

## Pāṇinian accounts of the Vedic subjunctive:

leṭ *kr̥ṇvaíte*

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**Abstract** To determine which Vedic texts Pāṇini knew requires a comprehensive approach that establishes a high correlation between the complete set of linguistic traits his treatise describes and the complete set of linguistic traits exhibited in each text in question. The examination of individual linguistic traits is inadequate to determine which texts he knew because neither the Vedic nor the grammatical tradition is uniform and static. Bronkhorst (Pāṇinian Studies: Professor S. D. Joshi Felicitation Volume, p. 75, 1991) calls into question the assumption that Vedic texts were known to Pāṇini in the form we have received them, while Cardona (Pāṇinian Studies: Professor S. D. Joshi Felicitation Volume, p. 130, 1991) shows that Pāṇini's silence concerning certain Vedic forms may be due to deference to certain received exegetical traditions. The current paper considers a case where the Pāṇinian grammatical tradition entertains disagreement over the derivation of obscure forms. Doubt concerning the recurrence of the term *pit* (3.4.92) into 3.4.94 brings into question whether Pāṇini systematically accounts for stem strengthening in the present subjunctive. Kātyāyana, Patañjali, Jayāditya, and Jinendrabuddhi remain silent on the point. Rāmacandra, Śrīkriṣṇa, and Bhaṭṭojidīkṣita assert that *pit* recurs, thereby allowing stem strengthening. Haradatta, on the other hand, maintains that a rule of indeterminate variation, 3.4.117 *chandasy ubhayathā*, accounts for it. Nāgeśa points out that the latter procedure is more comprehensive in that it accounts for the lack of stem strengthening in exceptional forms, such as *kr̥ṇvaíte* in the *Ṛgveda*. The implication is that the former procedure fails to account for the form, which, if Pāṇini's knowledge of texts were to be established based upon the consideration of individual traits, would imply the absurdity that Pāṇini, as interpreted by Rāmacandra et al. did not know the *Ṛgveda*. On the contrary, however, the procedure of Rāmacandra et al.

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can employ another rule of indeterminate variation: 3.1.85 *vyatyayo bahulam*. This procedure, which provides a systematic explanation of the present subjunctive generally and requires a rule of indeterminate variation only to account for exceptional forms, is preferable to leaving the account of stem strengthening in the present subjunctive generally to a rule of indeterminate variation. Since both procedures rely on rules of indeterminate variation to account for the *R̥gvedic* form, however, it is impossible to establish either Pāṇini's knowledge or ignorance of the text on the basis of his account of the subjunctive. The controversy demonstrates that the depth and variety of the Indian grammatical tradition must be taken into account in determining which rules describe which linguistic facts and that it is inadequate to consider individual traits. A comprehensive approach is required.

Scholars examine the correspondence between the language described by Vedic rules in Pāṇini's *Aṣṭādhyāyī* and the linguistic usage in received Vedic texts in order to determine which texts Pāṇini knew. Which texts Pāṇini knew has implications for the relative date of the *Aṣṭādhyāyī* and the Vedic texts, and thus for Indian intellectual history and the history of Sanskrit literature. Now it is methodologically valid to establish the correspondence between the language described by a linguistic treatise and the language used in particular texts by demonstrating a high correlation between the linguistic behaviors described by the treatise and those exhibited in the text. Conversely, a low correlation between the described and exhibited behaviors establishes the lack of correspondence between the language described and the language used. The procedure used by scholars until now, however, has been far too simplistic for the complexities of the task. Rather than examining degrees of correlation between the complete set of linguistic traits described and the complete set exhibited, initial research has examined traits individually.

## Principles of establishing which texts Pāṇini knew

Preliminary work undertaken to establish Pāṇini's knowledge or ignorance of particular Vedic texts has proceeded by demonstrating the agreement or disagreement of a text with the particular linguistic trait described by an individual Vedic rule. Thieme (1935) argues that Pāṇini knew certain Vedic texts on the grounds that specific forms mentioned in particular Vedic rules are found only in those texts. For example, 3.1.42 *abhyutsādayām prajanayām ramayām akaḥ pāvayām kriyād vidām akranniti cchandasi* mentions certain periphrastic aorist forms, *abhyutsādayām akar*, *prajanayām akar*, etc. as occurring in non-mantra Vedic.<sup>1</sup> Thieme (1935: 14–16) traces most of these to isolated particular passages of the *Kṛṣṇayajurvedasamhitā*s. The first, for example, occurs at *Maitrāyaṇīsamhitā* 1.6.5, the second at *Maitrāyaṇīsamhitā* 1.6.10

<sup>1</sup>Thieme (1935: 14) indicates that the term *amantre* recurs from 3.1.35, a disputable matter which may be conceded for the present.

and 1.8.5, and so on. From this, Thieme (1935: 63) concludes that Pāṇini knew the *Maitrāyaṇīsamhitā*, and other Kṛṣṇayajurvedic texts.<sup>2</sup>

Conversely, Bronkhorst (1991: 88) proposes that disagreement of a particular Vedic text with a particular trait described by a Vedic rule evidences that Pāṇini did not know that Vedic text. For example, he (1991: 92) writes, “P. 3.1.59 (*kṛmṛddṛruhibhyaś chandasi*) is a nonoptional rule (cf. Kiparsky 1980, 62) prescribing *añ* as an aorist marker after the roots *kṛ*, *mṛ*, *dṛ*, and *ruh* in ritual literature. It excludes in this way the forms *akārṣūt*, *akārṣīt*, *akārṣam*, and *arukṣat* from Vedic literature. Yet these forms occur, as follows: (*a*)*kārṣūt* (GB 1.3.4; ChU 6.16.1); ...” Bronkhorst considers that this counts towards evidence that Pāṇini did not know the *Gopathabrāhmaṇa* or the *Chāndogyopaniṣad*.

Scholars are aware, of course, that the agreement of the linguistic trait of one rule and the disagreement of the linguistic trait of another rule with usage in the same text presents contradictory evidence. For example, Bronkhorst (1991: 99) points out that the *Maitrāyaṇīsamhitā*, which Thieme concluded Pāṇini knew because it contains the periphrastic aorists taught by 3.1.42, also contains some forms explicitly excluded by Pāṇini. Due to the possibility of contradictory results based upon the examination of individual rules, Bronkhorst (1991: 76–81, 103–104) warns that the Vedic text in question may comprise complexity. The extant form of the text may differ from its form in Pāṇini’s time due to additions, deletions, and alterations in sandhi, accentuation, vowel length, etc. made to the text in its subsequent transmission (see Bronkhorst 1981).

Contradictory results may also be due to complexity in the linguistic tradition. The agreement of the linguistic trait of one rule and the disagreement of the linguistic trait of another rule with usage in the same text may be due to complexity in the linguistic tradition rather than to complexity in the Vedic tradition. Pāṇini may include prescriptive elements in the grammar, as opposed to descriptive, may make errors and omissions, or may deliberately limit his scope.<sup>3</sup> Bronkhorst (1991: 81) entertains the possibility that Pāṇini considered excluded forms found in Vedic texts known to him to be incorrect. Cardona (1991: 130; 1997b: 37–38) shows that Pāṇini’s silence concerning certain Vedic forms may be due to deference to received exegetical traditions. Pāṇini does not directly account for the unaspirated initials in archaic forms of the type *dakṣ-* in the *samhitāpāṭha* of the *Ṛgveda* because he accepted that rules of *prātiśākhya* treatises account for them by deriving them from the *padapāṭha* forms. Hence Pāṇini indirectly accounts for them by accounting for the *padapāṭha* forms. Similarly, Pāṇini may refrain from accounting specifically for certain irregularities because he defers to certain interpretational traditions, such as those Cardona (1997a: 281) describes.

<sup>2</sup>More recently, Mayank (1991) argues that Pāṇini knew the *Atharvaveda*. Many of his examples demonstrate only that the authors of the *Kāśikā* knew the text. The *Kāśikā* examples contain extended passages found only in the *Atharvaveda* while the derived forms themselves appear also elsewhere. However, Mayank (1991: 37, 39, 41) does show several examples: *gosanim*, *kevalī*, *śrotasyā*, *hṛdya*, in which Vedic forms mentioned in sūtras occur only in the *Atharvaveda*.

<sup>3</sup>Whitney’s (1893b) survey of a number of rules aims more to challenge than contribute, as is evidenced by remarks such as this (1893b: 250): “It would be easy to fill pages with additional examples of non-agreement between Pāṇini’s rules and the facts of the Vedic language.”

Complexity in the linguistic tradition also arises due to difficulties of interpreting Pāṇinian rules. For example, Bronkhorst's argument that Pāṇini did not know the *Gopathabrāhmaṇa* or the *Chāndogyopaniṣad* because these texts disagree with the trait described in 3.1.59, depends upon Kiparsky's interpretation that 3.1.59 is an obligatory rule; yet it would not be obligatory if *vā* were understood to recur from 3.1.57. Even Pāṇinian grammarians fail to understand rules or disagree over the interpretation of rules. In an example of the former, Thieme (1935: 60), chiding the *Kāśikā* for losing the logic and significance of rules 6.1.115–121 concerning the replacement of an initial *a* and preceding *e* or *o* by the preceding sound alone (*abhinihita sandhi*), writes "it has given us occasion to note to what extent even indigenous interpretation may fall short of a real comprehension of Pāṇini's phrases, if it happens to be left without the help of its great guide Patañjali."

The current paper demonstrates the inadequacy of examining the correspondence of individual traits of specific Vedic texts with particular Pāṇinian rules as a procedure to determine the relative date of the texts and the linguist. Such a procedure applied to the examination of Pāṇinian accounts of the Vedic subjunctive leads to absurd, or at best inadequate, results. While the discussion focuses on particular forms of particular roots, rules discussed apply to stem strength in the subjunctive in general. Moreover, while the paper restricts its discussion to the subjunctive, similar issues arise with the accentuation of other verb forms.

## Pāṇinian accounts of the subjunctive

The current paper considers a case where the Pāṇinian grammatical tradition entertains disagreement over Pāṇini's account of subjunctive forms.<sup>4</sup> Under one interpretation, the exclusion of an obscure form found in the *R̥gveda* would suggest that Pāṇini did not know the text or, if he did, that he is guilty of an omission. Under the other, the

<sup>4</sup>Even Indian scholars have found Pāṇini's description of the subjunctive lacking. For example, Kumārī (1990–91): 331) writes, "Grammarians tried to account for the variety of forms by including the various verbs in the peculiar hypothesis, the l-affix *leṭ*, but by the rules provided in the *Aṣṭādhyāyī* composed by Panini, and remaining within the boundary of just those rules, it is not possible to account for the verb forms known by the name of Vedic usage and found in various forms." Shastri (1974: 298) writes, "Dealing with the vedic Subjunctive mood (*leṭ*), Pāṇini did not recognize the fact that it is formed from the bases of all the three systems [present, perfect, and aorist]." Cardona (1999: 202–204) points out that it is inappropriate to characterize Pāṇini's account of modal forms of perfect and aorist stems by rules of indeterminate variation as a deficiency. It constitutes rather an appropriate difference of procedure considering that Pāṇini starts with a synchronic description of the language of his time which does not semantically differentiate the modal forms of present, perfect, and aorist stems. Hoffmann (1967) and he (1972) describe the only clear aspectual contrast in the imperative, namely, that of the aorist (simple) versus present (progressive) imperative used with the negative particle *mā*. However, he writes, "In early Vedic already, the verbal system was essentially temporally oriented, without aspectual contrasts connected directly with verbal morphology." While the temporal contrast is clear in the indicative, there is no clear temporal contrast between, for example, the present versus the aorist imperative. It is reasonable, therefore, that Pāṇini treats present and aorist imperative forms as alternates derived under identical semantic conditions. It is likewise reasonable that Pāṇini generally derives modal forms of various aspectual stems as alternates derived under identical semantic conditions. In the subjunctive, his derivation introduces an underlying subjunctive affix under specified semantic conditions, while it allows insignificantly variant stem-forming affixes to be introduced under rules of indeterminate variation.

lacuna is filled but at severe cost to the robustness of the linguistic description. The problem concerns the account of stem-strengthening and accentuation and hinges upon the recurrence of the term *pīṭ*, mentioned in 3.4.92, into 3.4.94. Kātyāyana, Patañjali, Jayāditya, and Jinendrabuddhi remain silent on the point.<sup>5</sup> Rāmacandra, Śrīkrṣṇa, and Bhaṭṭojidīkṣita, which I shall refer to as the new school of grammar, assert that *pīṭ* recurs, thereby allowing stem-final vowel strengthening and accentuation as are found generally in the subjunctive.<sup>6</sup>

## New school

The derivation in Table 1 shows the steps to derive the regularly expected 3dm psb form *kṛṇávaite* according to the new school.<sup>7</sup> Steps 1–3 concern the root. The *Dhātupāṭha*, as received, lists several roots from which the subjunctive forms in question could be derived. These include *kṛvi himsākaraṇayoś ca* (1.629), *kṛñ karaṇe* (1.949), *kṛñ himsāyām* (5.7), and *ḍukṛñ karaṇe* (8.10). It would be straightforward to derive *kṛṇávaite*, and similar forms built on the present stem *kṛṇu*, from the third of these (5.7). The root takes the present stem-forming affix *nu* by the general rule applicable to the fifth class 3.1.76 *svādibhyaḥ śnuḥ*. Although the *Dhātupāṭha* provides the meaning ‘injure’, rather than ‘do, make’ for this root, such a meaning is possible in some of the contexts in which the form occurs.<sup>8</sup> Moreover, while the *Dhātupāṭha* as transmitted by commentators includes glosses, the text as discussed by Kātyāyana and cited by Patañjali does not (Cardona 1984, 1997a: 85–86). Yet the precise contents of the *Dhātupāṭha* at the time of Pāṇini is not known, and the *Aṣṭādhyāyī* itself offers no evidence of this root.

The derivations shown in the tables proceed on the basis of what can be known from the received text of the *Aṣṭādhyāyī*. The received text of the *Aṣṭādhyāyī* explicitly refers to the first root (1.629) which is therefore the starting point of the derivations shown in Tables 1–3 (step 1). 3.1.80 *dhinivikṛṇvyor a ca* (Table 1 step 11, Table 2 step 12) mentions the root with the augment *n(num)* added after its last vowel in accordance with 7.1.58 *idito num dhātoḥ* (step 2). Moreover, Sāyaṇa, in his commentary on the *Ṛgveda*, takes this root as the starting point for his derivation of the 3sa psb *kṛṇávate* in *Ṛgveda* 4.2.8b.

Steps 4–10a of the derivation of *kṛṇávaite* in Table 1 concern the verbal termination; these steps introduce the basic termination, make replacements appropriate to the middle voice, and, among other things, add the augment appropriate to the subjunctive. The *l*-affix *leṭ* is introduced after roots in accordance with

<sup>5</sup>Gopal Shastri (1987: 35) does not indicate that the term *pīṭ* recurs. Nor do S.C. Vasu (1891: vol. I, 594–595), van Nooten (1967: 892–893, 900), Kumārī (1990–91), Palsule (1991), Sharma (1995: vol. III, 656–657), or Cardona (1997a: 275–276, 490–492).

<sup>6</sup>Palsule (1972a: 446) discusses effects of *p*-marking in the 2sa imperative.

<sup>7</sup>Although the 3dm psb *kṛṇávaite* is unattested in the *Ṛgveda*, the derivation is virtually identical to that of the 3sm psb *kṛṇávate* which does at *Ṛgveda* 4.2.8b, 4.2.9b, and 8.47.15a. Lubotsky (1997: 438).

<sup>8</sup>Such as *Ṛgveda* 6.25.4 discussed below.

**Table 1** *kr̥nāvāite* according to the new school of grammar: Rāmacandra, Bhaṭṭojidīkṣita

1.	kr̥v(i) { <i>kṛvi</i> }	DhP. 1.629	kr̥vi hiraśkāraṇayoś ca
2.	kr̥nv(i)	7.1.58	idito numdhātoḥ
3.	kṛnv	6.1.162	dhātoḥ (antaḥ udātaḥ 159)
4.	kṛnv-l(ṭ) { <i>leṭ</i> }	3.4.7	liṇarthe leṭ (chandasi 6)
5.	kṛnv-ātām(ṭ)	3.4.78	tiptasjhi...idvāhimahiṇ (lasya 77)
5a.	kṛnv-ātām(ṭ)	3.1.3	ādyudāttaś ca (pratyayaḥ 1)
6.	kṛnv-āte(ṭ)	3.4.79	ṭita ātmanepadānām ṭer e
7.	kṛnv-a:āte[p] { <i>aṭ</i> }	3.4.94	leṭo 'ḍāṭau (pit 92)
7a.		1.1.46	ādyantau ṭakitau
7b.	kṛnv-a:āte[p]	3.1.4	anudāttau suppitau
8.	kṛnv-a:aite[p]	3.4.95	āta ai (leṭaḥ 94)
9.	kṛnv-a:aite[p]	3.4.113	tiṇśit sārvaḍhātukam
10.	kṛnv-aite[p]	6.1.88	vṛddhir eci (āt 87)
11.	kṛna=u-aite[p]	3.1.80	dhinvikṛnvyor a ca (uḥ 79 sārvaḍhātuke 67)
11a.		1.1.52	alo 'ntyasya
11b.	kṛna=ū-aite[p]	3.1.3	ādyudāttaś ca (pratyayaḥ 1)
12.	kṛna=ū-aite[p]	3.4.114	ārḍhadhātukaṇ śeṣaḥ
13.	kṛna=ū-aite[p]	6.1.158	anudāttaṇ padam ekavarjam
		vt. 9	satiśiṣṭasvarabaliyastvaṇ ca
		Patañjali	satiśiṣṭasvaro baliyān bhavati
14.	kṛn=ū-aite[p]	6.4.48	ato lopaḥ (ārḍhadhātuke 46)
15.	kṛn=ó-aite[p]	7.3.84	sārvaḍhātukārḍhadhātukayoḥ (guṇaḥ 82)
15a.		1.1.3	iko guṇavṛddhī
16.	kṛn=āv-aite	6.1.78	eco 'yavāyāvaḥ
17.	kṛnāvāite		Delete morpheme boundaries.
18.	kṛnāvāite	8.4.1	raśābhyāṇ no ṇaḥ samānapade
		vt. 1	raśābhyāṇ ṇatva ṛkāragrahaṇam
		Patañjali	yo 'sāv ṛkāre repas tadāśrayaṇ ṇatvaṇ bhaviṣyati

3.4.7 *liṇarthe leṭ* or 3.4.8 *upasaṁvādāśaṅkhayoś ca*<sup>9</sup> (step 4) and is replaced by basic verbal terminations in accordance with 3.4.78 *tiptasjhisipthasthamibvasmastātāñjathāsāthāndhvamiḍvāhimahiṇ* (step 5). In the middle voice, the vowel and closing consonants of the last syllable of ātmanepada verbal terminations is replaced by *e* in accordance with 3.4.79 *ṭita ātmanepadānām ṭer e* (step 6). At step 7, 3.4.94 *leṭo 'ḍāṭau* (pit 92) introduces either of the initial augments *aṭ* or *āṭ*.<sup>10</sup> (While

<sup>9</sup>Jayāditya considers that the term *chandasi* recurs in both rules from 3.4.6 and that the term *anyatarasyām* recurs from 3.4.3 in the first but not in the second. Since the senses in which 3.4.8 provides *leṭ* are included in the senses of *liṇ* mentioned as conditions for *leṭ* in 3.4.7, Jayāditya (Sharma et al. 1969, 1970) maintains that the latter rule has as its sphere of application the obligatory (*nitya*) occurrence of *leṭ*. Patañjali (Kielhorn 1985) argues that 3.4.8 is redundant on the grounds that 3.4.7 accounts for it (*liṇarthe leṭ ity eva siddham*). His commentators deny evidence that *leṭ* is obligatory in these senses and confirm that *liṇ* occurs in the senses *saṁvāda* and *āśaṅkā* in ordinary usage.

<sup>10</sup>Cardona (1997a: 276).

one or the other is required to properly account for certain subjunctive forms, the correct form of the 3dm psb may be reached with either. The derivation in Table 1 introduces *aṭ*.) After the initial *ā* of the 3dm psb termination *āte* is replaced by *ai* in accordance with 3.4.95 *āta ai* (*leṭaḥ* 94) (step 8), 6.1.88 *vṛddhir eci* replaces the sequence of an *a*-class vowel and a following diphthong by the closest single *vṛddhi* sound (step 10).

Steps 11–15 concern stem changes: the introduction of a stem-forming affix to the augmented root (step 11), changes it conditions there (steps 11–14), and changes, conditioned by the verbal termination, to the stem it forms (step 15). Since verbal terminations replacing *leṭ* are termed *sārvadhātuka* in accordance with 3.4.113 *tiṇśit sārvadhātukam* (step 9), the present stem-forming affix (*vikaraṇa*) *ú* is introduced after the augmented root *kṛnv* in accordance with 3.1.80 *dhinvikṛnvyor a ca* (step 11). In conjunction with this, the replacement *a* is provided; it occurs in place of the final sound of *kṛnv* in accordance with the metarule 1.1.52 *alo 'ntyasya*. Because the affix *ú* is termed *ārdhadhātuka* in accordance with 3.4.114 *ārdhadhātukam śeṣaḥ* (step 12), the final *a* of the stem preceding it is replaced by zero (*lopa*) (step 14), yielding the present stem *kṛnú*. 7.3.84 *sārvadhātukārdhadhātukayoḥ* (*guṇa* 82) comes into play (at step 15). Read in conjunction with metarules, this rule provides for replacement of the final simple vowel *ī ū ṛ ḷ* by its corresponding *guṇa* vowel. The metarule 1.1.3 *iko guṇavṛddhi* (step 15a) restricts the substituend to being a simple vowel *ī ū ṛ ḷ*. In this instance, *ú* is replaced by *ó*.<sup>11</sup>

After sandhi applies, step 18 shows the regular subjunctive form *kṛṇávaite*. 6.1.78 *eco 'yavāyāvaḥ* replaces the diphthongs *e, o, ai, au* followed by a vowel by *ay, av, āy, āv*, respectively (step 16). (In step 17, the derivational software deletes morpheme boundaries.) Finally, 8.4.1 *raṣābhyām no ṇaḥ samānapade* accounts for the retroflexion of *n* after *r* (including *r* that is a component of *r*) or *ṣ* (step 18).<sup>12</sup>

Now the new school maintains that the term *pit* recurs in 3.4.94 from 3.4.92. 3.4.92 *āḍuttamasya pic ca* (*loṭaḥ* 85) accounts for the strong stem in the familiar active and middle first person imperative forms such as for the root *kr*: *karavāṇi, karavāva, karavāma, karavai, karavāvahai, karavāmahai*. In accordance with 3.4.92, the initial augment *āṭ* attaches to terminations termed *uttama*<sup>13</sup> that are replacements of

<sup>11</sup>Other details are not shown. 1.1.2 *adeṇ guṇaḥ* terms the vowels *a, e, and o guṇa*. In accordance with 1.1.50 *sthāne 'ntaratamaḥ* the most similar of a choice of replacements occurs. The term *ikaḥ*, read into 7.3.84 in accordance with 1.1.3, qualifies the term *aṅgasya* understood from the heading 6.4.1 as well as the final vowel of the stem designated as substituend in accordance with 1.1.52 *alo 'ntyasya*. In accordance with the metarule 1.1.72 *yena viddhis tadantasya, ik* designates that which ends in *ik*. Hence, in accordance with 7.3.84, the final vowel *ī, ū, ṛ, or ḷ* of a stem ending in such a vowel is replaced by the *guṇa* vowel *a, e, or o* most similar to it. Similar stem strength is found in the subjunctive generally, for example in the class 7 presents *yundjate* (RV 7.27.1) and *inádhate* (RV 4.2.7, 4.12.1) 3sm psb of the roots *yuj* and *indh* respectively.

<sup>12</sup>Cardona (1997a: 366). Under 8.4.1, vt. 1 *raṣābhyām natva ṛvarṇagrahaṇam*, Patañjali (Kielhorn 1985) argues that retroflexion is also conditioned by the subsegment *r* present within the vowel *ṛ*: *yo 'sāv ṛkāre rēphas tadāśrayaṁ natvaṁ bhaviṣyati*. MBh.: III.452.1–20, especially line 5.

<sup>13</sup>Terminations are termed *uttama* in accordance with 1.4.101 *tiṇas trīṇi trīṇi prathamamadhyaṁottamāḥ*. Terminations so termed occur in the first person in accordance with 1.4.107 *asmady uttamāḥ*.



the l-affix *loṭ*, and the terminations get marked with *p*.<sup>14</sup> Marking with *p* prevents a *sārvadhātuka* affix from being marked with *ñ*, so that the affix does not prevent *guṇa* and *ṛddhi* substitution. As Jinendrabuddhi (Miśra 1985, *Nyāsa*, vol. 3, p. 226) comments, because they are marked with *p*, the *uttama* affixes do not get marked with *ñ*, and consequently *guṇa* occurs. (*karavāṇi. pītvād uttamasya nītvam nāsti, tena guṇo bhavati.*)<sup>15</sup>

Marking with *p* is necessary in 3.4.94 in the derivation of the subjunctive for the same reason as in 3.4.92 in the derivation of the first person imperatives. Without it, verbal terminations replacing *leṭ*, termed *sārvadhātuka* in accordance with 3.4.113 (at step 9 in the derivation in Table 1), would be marked with *ñ* in accordance with 1.2.4 *sārvadhātukam apit* (ñit 1). In accordance with the metarule 1.1.5 *knīti ca*, the *guṇa* replacement provided for the simple vowels *ī ū ṛ ḷ* before an affix will not occur if the affix is marked with *g, k* or *ñ*.<sup>16</sup> Hence, if *pī* did not recur in 3.4.94, *guṇa*, applied by 7.3.84, would not take effect at stage 15 in the derivation.<sup>17</sup>

Therefore, commenting on 3.4.94, Rāmacandra and Bhaṭṭojidīkṣita state that the augments *aṭ* and *āṭ* are *pī*. Their commentators, Śrīkrṣṇa and Jayakṣṇa respectively, assert that *pī* recurs from 3.4.92 and that *guṇa* in the dual and plural is the reason for it. Under 1118 in his *Prakriyākaumudī*, Rāmacandra (Miśra 1980) writes, *leṭa aṭ āṭ ity etāv āgamau staḥ, tau ca pītau*.<sup>18</sup> Similarly, under 3427 in his *Siddhāntakaumudī*, Bhaṭṭojidīkṣita (Pansikar 1985) writes, *leṭa aṭ āṭ etāv āgamau staḥ, tau ca pītau*.<sup>19</sup> To exemplify *guṇa* as the reason for *p*-marking here, Jayakṣṇa (Pansikar 1985), in his *Subodhinī* commentary on the sections on Vedic derivation and accent in Bhaṭṭojidīkṣita's *Siddhāntakaumudī*, cites the 3dm psb form *brávaite* in

<sup>14</sup>Cardona (1997a: 275) writes, “By 3.4.92 *ād uttamasya pic ca* an *uttama* ending (*uttamasya*) that replaces *loṭ* receives the initial augment *āṭ* and is marked with *p*.” Jayāditya (Sharma et al. 1969, 1970) comments in the *Kāśikā* on 3.4.92 *loṭsaṃbandhina uttamapuruṣasyāḍāgamo bhavati, sa cottamapuruṣaḥ pid bhavati*. Jinendrabuddhi's *Nyāsa* (Miśra 1985) under 3.4.92 explains that the terminations rather than the augment are marked with *p*, because nothing would be achieved by marking the augment itself. Generally marking with *p* conditions low pitch, and *guṇa* or *ṛddhi*. But *ā* is already low-pitched by virtue of being an augment, and it would not condition *guṇa* and *ṛddhi* because it is not an affix. Because *p*-marking serves no purpose for the augment itself, it is understood that the rule applies *p*-marking to the first person affixes. (*athāṭa eva pītvam kasmān na kriyate? nirarthakatvāt. pītvam hy anudāttārthaṃ vā syād, guṇavṛddhyarthaṃ vā; tatrāṭo 'nudāttatvam āgamatvād eva siddham, guṇavṛddhyos tu naivāsau nimitam, apratyayatvāt.*) *Nyāsa*, vol. 3, p. 225. Under 3.1.3, Kātyāyana and Patañjali conclude that augments are low-pitched, as indicated by the fact that Pāṇini has to specify in 3.4.103 *yāsuṭ parasmaipadeṣūdāto nic ca* that the augment *yāsuṭ* is udāta (MBh.: II.7.13-8.12), and they are disregarded with respect to accentuation (MBh.: II.8.13-23).

<sup>15</sup>See Ramanath Sharma's (1995: 3.656) explanation of 3.4.92.

<sup>16</sup>Cardona (1997a: 57).

<sup>17</sup>Similarly *p*-marking prevents stem-weakening in class 7 present subjunctives. In the derivation of *yunājate* 3sm psb of the root *yuj*, the penultimate *a* of the stem *yunāj* escapes being deleted by 6.4.111 *śnasor allopaḥ* (knīti 98 *sārvadhātuke* 110) because the rule applies only before terminations marked with *g, k* or *ñ*. The termination *ate* (< *aṭ-te*) would be marked with *ñ* in accordance with 1.2.4, if *pī* did not recur in 3.4.94.

<sup>18</sup>p. 608.

<sup>19</sup>Vaidikī prakriyā, adhyāya 3, p. 591. See Bhattacharya (1986: 156–157).



*R̥gveda* 6.25.4d *vi krāṇdasī urvārāsu brávaite*.<sup>20</sup> I shall return to the significance of this citation shortly. In his *Prakāśa* commentary on Rāmacandra's *Prakriyākaumudī*, Śrīkr̥ṣṇa (Miśra 1980) gives examples of subjunctives of *kṛ* with its ordinary classical Sanskrit stem-forming affix *u*, namely: *karavāva* (1da psb), *karavaite* (3dm psb), and *karavaiṭhe* (2dm psb).<sup>21</sup> The steps Jayakṛ̥ṣṇa (Pansikar 1985) gives in derivation of the first of these are shown in Table 4.<sup>22</sup> Śrīkr̥ṣṇa (Miśra 1980) notes two problems that would arise (at step 8) if the term *pit* did not recur in 3.4.94. First, *guṇa* would not occur to the *u* of the stem-forming affix because the verbal termination would be marked with *ñ* in accordance with 1.2.4 *sārvadhātukam apit*.<sup>23</sup> Second, the *a* (of *kar*) would be replaced by *u*, in accordance with 6.4.110 *ata ut sārvadhātuke*.<sup>24</sup> Both 1.2.4 and 6.4.110 are conditioned by the fact that the affix is termed *sārvadhātuka*,

<sup>20</sup> *āduttamasyeti sūtrān maṇḍūkaplutyā pic cety anuvartata ity āśayenāha: tau ca pitāv iti. tatphalaṁ tu vi krāṇdasī urvārāsu vrataite [sic: brávaite] ity ādiṣu guṇaḥ*. 67 Vaidikī prakriyā, adhyāya 3, p. 591. "He says, 'They are marked with *p*,' with the intention that *pic ca* recurs by frog leap (*maṇḍūkapluti*) from the sūtra 3.4.92 *āduttamasya pic ca*. But the result of it is that *guṇa* occurs in such forms as the 3dm psb *brávaite* which occurs in *R̥gveda* 6.25.4d *vi krāṇdasī urvārāsu brávaite*." Jayakṛ̥ṣṇa is in turn cited by Nāgeśa (1996, 1998, 1998): *āduttamasyety ato maṇḍūkaplutyā pic ceti vartate. tad āha: tau ca pitāv iti. tatphalaṁ tu urvārāsu brávaite ity ādau guṇaḥ*. *Bṛhacchabdenduśekhara*, part 3, p. 2168. There is no need to appeal to the principle of frog-leap (*maṇḍūkapluti*), by which an item recurs skipping intervening rules, because *p*-marking would make no difference in 3.4.93.

<sup>21</sup> *āduttamasya pic cety ato 'nuvṛtṭer evam uktam. tatprayojanaṁ tu karavāva karavaite karavedhe [sic: karavaiṭhe] iti dvivacanāḍau vikaraṇasya guṇaḥ*. p. 608. "It is said that they are marked with *p* because *pit* recurs from 3.4.92. But the reason for it is so that *guṇa* occurs to the stem-forming affix (*vikaraṇa*) in the dual and plural, for example, in *karavāva* (1da psb), *karavaite* (3dm psb), and *karavaiṭhe* (2dm psb)."

<sup>22</sup> *karavāveti. kṛṇo leṭo vas tanādikṛṇbhya iti uḥ. guṇaḥ raparaḥ. leṭo 'dāṭv ity āṭ. tasya pittvenāñittvād vikaraṇasya guṇaḥ. ata ut sārvadhātuka ity utvābhāvaś ca*. Under 3428 *sa uttamasya* 3.4.98, 67 Vaidikī prakriyā, adhyāya 3, p. 591. "(The 1da psb form) *karavāva* (is derived as follows:) The l-affix *leṭ*, introduced (step 2) after the root *kṛṇ* (step 1) is replaced by the (1da verbal termination) *vas* (step 3). The stem-forming affix (*vikaraṇa*) *u* occurs in accordance with 3.1.79 *tanādikṛṇbhyah uḥ* (step 4). The *guṇa* (vowel *a*) occurs (in place of the final vowel *ṛ* of the root *kṛ*) (step 5) and is followed by *r* (step 6). The augment *āṭ* occurs (step 7). (At step 8) *guṇa* occurs to the stem-forming affix (*vikaraṇa*) because the termination is not marked with *ñ* due being marked with *p*. In addition, the *a* (of the stem *karu*) is not replaced by *u* in accordance with 6.4.110 *ata ut sārvadhātuke*." Jayakṛ̥ṣṇa refers to the root, with which he begins his derivation of *karavāva*, as *kṛṇ*, with the final marker *ñ*. The *Dhātupāṭha*, as received, lists two roots so marked: *kṛṇ* *karāṇe* (1.949), and *kṛṇ* *himsāyām* (5.7). It also includes the root *ḍukṛṇ* *karāṇe* (8.10) marked in addition with *ḍu*. It would be straightforward to derive *karavāva* and other forms built on the present stem *karu* (→ *karo/kuru*) from the last. Moreover, 3.3.88 *ḍvitaḥ kṛiḥ* requires 8.10 to derive *kṛtrima*, mentioned as an example derived in accordance with the rule in the *Kāśikā*. Inflected forms are attested in the *R̥gveda*: *kṛtrīmā* 1.55.6, 8.67.20; *kṛtrīmāṇi* 2.15.8, 7.21.3. However, if 8.10 was present in Pāṇini's *Dhātupāṭha*, the necessity of including *kṛṇ* in 3.1.79 is questionable (if the latter is synonymous, as is 1.949). The stem-forming affix *u* would already be provided after *ḍukṛṇ* by virtue of being a member of the list *tanādi*. Table 4 step 1 proceeds within the bounds of what can be known from the received text of the *Aṣṭādhyāyī*. 3.1.79 (step 4) explicitly refers to a root of the form *kṛṇ*. While this may refer to either of the two roots *kṛṇ* *karāṇe* (1.949) or *kṛṇ* *himsāyām* (5.7) in the received *Dhātupāṭha*, the former is chosen.

<sup>23</sup> *anyathā yathā sārvadhātukatvāt vikaraṇo bhavaty eva sārvadhātukam apid iti nittvād guṇo na syāt*. p. 608. "Otherwise, just as the stem-forming affix occurs in the first place because the affix is *sārvadhātuka*, *guṇa* would not occur because the affix would be marked with *ñ* in accordance with 1.2.4 *sārvadhātukam apit*." Accordingly, Bhattacharya (1986: 158) in his derivation of the form *karavāva* accounts for *guṇa* of the stem-forming affix on the grounds that it is not marked with *ñ* because it is marked with *p*: *tasya pittvenāñittvād vikaraṇasya guṇaḥ*.

<sup>24</sup> *karoteś cottvābhāvaḥ*. p. 608. "An additional reason is so that the *a* (of the stem *karu*) would not be replaced by *u* (in accordance with 6.4.110 *ata ut sārvadhātuke*)."

which it has to be in any case in order that the stem-forming affix occur in the first place. At step 4, 3.1.79 *tanādikṛñbhya uḥ* provides the stem-forming affix *u* on the condition that a sārvaadhātuka affix follows.

### Accent

An additional problem not mentioned by these commentators is that the correct accent would not be achieved in *kṛṇávaite*, if *pit* did not recur in 3.4.94. Accents accompany items when they are introduced and are adjusted at each stage in a derivation in accordance with the principle stated in 6.1.158 *anudāttaṃ padam ekavarjam* that a pada contains no high-pitched vowel save one.<sup>25</sup> As Cardona (1997a: 376) writes, “At each stage of derivation, an accentual adjustment is made such that, in general, the accentuation proper to the unit introduced at this stage cancels a previously existing accentuation.”<sup>26</sup> An exception is made, however, that the accentuation of a stem-forming affix (*vikaraṇa*) does not override the accentuation of a sārvaadhātuka verbal termination.<sup>27</sup> Hence, the accent of the verbal termination generally prevails over the accent of the stem-forming affix.

In the derivation of *kṛṇávaite* in Table 1, the vowel *i* of the root *kṛvi*, taught with high pitch in the *dhātupāṭha* (step 1) for the purpose of allowing the augment *iṭ* by 7.2.35, is high-pitched for the purpose of usage in accordance with 6.1.162 *dhātoḥ (antaḥ udāttaḥ 159)* (step 3). The verbal termination is introduced with high pitch on its first syllable in accordance with the general rule, stated in 3.1.3 *ādyudāttaś ca*, that the first vowel of an affix is high-pitched (step 5a). However, because the verbal termination *āte* derived from *leṭ* is marked with *p* (step 7), it is low-pitched, in exception to the general rule, in accordance with 3.1.4 *anudāttau suppitau* (step 7b). The stem-forming affix is introduced high-pitched (step 11b) and its accent persists in the form *kṛṇávaite*.

If *pit* did not recur in 3.4.94, the verbal termination would not be marked with *p* at stage 7. Hence 3.1.4, by which an affix marked with *p* is low-pitched, would not apply at step 7b. The verbal termination would remain high-pitched in accordance with 3.1.3. The accentual property of the stem-forming affix *ú* would not override that of the verbal termination *āte*; rather, that of the latter would prevail. The termination would remain high-pitched and the stem-forming affix would be low-pitched erroneously yielding *\*kṛṇávaite*.

### Old school

In contrast to the new school, the old school of grammar does not have *pit* recur.<sup>28</sup> Instead, Haradatta maintains that 3.4.117 *chandasy ubhayathā*, a rule of indetermi-

<sup>25</sup>Cardona (1997a: 376–379).

<sup>26</sup>6.1.158 vt. 9 *satiśiṣṭasvarabaliyastvaṃ ca*. Patañjali comments: *sati śiṣṭasvaro baliyān bhavatīti vaktavyam*. MBh.: III.99.22-23.

<sup>27</sup>6.1.158 vt. 11 *syādisvarāprasangaś ca tāseḥ parasyānudāttavacanāt*. Patañjali comes to the point: *sati śiṣṭo 'pi vikaraṇasvaro lasārvaadhātukasvaraṃ na bādhati*. MBh.: III.100.8-11.

<sup>28</sup>Although they do not mention 3.4.94 itself, Joshi and Bhate (1984: 99) do not have *pit* recur in 3.4.93, in spite of the fact that it is not specifically cancelled by a specific item in 3.4.93, because, they say, *pit*

**Table 2** *kṛṇvaīte* according to the old school of grammar: Haradatta, Nāgeśa

Steps 1–6 identical to Table 1

7.	kṛṇv-a:āte {a}	3.4.94	leṭo 'ḍāṭau
7a.		1.1.46	ādyantau ṭakitau
8.	kṛṇv-a:āte	3.4.95	āta ai (leṭaḥ 94)
9.	kṛṇv-a:āte	3.4.113	tiṅśit sārvaḍhātukam
10.	kṛṇv-āte	6.1.88	vṛddhir eci (āt 87)
10a.		8.2.5	ekādeśa udāṭṭenodāṭṭaḥ (anudāṭṭasya 4)
11.	kṛṇv-āte	6.1.158	anudāṭṭam padam ekavarjam
		vt. 9	satiṣiṣṭasvarabaliyastvam ca
		Patañjali	satiṣiṣṭasvaro baliyān bhavati
12.	kṛṇa=u-āte	3.1.80	dhinivikṛṇvyor a ca (uḥ 79 sārvaḍhātuke 67)
12a.		1.1.52	alo 'ntyasya
12b.	kṛṇa=ū-āte	3.1.3	ādyudāṭṭas ca (pratyayaḥ 1)
13.	kṛṇa=ū-āte	3.4.114	ārdhahātukam ṣeṣaḥ
14.	kṛṇa=u-āte	6.1.158	anudāṭṭam padam ekavarjam
		vt. 11	syādisvarāprasangaś ca tāseḥ
			parasyānudāṭṭavacanāt
		Patañjali	sati ṣiṣṭo 'pi vikaraṇasvaro
			lasārvaḍhātukasvaram na bādhate
15.	kṛṇ=u-āte	6.4.48	ato lopaḥ (ārdhahātuke 46)
16.	kṛṇ=u-āte[ñ]	1.2.4	sārvaḍhātukam apit (ñit 1)
17.	kṛṇ=u-āte[ñ]	1.1.5	kniti ca (na 4, iko guṇavṛddhi 3)
		7.3.84	sārvaḍhātukārdhahātukayoḥ (guṇaḥ 82) blocked
18.	kṛṇ=v-āte	6.1.77	iko yaṇ aci
19.	kṛṇvaīte		Delete morpheme boundaries.
20.	kṛṇvaīte	8.4.1	raṣābhyām no ṇaḥ samānapade
		vt. 1	raṣābhyām ṇatva ṛkāragrahaṇam
		Patañjali	yo 'sāv ṛkāre rephas tadāśrayam ṇatvam bhaviṣyati

nate variation, accounts for stem-final strengthening. Haradatta (Miśra 1985) argues that, in accordance with 3.4.117, the verbal termination is termed *sārvaḍhātuka* with respect to 3.1.79 (at step 4 in Table 4) or 3.1.80 (at step 11 in Table 1 and step 12 in Tables 2 and 3), in order to allow the stem-forming affix to occur in the first place; yet the termination is termed *ārdhahātuka* (at step 9 in Table 3) with respect to 1.2.4 to prevent *ñ*-marking, in order to allow *guṇa* to occur to the final *u* of the stem by 7.3.84, and in order to prevent the replacement of the *a* of *kar* by *u* (both, at step 8 in Table 4; the former, at step 16 in Table 3).<sup>29</sup>

is introduced in 3.4.92 as an associative digression. I do not see any criteria to distinguish an associative digression here from the conjunctive process by which they (1984: 110) allow recurrence of *apit* from 3.4.87 into 3.4.88.

<sup>29</sup> Although Haradatta makes his argument directly concerning the 3da psb *karavaīte*, it applies equally to the 1da psb *karavāva* shown in Table 4 and to the 3da psb *kṛṇvaīte* shown in Tables 1 and 3.

**Table 3** *kr̥návaite* according to the old school of grammar: Haradatta, Nāgeśa

Steps 1–6 identical to Table 1; steps 7–8 identical to Table 2

9.	kṛnv-a:aíte	3.4.117	chandasy ubhayathā
	{ārdhadhātuka}	3.4.113	tiñśit sāravadhātukam blocked
Steps 10–13 identical to Table 2			
14.	kṛna=ú-aite	3.1.85	vyatyayo bahulam
		6.1.158	anudāttañ padam ekavarjam
		vt. 11	syādisvarāprasaṅgaś ca tāseḥ parasyānudāttavacanāt blocked
		Patañjali	sati śiṣṭo 'pi vikaraṇasvaro lasārvadhātukasvarañ na bādhate blocked
15.	kṛn=ú-aite	6.4.48	ato lopaḥ (ārdhadhātuke 46)
16.	kṛn=ó-aite	7.3.84	sārvadhātukārdhadhātukayoḥ (guṇaḥ 82)
16a.		1.1.3	iko guṇavṛddhī
17.	kṛn=áv-aite	6.1.78	eco 'yavāyāvaḥ
18.	kṛnávaite		Delete morpheme boundaries.
19.	kṛnávaite	8.4.1	raśābhyāñ no ṇaḥ samānapade
		vt. 1	raśābhyāñ ṇatva ṛkāragrahaṇam
		Patañjali	yo 'sāv ṛkāre rephas tadāśrayañ ṇatvañ bhaviṣyati

**Table 4** *karāvāva* according to Jayakṛṣṇa

1	kṛ {kṛñ}	DhP. 1.949	kṛñ karaṇe
2.	kṛ-l {leṭ}	3.4.7	līnarthe leṭ (chandasi 6)
3.	kṛ-vas	3.4.78	tiptasjhi. . . idvāhimahīñ (lasya 77)
4.	kṛ=u-vas	3.1.79	tanādikṛñbhya uḥ (sārvadhātuke 67)
5.	ka=u-vas	7.3.84	sārvadhātukārdhadhātukayoḥ (guṇaḥ 82)
6.	kar=u-vas	1.1.51	ur aṇ raparaḥ
7.	kar=u-ā:vas	3.4.94	leṭo 'dāṭau (pit 92)
8.	kar=o-ā:vas	7.3.84	sārvadhātukārdhadhātukayoḥ (guṇaḥ 82)

In his *Br̥hacchabdenduśekhara* commentary on Bhaṭṭojidīkṣita's *Siddhāntakau-mudī*, Nāgeśa (1996, 1998, 1998) reiterates that the procedure outlined by Haradatta

*chandasy ubhayatheti sāravadhātukatvād vikaraṇaḥ, ārdhadhātukatvāñ nītvābhāve vikaraṇasya guṇaḥ, karoteś cotvābhāvaḥ*, part 3, p. 227. “The stem-forming affix occurs because (the verbal termination) is termed *sārvadhātuka* in accordance with 3.4.117 *chandasy ubhayathā*. Guṇa occurs, and replacement (of the *a* of *kar*) of the root *kṛ* by *u* is prevented, because (the verbal termination) is not marked with *ñ* because it is termed *ārdhadhātuka*.” Palsule (1991: 56) remarks, “Pāṇini further observes (3.4.117) that in the Veda a suffix can have both these designations—*sārvadhātuka* and *ārdhadhātuka*—optionally, even simultaneously.” Stem-weakening in the present subjunctive of class 7 stems is similarly preventable by applying the rule of indeterminate variation 3.4.117. In the derivation of the 3sm psb *yunājate*, the termination *ate* may be termed *ārdhadhātuka* with respect to 1.2.4 to prevent *ñ*-marking in order to prevent deletion of the penultimate *a* of the stem *yunaḥ*.

is the one adopted in the *Kāśikā*,<sup>30</sup> and points out that such a procedure also accounts for the lack of stem strengthening in *kṛṇvaíte*.<sup>31</sup> Table 2 shows the steps to derive *kṛṇvaíte*. The verbal termination is termed *sārvadhātuka* as usual by 3.4.113 (at step 9). Since the verbal termination is not marked with *p* at step 7, it is marked with *ñ* by 1.2.4 at step 16, which blocks *guṇa* at step 17 by virtue of 1.1.5.

### Accent

Haradatta and Nāgeśa do not discuss accent, either of the regular subjunctive or of the unusual form *kṛṇvaíte*, but it is deducible as follows. The accent of *kṛṇvaíte* is achieved by regular rules. The verbal termination (at step 5a in Table 2) and the stem-forming affix (at step 12b in Table 2) are introduced high-pitched on their first syllable in accordance with the general rule 3.1.3. The accentual property of the verbal termination prevails over that of the stem-forming affix, even though the stem-forming affix is introduced later (step 14). Hence the initial vowel of the termination remains high-pitched.

The derivation of the accent of the regular subjunctive by the old school, however, has to rely on rules of indeterminate variation. The verbal termination and the stem-forming affix are introduced high-pitched on their first syllable in accordance with the general rule 3.1.3 (at steps 5a and 12b in Table 3). However, because the verbal termination is not low-pitched by virtue of *p*-marking since *pit* does not recur in 3.4.94, in order to prevent the accentual property of the verbal termination from prevailing over that of the stem-forming affix, the derivation must appeal to 3.1.85 *vyatyayo bahulam* (at step 14 in Table 3).

### The form *kṛṇvaíte* as subjunctive

The form *kṛṇvaíte*, corresponding to the regularly expected 3dm psb form *kṛṇávaite* but for the weak stem and the acute accent on the initial vowel of the verbal termination instead of on the stem-final vowel, is hapax legomena at *R̥gveda* 6.25.4b. Of the 131 occurrences of subjunctive forms of *kṛ* in the *R̥gveda*, *kṛṇvaíte* is the only one requiring special treatment.<sup>32</sup>

<sup>30</sup> *vṛtau tu pidgrahaṇaṁ nānuvartitaṁ ata eva karavaite ity atra cchandasy ubhayatheti sārvadhātukatvād vikaraṇaḥ, ārdhadhātukatvāc ca nītvābhāve vikaraṇasya guṇaḥ, karoteś cottvābhāvaḥ*. Part 3, pp. 2168–2169. “But in the *Kāśikā*, the mention of *pit* is not made to recur. Therefore, in the derivation of the form *karavaite*, the stem-forming affix occurs (in accordance with 3.1.79) because (the verbal termination) is termed *sārvadhātuka* (in accordance with 3.4.117). *Guṇa* (in accordance with 7.3.84), and replacement (of the *a* of *kar*) of the root *kṛ* by *u* (in accordance with 6.4.110) is prevented, because (the verbal termination) is not marked with *ñ* (in accordance with 1.2.4) because it is termed *ārdhadhātuka* (in accordance with 3.4.117).” The new school grammarian Śrīkṛṣṇa (Miśra 1980) likewise observes in his *Prakāśa* on Rāmacandra’s *Prakriyākaumudī* that Jayāditya adopts in the *Kāśikā* the procedure Haradatta describes: *ākare tu pittvaṁ nāsthitaṁ, yad āha haradattaḥ* ... Part 3, p. 608. “But *p*-marking is not resorted to in the source, as Haradatta says ...”

<sup>31</sup> *kvacit tu na guṇaḥ: tanūrūcā tāruṣi yāt kṛṇvaíte iti*. part 3, pp. 2168–2169. “In a few instances, *guṇa* does not occur, for example in *kṛṇvaíte* at *R̥gveda* 6.25.4b.”

<sup>32</sup> Not including *kariṣyāḥ* 4.30.23b and *kariṣyāḥ\** 1.165.9d (visarga restored) 2sa fut sub where no difference is visible from strengthening because the future is an *a*-stem. Lubotsky (1997: 436–444).

One cannot, however, conclude that the unique form *kṛṇvaíte* is not subjunctive. First, the termination *aíte* is not found in any other verb forms and is accounted for by Pāṇini only in the subjunctive. The sound *ā* is replaced by *ai* in accordance with 3.4.95 *āta ai* (*leṭaḥ* 94) (step 8 in Tables 1–3) where the term *leṭaḥ* recurs from 3.4.94 limiting the replacement to the subjunctive. Second, its context in *Ṛgveda* 6.25.4 favors interpreting the form as a subjunctive. The verse runs as follows:

*śūro vā śūraṁ vanate śārīraḥ tanūrūcā tāruṣi yāt kṛṇvaíte;  
toké vā gōṣu tánaye yād apsú ví krándasī urvārāsu brávaíte.*

A hero overcomes a hero with his arms, when two, shining in body, strive for superiority;

or when two, shouting, argue over seed, cattle, offspring, water, or fields.<sup>33</sup>

The irregular form *kṛṇvaíte* occurs in a subordinate clause in parallel syntactic construction with the regular subjunctive *brávaíte*: *yāt kṛṇvaíte ... yād vā ... ví ... brávaíte* “when they do... or when they argue.” Finally, it is plausible that the poet created the irregular form by adapting the regular subjunctive form. There is convincing metrical motivation for adapting *kṛṇávaíte* to *kṛṇvaíte*. Since the former, which occurs at the end of the first line of the verse in parallel with the trisyllabic *brávaíte* at the end of the second line,<sup>34</sup> doesn’t fit the cadence, the poet would be drawn to elide a syllable. Analogy with weak stems such as 3dm pres. ind. *kṛṇvāte*, makes elision of the *a* and movement of the accent forward the natural choice.<sup>35</sup>

### Inadequacy of principles of determining which texts Pāṇini knew

According to the principle of determining which texts Pāṇini knew outlined above in paragraph three, the disagreement of the *Ṛgveda* with the new school account of the subjunctive would serve as evidence for the conclusion that Pāṇini did not know the *Ṛgveda*. Such a conclusion is untenable given contradictory evidence. Bronkhorst (1991: 96) argues that Pāṇini knew the *Ṛgveda* because the forms he excludes do not occur in it.<sup>36</sup>

The proposal, made in paragraph four, to attribute contradictory results in determining which texts a linguist knew to complexity of Vedic textual transmission likewise fails to provide a satisfactory resolution. First, Bronkhorst (1991: 104) argues that Pāṇini knew the *Ṛgveda* in much the same form as extant.<sup>37</sup> Second, with regard

<sup>33</sup>Geldner (1951: II.124) translates: Ein Tapferer überwindet wohl den Tapferen durch sein Leibes (stärke), wenn zwei am Körper Glänzende einen Handel haben um die Überlegenheit, oder wenn zwei Schlachthaufen sich um den Samen, oder um Kühe, um leibliche Nachkommenschaft, um Wasser, um Felder streiten.

<sup>34</sup>It is parallel also to the trisyllabic *yātaite* in the similar pāda 7.93.5b.

<sup>35</sup>I am grateful to Stephanie Jamison for discussion on this matter.

<sup>36</sup>“Among the forms that he [Pāṇini] clearly rejects, not one occurs in the *Ṛgveda*. ... We may safely assume that Pāṇini knew the collected *Ṛgveda*, not just the individual hymns.”

<sup>37</sup>“The *Ṛgveda* may be an exception; it was known to Pāṇini along with its Padapāṭha, which leaves little room for major changes other than sandhi.”

to the new school commentator Jayakṛṣṇa this principle yields unacceptable results. It is untenable to maintain that Jayakṛṣṇa did not know the unique form *kṛṇvaíte* in *R̥gveda* 6.25.4b since he himself cites pāda d of the same verse to adduce the form *brávaíte* as evidence for guṇa in the subjunctive.

Nor can one appeal to the principle Cardona sets out that Pāṇini need not account for a form in the saṁhitā where he accounts for an alternate form in Śākalya's padapāṭha, because the padapāṭha also has *kṛṇvaíte*.

The case must be attributed to other complexities in the grammatical tradition. Given the fact that the form *kṛṇvaíte* is the result of metrically motivated adaptation and that the text in which it occurs was probably known to Pāṇini, it is likely that Pāṇini recognized it as an irregular form. In that case, he may have refrained from accounting for the form by specific rules or by listing, not simply by oversight, but because he deemed it a type of irregular form accounted for by other authorities no longer available to us. Pāṇini may refrain from accounting specifically for the weak stem in the form *kṛṇvaíte* because he defers to an interpretation, no longer extant, that did so. It is likewise possible that he framed general rules of indeterminate variation to capture broad classes of irregularities out of deference to certain interpretational traditions.

## Standards of linguistic description

The new school account of the subjunctive is more convincing than the old school account because it provides a more precise systematic account of a larger scope of data than the old school and relies on rules of indeterminate variation for a smaller scope of data. The old grammar accounts for the irregular form *kṛṇvaíte* by regular rules. Yet in order to do so, it requires that the account of every other subjunctive rely on rules of indeterminate variation. The new grammar, in contrast, systematically accounts for the vast majority of subjunctive forms, yet fails to account for this unique form. The new school account therefore is more convincing.

Nāgeśa would have perceived the exclusion of the form *kṛṇvaíte* from the new school account of the subjunctive as a defect. Since commentators generally work to defend the completeness of the *Aṣṭādhyāyī*, he would have preferred the old school account in spite of its broad appeal to rules of indeterminate variation. It is also likely, on the same grounds, that Haradatta invented the “old school” explanation to fill the same perceived lacuna.

However, the new school could derive the form by appeal to a broader application of the same rules of indeterminate variation that the old school does. The old school derives subjunctives generally by appeal to rules of indeterminate variation in order to account for the strong stem. The derivation of *kṛṇávaíte* in Table 3 appeals to 3.4.117 *chandasy ubhayathā* at step 9 to obtain guṇa and appeals to 3.1.85 *vyatyayo bahulam* at step 14 to secure the acute accent on the antepenult. In order to justify the latter, Patañjali proposes splitting 3.1.85 into two rules. The first one would state, what was probably the original intent of the rule, that the stem-forming affixes taught in rules 3.1.33–84 occur variously in Vedic. The second rule would allow any rule to apply variously. Patañjali writes, “All rules occur variously in Vedic.” (*bahulam chandasi*



*viṣaye sarve vidhayo bhavantīti*.)<sup>38</sup> Echoing Patañjali, Jayāditya writes under 3.1.85, “the mentioning of indeterminate variation is for the purpose of escaping all rules.” (*bahulagrahaṇam sarvavidhivyabhicārārtham*.) The new school could appeal to this last rule to prevent guṇa in order to derive *kṛṇvaīte*.<sup>39</sup>

It is questionable whether leaving the account of stem strengthening in the subjunctive to rules of indeterminate variation is preferable to a systematic explanation which yet fails to account for a minority of forms. The linguistic account of the subjunctive offered by the new school is preferable to that of the old school in that it generally offers a more detailed systematic account.<sup>40</sup> While the old school must appeal to rules of indeterminate variation generally to derive most subjunctives, the new school needs to appeal to rules of indeterminate variation only in this rare case. Rules of indeterminate variation should be appealed to as little as possible.<sup>41</sup> It is likely that Pāṇini formulated such rules to account for such unusual occurrences after he had exhausted all attempts at systematic explanation. As Thieme (1935: 61) writes, “Pāṇini characterizes for the sake of characterizing. Laying down the general principle first, he proceeds to give more and more special restrictions, tightening the meshes of his definition, till the limit is definitely reached. Then he loosens his hold and comprises the unavoidable remainder of anomalies in a sweeping ‘et cetera’.”

While it is possible that Pāṇini deferred the precise explanation of subjunctives in general to certain interpretational traditions; it would be more generous to him, in the absence of evidence to the contrary, to favor an interpretation of his rules that required him to defer a smaller scope of data to postulated authorities.

## Implication

Complexities in the relationship between Pāṇinian grammar and Vedic texts appear because neither the grammar nor the texts are uniform and static. Certainly evaluation of the scope of individual rules and their applicability to particular passages forms an essential part of the task of determining the relative dates of Indian linguistic treatises

<sup>38</sup>*yogavibhāgaḥ kartavyaḥ: vyatyayo bhavati syādīnām iti. āṇḍā śuṣṇasya bhedati, bhinattīti prāpte. sa ca na marati, mriyata iti prāpte. tato bahulam.* MBh.: II.64.16–19. The remainder of the passage through II.65.6 elaborates and summarizes in a śloka-vārttika. Devasthali (1965: 22–23) comments on the rule’s overextension.

<sup>39</sup>Likewise, one could appeal to 3.1.85 to allow high-pitched accent of the ending in the 3sm pre indicative *indhé*.

<sup>40</sup>Similarly, Palsule’s (1972a) interpretation of 3.4.78 *vā chandasi* provides a better linguistic account of Vedic forms in *-si*. He interprets them as imperatives (*loṭ*) by having the option apply to the replacement of *si* by *hi* as well as to the lack of *p*-marking, both of which are taught in the preceding rule 3.4.77 *se rhy apic ca*. Deshpande (1991) shows variant accounts of the syntax of forms deemed Vedic infinitives by Bhaṭṭabhāskara in accordance with Uṇādisūtras that derive action nouns in *-tu*.

<sup>41</sup>This does not obviate the utility of rules of unspecified generalization, such as 3.2.101 *anyeṣv api drśyate*, to describe the spoken language. Cardona (1997c: 412–413; 2005) argues that such rules reflect the fact that “Pāṇini describes a living language used by native speakers who were carrying out innovations and generalizations” and that “the final results of trends which have started cannot be predicted.” The case presented by Cardona is not relevant to rules of indeterminate variation in Vedic where presumably innovations need not be allowed.

and texts composed in the language they purport to describe. Yet in order to build on foundational results that utilized the piecemeal method, it is necessary to construct comprehensive linguistic models of Sanskrit based upon the evaluation of the rulesets of particular Indian linguists and then to establish degrees of correlation between these models and the linguistic behavior exhibited in particular texts. The complexity of the task of tallying and comparing correlations between linguistic treatises and texts demands the assistance of computational methods.

I am currently engaged in building a generative linguistic model in a computational framework that simulates one interpretation of Pāṇini's grammar. The derivations shown in Tables 1–4 were produced in part by software that tracks the rules applied in the generation of forms in this generative model. Computational simulation of Indian generative grammars, the output of which contributed to these small samples, promises to assist in evaluating the agreement of Indian linguistic treatises with particular texts by providing systematic and comprehensive handling of complex rulesets and extensive data.

## Appendix: Notes on the derivations in Tables 1–4

Concerning the selection of roots at step 1 in Tables 1 and 4, see pp. 4–5, and note 22, respectively.

Accents in the *Dhātupāṭha* are used just to condition operations; they are unrelated to the accentuation of derivatives in usage. Accentuation is first assigned to the root at step 3.

Pāṇini provides that markers are deleted immediately upon identifying them as such. The rule that provides for their deletion (1.3.9 *tasya lopaḥ*) immediately follows the rules (1.3.2–8 *upadeśe 'janunāsika it, hal antyam*, etc.) that provide that certain sounds taught initially are termed *it* 'marker'. Commenting on 1.3.9, Kātyāyana and Patañjali consider the purpose of attaching and deleting markers. They conclude that the markers are attached for the purpose of conditioning operations and that they are deleted for the purpose of indicating that they do not exist other than for operations. They consider that they are part of the units to which they are attached, yet that, as the procedure that Pāṇini follows demonstrates, they are ignored when considering the form of the speech unit. MBh. 1.265.11–267.6, especially 1.265.16–17: vt. 8: *bhāvo hi kāryārtho 'nanyārtho lopaḥ. kāryaṁ kariṣyāmīty anubandha āsajyate, kāryād anyan mā bhūd iti lopaḥ*. For the purpose of exposition, the derivations in Tables 1–4 set markers needed for the derivation in bold, until they condition the necessary operations, after which they are no longer shown. Markers taught initially with items are set in round brackets; those provided by an extension rule (*atideśa*) (such as at table 1 step 7) are set in square brackets. While it makes no difference whether the markers are taught initially or provided by extension in the present derivations, there are cases where commentators argue that it does.

Metarules (such as at Table 1: 7a, 11a, etc.) are read with operations at the occasion the latter take effect. They apply simultaneously, as indicated by the same number, but are given a lettered line in the derivation in order to show their effect on the form, where possible, and to allow reference.

At step 14 in Table 1 and 15 in Tables 2–3, the penultimate light vowel (*laghūpadha*) *r̥* in *kṛn* followed by the ārdhadhātuka affix *u* is not subject to guṇa, as provided by 7.3.86 *pugantalaghūpadhasya ca (sārvadhātukārdhadhātukayoḥ 84 guṇa 82)*, because of the application of 1.1.57 *acaḥ parasmīn pūrvavidhau (ādeśaḥ sthānivat 56)*. Otherwise the stem *kṛn* meets the conditions for the application of the rule. The vowel *r̥* is not only penultimate in *kṛn* and light, but is also a simple vowel *ī ū ṛ ̃* (*ik*); it thereby satisfies the restriction of the metarule 1.1.3 *iko guṇavṛddhī*. However, due to the application of 1.1.57, the *r̥* is not penultimate. In accordance with 1.1.57, a vowel replacement, conditioned by a following item, has the status of its substituend when an operation is to be performed on a preceding element. The zero replacement (*lopa*) for the final *a* of the stem *kṛna* has the status of the *a* when 7.3.86 would apply guṇa substitution to the preceding *r̥*. Since *r̥* is not the penultimate sound in *kṛna*, and the penultimate *n* in *kṛna* is not an *ik* vowel, the conditions for the application of 7.3.86 are not met. Hence Jayāditya writes under 3.1.80, *ato lopasya sthānivadhbhāvāt guṇo na bhavati*.

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