possibly **-u(m)* (Kittel 1903, 147). Finally, the *-t* (< Pre-Toda **-ttə*) is most definitely related to the third-person singular neuter suffix **-t* found elsewhere in Dravidian (Krishnamurti 2003, 308-12). However, it is unclear why there is gemination, and why this can stand alone without a preceding tense suffix. One possibility might be that an archaic **-t-* nonpast suffix, found in the Old Kannada simultaneous-prospective converb *-ttum* and the Old Telugu imperfective in *-du-* (Krishnamurti 2003, 304), was added to the 3sg.n in **-t*, and this led to gemination. However, the lack of attestation of a **-t-* nonpast for other persons in Toda remains unexplained.

4.2 The Past and the Dubitative

As the past has been noted to differ from the nonpast mainly²² in an infix *-š-* that precedes the *-p-* or \emptyset - of the nonpast and follows the S² (i.e. S²-š*p-* or S²-š \emptyset -) (Emeneau 1984, 131), it has been hypothesised that this, along with *-c-* in Kota, prove the existence of a **-cc-* past in Proto-Dravidian (Emeneau 1957, 46). However, this infix likely comes from an auxiliary verb base for which the following *-p-* is a reflex of an earlier nonpast stem (Emeneau 1979, 229),²³ since the dubitative takes the same suffixes as the past, although it uses S¹, rather than S² (Emeneau 1984, 131). Therefore, since the dubitative is used for

²¹ Although the *-kk-* suffix may indicate tense in Kannada, the suffix *-um* is also found at all stages of Tamil to mark both tense and person for weak verbs (Graul 1855, 45; Agesthalingom 1977, 178).

²² The nonpast sometimes uses different personal terminations (Emeneau 1984, 130).

²³ Krishnamurti posits **(m)pp-* as a nonpast suffix for Proto-Dravidian (2003, 301).

(future) hypotheticals (142), the suffixes that inflect to form finite verbs in these paradigms do not convey information about tense, but rather the stem (secondary vs. primary) does.

The fact that [š] is a reflex of *r or *z in Emeneau (1957, 57) suggests *Vr and *Vz as possible roots for an auxiliary verb that is used to form these two paradigms. Of these, only the DEDR entry 480 *ir “to exist/sit” is described by Krishnamurti to be used as an auxiliary verb elsewhere in South Dravidian (2003, 532). In Tamil and Irula, for example, its reflexes are used as a perfect, as in the forms *vant_u-irukkiṛēṇ* “I have come” (Arden 1910, 148-9) and *vanduge* “id.” (Zvelebil 1973, 23), respectively. Aranadan, a language closely related to Malayalam, takes this even further, completely replacing the past paradigm with a similar periphrastic construction that likely uses *ir²⁴ (DEDR 480), such as in *pōyppē* “[I?] go” (< *pōvu* “to go”) and *bīnduppe* “[I?] fall” (< *bīyu* “to fall”) (Nair 2013, 10).

At the same time, Emeneau’s grammar of Toda includes a verb *ir-*, *iθ-* that descends from the same root but does not demonstrate the {*r > [š]} sound change that would be required to support *ir as a past and dubitative formative. However, Pope’s documentation includes the forms *ershṗini* (perhaps *iš-p-ini* or *eš-p-ini*) “I am” and *edd-er-shṗ-ini* (*id-iš-p-ini* or *ed-eš-p-ini*) “I was”²⁵ (Pope [1873] 1995, 17). This both demonstrates the existence of an archaic²⁶ suffix in -p- to form what he describes as a present, as well the existence of a separate alloform of *ir that takes a secondary stem whose final consonant is [š]. This also suggests that the *ir-* in Emeneau’s corpus is a dialectal variant, a loan from Kannada or Badaga, or has been conditioned to have a final [r] due to contact with Badaga and Tamil. With this, the past stem can be reconstructed as *S² *ir-pp-/**S² *ir-Ø-*.

The dubitative, along with the voluntative, is notable for having different S¹ isoforms for the two verbs *pōr-* “to come” and *tōr-* “to give to 1st or 2nd person”. Rather than just using the verbal base as the S¹, *paš-* and *taš-*, respectively, are used (Emeneau 1984, 144). The medial [a] suggests that a conditioning vowel appears after these two verbal bases, warranting **bar-A* and **tar-A*. Interestingly, similar forms

²⁴ This is suggested by the fact that the tense suffix used after the auxiliary is -pp-, a strong nonpast suffix that is used for reflexes of *ir in Tamil-Irula languages (Emeneau 1967, 388-9).

²⁵ Pope’s grammar sketch is unclear in its transcription and incomplete, to say the least. He, in fact, mostly uses [rsh] to refer to [š], as in *parsh* for *paš* “tooth” and *bīrsh* for *pīš* “sunlight”, but also for [š], as in *karsh* for elsewhere unattested **kaš*, supposedly a cognate of Tamil *kaṛaṭi* “bear”. However, since the past inflection that he gives is analogous to what is seen in Emeneau’s corpus, it can be assumed that all instances of *ersh* as a S¹ of “to be” have a final [š]. He also uses [é] to represent [i], as in *évoth* for *i-foθ*, which is why [i] is also suggested as an interpretation of Pope’s [e] ([1873] 1995).

²⁶ This is unattested in Emeneau’s corpus.

(i.e. *bar-a/var-a* and *tar-a*, respectively) can be found in Old Kannada and Old Tamil as a prospective converb and a purposive/resultative (Kittel 1903, 122; Wilden 2018, 85). A Pre-Toda purposive was also proposed as the reconstruction for bases that add *-f-* to form their S¹, suggesting that all primary stems were originally prospective converbs taking the suffix **-a*, when the S² was formed with **-i-*, **-t-*, or **-nt-*, and the suffix **-pa*, when the S² was formed with **-tt-*, but almost all verbs later centralised the final **-a* with **-ə*. Verbs that ended in **l*, **y*, and **i* (> later **y*) elided the **p* in **-pa*, explaining why a class of verbs that takes an S² in *-t-* does not add the *-f-* suffix to form its primary stems. As a result, the dubitative stem can be reconstructed as **S¹ ir-pp-/*S¹ ir-∅-*, or, more specifically, **base-(p)a ir-pp- > *base-(p)ə ir-pp-*.

For the second-person plural, the past I, past II, and dubitative take the termination *-š*, which combines with the tense formatives in *-š-(∅)-* to form *-š* (Emeneau 1984, 131, 142). This warrants **ir-ir* after the reconstructed primary stem. The lack of **-pp-* in between the auxiliary verb's base and the termination means that the reconstructed Pre-Toda auxiliary had no indication of tense. This could be explained by positing a formative suffix in **-š-p-š* that existed beforehand; the past II must have later lost the medial **p*, with the past I and dubitative analogising to this. At the same time, the third person suffix in *-k* for the past II may be related to the subjunctive *-(k) ka* in Old Tamil (Wilden 2018, 120).

The existence of a dubitative elsewhere in Dravidian is somewhat sporadic. It is present in Badugu as a prospective in *{-v- ~ -b- ~ -bb-, -mb-, -p-}* (Pilot-Raichoor 1991, 437), as a subjunctive in Tulu in *{-∅-, -v- ~ -b-, -mb-}* (Kekunnaya 1990, 144-6), as an indefinite tense in Kuvu in *-p-* (Schulze 1911, 117), and as a desiderative-permissive in *-i- ~ -pi-* in Konda (Krishnamurti 1969, 292). These same suffixes (**-p-*, **-mp-*, **-(m)pp-*) appear as nonpasts or futures in a wide variety of languages, and almost ubiquitously in South Dravidian (Krishnamurti 2003, 302-3). This suggests that suffixes with bilabial plosives may have had an irrealis meaning, instead, at least at the Proto-Peninsular-Dravidian stage. It is possible that another suffix, instead, had the meaning of a nonpast, or more precisely, an imperfective,²⁷ in Proto-Peninsular Dravidian.

²⁷ McAlpin (1981, 47) describes the past-nonpast distinction for Proto-Tamil-Kodagu (but extrapolated to the rest of Dravidian) as 'specific' and 'nonspecific,' and Rajam (1992, 542, 562) uses 'perfective' and 'imperfective' to describe Old Tamil. This study uses the latter's terminology.

4.3 The Voluntative

-k- is added to S¹ to form the voluntative in Toda (Emeneau 1984, 141), warranting **-kk-* for Pre-Toda. However, as in the dubitative, the two verbs *pōr-* “to come” and *tōr-* “to give to 1st or 2nd person” take the special S¹ in *paš-* and *taš-* in the voluntative (141), suggesting that the voluntative paradigm in Pre-Toda originally used a prospective converb. This would further suggest that an auxiliary verb would have to be used to make the construct finite. Given that there is no consonant between [š] and [k] that hints to a Pre-Toda base in the voluntative for these two verbs, it is likely that the same verb used for the dubitative (**ir > iš-*) was used here, and the [š] in *iš-* was elided after the primary stems *paš-* and *taš-*, suggesting *-šk-* for the voluntative, instead.

However, *-šk-* is not attested for any other verb. Therefore, there are two possibilities: (1) any remnant of the archaic auxiliary verb was lost in all verbs aside from *pōr-* and *tōr-*, with the rest analogising the *-k-* suffix after the [š] in *-šk-* (< *S¹ *išk-*) was elided; and (2) the voluntatives for *pōr-* and *tōr-* were analogised to the S¹ in the dubitative. Although the voluntative negative also uses *iš-* as an auxiliary verb, the first-person plural inclusive imperative also analogises to the dubitative stem, suggesting that the second explanation is more probable. Therefore, **S¹-kk-* is reconstructed for Pre-Toda.

Reflexes of **(n)(k)k-*, like **(m)(p)p-*, represent both irrealis moods and the nonpast/future in other Dravidian languages. As was mentioned earlier, Belari and Irula both use it as a nonpast (Bhat 1971, 121; Zvelebil 1973, 23), whereas the Tulu epic poems of the sixteenth century also attest a full (optative?) paradigm with *-k-*.²⁸ Some other South Dravidian languages lose the full paradigm, and one form is regularised for multiple persons, numbers, and/or genders, as in Modern Tamil *vāḷka* “let X live” (Krishnamurti 2003, 361) Here, too, the use of *-k-* as a voluntative in Pre-Toda suggests that **(n)(k)k-* may have also been used for an irrealis mood in Proto-Dravidian.

4.4 The Tenseless Conjugation

The tenseless conjugation in Toda represents both the past and the nonpast tenses, and it is only found in the songs. In every verb but those that form their S² with *-y-*, the tenseless stem is formed by attaching personal terminations directly onto the secondary stem. All

²⁸ Old Tulu is a language for which a grammar is yet to be written. The form *cūker* “they see” attests in the *Mahābhārato* (1.188) (Puninchathaya 2000), but more analysis must be done to determine whether this is a nonpast, a present, or some form of an irrealis mood. *kēḷūkō* is also given in the Tulu Lexicon for “let us hear” (Upadhyaya 1995).

others add *-n-* to their primary stem. As described by Emeneau, verbs that add personal endings to the S² to form the termination are cognate to the past tense in other South Dravidian languages.

Although Emeneau also hypothesises that *-n-* is related to the Tamil and Telugu pasts in *-iṅ-* and *-in-* (Emeneau 1984, 134-5), it makes more sense to instead place it with the nonpasts in *-n-* in Koraga, Kurux-Malto, South-Central, and Central Dravidian, as well as with the nonpast agentives in *-n-* in Old Tamil (Krishnamurti 2003, 307; Bhat 1971, 45). If the *-iṅ-* past in Tamil were related to Toda *-n-*, **-in-* would have to attest as **-yn-* in Toda, or, more rather, S²-*n-* instead of S¹-*n-*. However, there is no evidence of a palatal consonant preceding the nasal as part of the tenseless suffix, and, as such, **-n-* can be reconstructed for Pre-Toda.

There is some semantic motivation for this, as well. If the past and nonpast (in **-n-*) were both replaced by periphrasis, this may have been induced by the falling together of the original past (perfective) and nonpast (imperfective) paradigms. Their merging would create the conditions for periphrastic constructions, which were likely already formed, to become the new past and nonpast.²⁹ Therefore, if **-n-*, **-kk-*, and **-pp-* were all retentions from Proto-Peninsular Dravidian that maintained a distinction in meaning in Pre-Toda while falling together in other languages, their meanings may also be retentions from Proto-Dravidian.

Interestingly, a third-person ending *-īy-i* was only elicited in speech (and not in the more conservative language of the songs). While the final *-i* is the declarative clitic, the preceding *-īy* may be related to the Old Tamil masculine agent noun suffix in *-i* (Wilden 2018, 35).

4.5 The Imperative

The 2sg imperative is homophonous with the base, although verbs that take an *-f* in their primary stem may use S¹ as an imperative, as well (Emeneau 1984, 143). Therefore, **-∅-* can be reconstructed for Pre-Toda. The bases *pōr-* “to come” and *tōr-* “to give to 1st or 2nd person” are irregular, losing final [r] in the imperative forms *pō* “come!” and *tō* “give!” (Emeneau 1984, 144). This is a shared feature across South Dravidian (Emeneau 1945, 187-8), suggesting that **bā* and **tā* can also be reconstructed for Pre-Toda.

²⁹ If a tense distinction evolved from an aspectual distinction between the timestages of ancient dialects (i.e. Old Telugu and Old Tamil) and of modern, periphrasis may have been Toda’s (and Kota’s) strategy to mark tense distinction. The prevalence of {perfective aspect > past tense} and {imperfective aspect > nonpast tense} across Peninsular Dravidian is a testament to the fact that these languages have been in close contact with each other throughout their evolution.

The 2pl imperative adds *-š* to the S¹ (Emeneau 1984, 143), which comes from the 2pl personal ending in **-ir*. A separate first-person plural exclusive form adds *-u(m)* (< **-ōm*), a personal ending, to the S¹ (Emeneau 1984, 143). The verbs *pōr-* and *tōr-* also have irregular 2pl and 1pl.incl imperatives, *pōš* and *pašu*, and *tōš* and *tašu*, respectively (143). As indicated by the V^u₂ where a conditioning vowel cannot be reconstructed, the 1pl.incl forms likely analogised to the dubitative. The [s] in *pōš* and *tōš* descends from Pre-Toda **l*, suggesting a common origin with Kannada and Tulu *-le* (Pre-Toda **-IV*). Alternatively, this may descend from an infinitive form (cf. Tamil *-al*), which Steever (1993, 199) posits to have also resulted in the Kannada permissive *-ali* (< *-al + ī* “to give”). However, due to the lack of a final **-y* in this infinitive suffix, an analogous **-li* cannot be proposed for Pre-Toda.

The third-person imperative form, finally, takes the suffix *-mō* (Emeneau 1984, 143), which is reconstructed as **-mō* (and not **-mā*) for Pre-Toda, since suffixes and clitics with word-final long vowels seem to maintain their original quality (cf. *-ā* (interrogative) < PDr **-ā*).

Additionally, a suffix *-ō* (< **-ō*) may be added to second-person forms to make a polite imperative (Emeneau 1984, 143).

4.6 Negatives

As was stated earlier, there are negatives for the tenseless, voluntative, and imperative paradigms. The (tenseless) negative paradigm is similar to that found elsewhere in Tamil-Kannada, formed by attaching personal endings directly to the primary stem. The second-person *-fy* ~ *-ofy* ~ *-efy* is peculiar (Emeneau 1984, 135), given that it warrants **-aw-i* and **-ew-i*. Such forms are not found in other Tamil-Kannada languages, but a subjunctive negative suffix *-ay-* is found in Tulu, which descends from Proto-Dravidian negative **-aH-* (Krishnamurti 2003, 350). The final laryngeal in **-aH-* may explain the [y] in Tulu, and both the [w] and the fronting of [a] to [e] in the Toda negative. It is unclear why similar forms are not attested for other persons or numbers.

Emeneau’s negative voluntative paradigm in S¹-š- (1984, 142) seems to use a negative paradigm of an auxiliary verb **ir* “to be”, and the 1sg, 1pl, and 2pl terminations support this, as they are all directly added to the stem. However, the 2sg and third-person suffixes used in this paradigm are *-ty* (< **-tti*; cf. Ta. nonpast 2sg in *-ti*) and *-k*, respectively (Emeneau 1984, 142), which are suffixes that code for tense as well as for subject agreement. Therefore, if added directly to a base, they would indicate an affirmative nonpast, rather than a negative. Here, since the past II and voluntative negative are very similar, with the only difference being that past II uses S² instead of S¹ (Emeneau 1984, 131), the voluntative negative terminations were

later analogised to those of the past II. Thus, *S¹ *ir-(aw)-* ~ *S¹ *ir-(ew)-* can be reconstructed for Pre-Toda.

The negative imperative takes the form S²-*oṭ-i* in the second-person singular and S²-*oṭ-ṣ-i* (144). The *-i* is the declarative clitic, and the *-ṣ-* is a form of *-ṣ*, the second-person singular termination, which appears after retroflex consonants. *oṭ-* is homophonous with Toda verbs *neṣ-oṭ-* “to put forehead to ground” (DEDR 79) and *oṭ-* “to pour” (DEDR 97), neither of which seems plausible as an auxiliary to form a prohibitive. *oṭ-* implies **aṭṭə* for Pre-Toda,³⁰ which may be an archaic but now unattested verb “to prevent” (cf. Ta. *aṭṭi* “hindrance”). This suggests *S² *aṭṭə* and *S² *aṭṭ-ir* as prohibitives.

5 Conclusion

In this study, the Pre-Toda forms of all simple finite forms attested in Toda were reconstructed, based on new conclusions about sound changes that led to Toda. Comparative evidence further allows us to hypothesize an evolutionary timeline.

Initially, Pre-Toda verbs could inflect to show the perfective/past (**-i-*, **-t-*, **-nt-*, **-tt-* = S²) and the imperfective/nonpast aspects or tenses (**-n-*), the voluntative (**-kk-*), dubitative (**-pp-*), and imperative (**-mō*, **-IV*, **-ir*) moods, and negative polarity (**-aw-* ~ **-ew-*, **-Ø-*). Later, periphrasis generated a nonpast perfect (*S² *ir-pp-/ir-Ø-*) and a secondary dubitative (*S¹ *ir-pp-/ir-Ø-*). The past and nonpast tenses then fell together to produce a tenseless conjugation (*S²-, *S¹-*n-*); the nonpast perfect replaced the past, and the voluntative, dubitative, and the secondary dubitative were used to refer to present and future events. Finally, a new nonpast (*S² (*a*)-*pp-/*(*a*)-*Ø-*) was formed, possibly from contact with Kannada-Badaga languages.³¹

It is hoped that this study will allow further reconstruction of Pre-Toda, which, along with this, will make Toda more useful within Dravidian linguistics. At the same time, a reevaluation of the position of Toda within South Dravidian is suggested, since it seems to share affinities to both Kannada and Tamil, some of which may be a result of areal influence.

³⁰ However, why the initial [o] did not drop out remains unexplained.

³¹ At some undefined point, the dubitative perfect almost completely replaced the dubitative, and a negative voluntative and negative imperative were formed.

Appendix: A Partial Reconstruction of the Pre-Toda Paradigm for “To Come”

The following reconstructs the precursors of modern Toda conjugations, although no claim is made about when each of these forms was used and what they originally meant. Unless otherwise stated, each paradigm is listed in the order 1sg-1pl.excl-1pl.incl-2sg-2pl-3. [à] indicates that the [a] was unstressed, and that it first shifted to [ə] before dropping out.

Past

- **ba-ntə ir-pp-ěñ*
- **ba-ntə ir-pp-ěm*
- **ba-ntə ir-pp-ōm*
- **ba-ntə ir-pp-i*, or *wa-ntə ir-tti*
- **ba-ntə ir-pp-ir*
- **ba-ntə ir-t-tə*, **ba-ntə ir-kka*

Nonpast³²

- **ba-ntə à-pp-ěñ*
- **ba-ntə à-pp-ěm*
- **ba-ntə à-pp-ōm*
- **ba-ntə à-pp-i*, or **ba-ntə à-tti*
- **ba-ntə à-ttir*
- **ba-ntə à-ū*, or **ba-ntə à-t-tə*

Tenseless

- **ba-nt-ēn*
- **ba-nt-ēm*
- **ba-nt-ōm*
- **ba-nt-i*
- **ba-nt-ir*
- **ba-nt-ī(-ē) (?)*

Negative

- **bār-ēn*
- **bār-ēm*
- **bār-ōm*
- **bār-aw-i*, or **bār-ew-i*
- **bār-ir*
- **bār-ātə*, or **bār-ī (?)*

Voluntative

- **bar-kk-ēn*
- **bar-kk-ēm*
- **bar-kk-ō(m)*
- **bar-kk-i*
- **bar-kk-ir*
- **bar-kk-ətə*

Voluntative Negative

- **bar-a ir-en*

³² *a-* in the auxiliary verb later shifted to *ə-*.

- **bar-a ir-em*
- **bar-a ir-om*
- **bar-a ir-tti < *bar-a ir-i (?)*
- **bar-a ir-ir*
- **bar-a ir-kkə < *bar-a ir-ətə (?)*

Dubitative

- **bar-a ir-pp-ēñ*
- **bar-a ir-pp-ēm*
- **bar-a ir-pp-ōñ*
- **bar-a ir-pp-i*
- **bar-a ir-pp-ir*
- **bar-a ir-t-tə*

Imperative

- **bā, *bār-ō* (2sg)
- **bā-lV* (2pl)
- **bā-mō* (3)
- **bar-o(m)* (1pl.incl)

Imperative Negative

- **ba-ntə aṭṭə* (2sg)
- **ba-ntə aṭṭ-ir* (2pl)

List of Abbreviations

1 = first person

2 = second person

3 = third person

B = voiced plosive

C = consonant

C² = consonant or consonant cluster

cf. = compare

DEDR = Dravidian Etymological Dictionary (second edition)

excl = exclusive

i.e. = that is

incl = inclusive

N = nasal homorganic with the following stop

P = (voiceless) plosive

S¹ = stem 1

S² = stem 2

sg = singular

pl = plural

V = any vowel

V^c = conditioned vowel

V^u = unconditioned vowel

V² = vowel or diphthong

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