

Some issues in Sanskrit syntax

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1. Introduction

My presentation has three goals. One is to provide a survey of publications in Sanskrit syntax since Deshpande and Hock's (1991) Sanskrit syntax bibliography. A second one is to focus in greater detail on a number of formal issues that, I believe, would be of interest both to linguists pursuing computational approaches to Sanskrit syntax and to those working in linguistic theory. The third goal is to discuss a selection of functional factors that influence the use of particular syntactic structures in particular text types, an issue which I believe would also be interesting to those engaged in computational work.

2. A brief survey of publications since Deshpande & Hock 1991

A no doubt still incomplete compilation of publications since Deshpande & Hock 1991¹ is provided as a separate document — *Sanskrit Syntax Bibliography: An Update*. I look forward to receiving additional references so as to make the bibliography more comprehensive and so that the document, consolidated with Deshpande & Hock, can be mounted as an e-document permitting regular updating. At this point, let me briefly survey the distribution of publications in terms of chronology and general categories of subject matter.

The new Update yields over 200 entries, including article collections and bibliographies — quite impressive for a period of less than 25 years, especially if compared to the 474 entries in Deshpande & Hock 1991, which covers publications from Burnouf (1824) to Brereton & Jamison "To Appear" (published 1991). It is impressive, too, because, as in the past, syntax receives much less scholarly attention than other aspects of Sanskrit linguistics. The following statistics are based on a smaller set of 186 entries that I had collected by 24 May 2013.

As in the past (see Deshpande & Hock 1991, as well as Hock 1989b), the bulk of publications (147 out of 186) deals with the Vedic period, especially the Rig Veda, and commonly from a historical, Indo-Europeanist perspective. The Post-Vedic or "Classical" period is covered only in 45 publications, some of which address both Vedic and Post-Vedic issues.

A common topic for the Vedic period is the issue of tense, aspect, voice, and modality, which is dealt with in 29 publications. Another 23 publications address word and phrase order, including the issue of clitics and Wackernagel's Law. Case syntax is covered in 18 publications, especially by Hettrich (six publications, including the important 2007: *Materialien zu einer Kasussyntax des R̥gveda*, which includes a rich bibliography). Issues of subordination, both finite and non-

¹ Including publications not listed in that bibliography.

finite (infinitives, converbs, locative absolute constructions, etc.) are dealt with in some 18 publications.

Most of the 27 publications that approach Sanskrit syntax from a modern theoretical or typological approach are focused on the Post-Vedic language, and so are all of the 23 publications that deal with, or refer to, the insights of the Indian grammatical tradition, especially Pāṇini. As a personal note, let me add that this relatively limited reference to the Indian tradition is regrettable. In principle, all research on Sanskrit syntax — and Sanskrit linguistics in general — should treat the work of Pāṇini and the entire early grammatical and phonetic tradition as earlier scholarship, just as it does the work of linguists like Delbrück, Wackernagel, and Whitney; see Hock 2009 and To Appear.

Finally, 65 publications treat of issues of function and discourse, in both the Vedic and the Post-Vedic period. This category is heavily dominated by Jared Klein’s publications, most of which (16 out of 22) focus on the issue of stylistic repetition of different grammatical structures and categories in the language of the Rig Veda.

3. Formal issues

In the following section of my paper I address formal issues that may be of interest to scholars pursuing computational approaches to Sanskrit syntax as well those working on typology and syntactic theory. I draw to a large extent on my own research, both published and unpublished, but also include references to other recent research.

A recurrent theme is that we need to consider both Pāṇini’s generative approach and modern approaches, whether generative or traditional-philological, and that, likewise, we need to keep in mind both the empirical information conveyed by Pāṇini’s speaker-knowledge based grammar and the empirical data unearthed by western philological approaches. The latter issue is especially relevant, since as Deshpande (1983) suggested, Pāṇini’s location on the northwestern periphery of the Sanskrit-speaking world of his time may account for certain differences between the syntactic structures predicted by his grammar and those found in the tradition of Madhyadeśa; see also Hock 1981, 2012a.

3.1. Free Word Order and related issues

It is well known that Sanskrit (like other early Indo-European languages) exhibits a remarkable degree of free word order — not just free phrase order. In this section I discuss two major formal approaches to this phenomenon. Schäufele (1990, see also 1991ab) follows the major tradition of western / modern scholarship (e.g. Delbrück 1878, 1888, Speijer 1886, 1896, Lahiri 1933) in assuming a basic word and phrase order of the SOV type, with various movement processes accounting for “marked” orderings. The work of Gillon (2006) / Gillon and Shaer (2005) adopts and modifies Staal’s (1967) notion of “Wild Trees”, i.e. trees without phrase-internal linear ordering. Neither approach adopts the possible alternative of assuming complete non-configurationality along the lines suggested for other languages by Farmer (1980) and Ken Hale (1975, 1983).

Schäufele's most important findings are the following (1990: 61-63, 84-104).

- In the majority of cases, phrases are continuous and exhibit all the features normally associated with hierarchical structure. This is something that children learning the language would have to account for in their grammar, and it would discourage them from positing a completely flat structure.
- Similarly, in the majority of cases, phrases are head-final, although for PPs head-finality is only a statistical tendency in Vedic. While Schäufele does not pursue this issue explicitly, the dominant head-finality too can be argued to be something that children learning the language would have to account for in their grammar.
- In PPs the adposition normally remains next to at least part of its complement if there is movement. This, again, supports the assumption of hierarchical, rather than flat phrase structure. Schäufele cites the examples in [1] (p. 85). Further examples can be found in the Classical language; [2]. Interestingly, Bolkestein (2001) and Snijders (2012) note the same phenomenon in Latin.
- Movement of individual words or combinations of words, as in [3],² is made possible through a process of “liberation” or “node erasure” (see Pullum 1982, Ross 1967 (1986): 50-54).

- [1] a. stāvai **purā** pāryāt índram áhnaḥ (RV 3.32.14b)
'I shall praise Indra before the fateful day.'
- b. etaṁ vā aśvaṁ mahimānāv **abhītaḥ** sambabhūvatur (ŚB 10.6.4.1)
'These two jars appeared around = on both sides of the horse.' (S's translation; my transcription)
- [2] **ā** samudrāt tu vai pūrvād **ā** samudrāt tu paścimāt
tayor eva + **antaram** giryor āryāvartaṁ vidur budhāḥ (Manu 2.22)
'Wise people know (that) āryāvarta (extends) from the eastern sea to the western sea, (and) between these two mountains (the Himalayas and the Vindhya).'
- [3] a. **etām** v eva + **eṣa** + etasmai viṣṇurḥ yajño vikrāntimḥ vicakrame (ŚB 1.1.2.13)
'This Viṣṇu, the sacrifice, stepped this (world-conquering three-fold) stepping for him (the sacrificer).'
- b. **teṣām** bhīmo mahābāhuḥ pārthivānāmḥ mahātmanām | yathārham akarot pūjām
... (Nala 2.11)
'Strong-armed Bhima honored these noble rulers appropriately ...'

Schäufele's approach contrasts with that of Staal and Gillon. Staal starts with the claim that the Indian grammatical tradition, being silent on the issue, assumed that there are no rules for word order (360) and he goes on to argue for a (modern) generative account operating with “Wild Trees”, i.e. trees without phrase-internal linear ordering.

² These examples come from my collections.

Gillon (2006) adopts and modifies Staal's (1967) notion of "Wild Trees", providing empirical support from two corpora — the prose examples in Apte 1885 and 1,500 sentences from Dharmakīrti's autocommentary on the Pramānavārttika. See also Gillon & Shaer 2005. The following discussion is based on the latter publication.

Like Staal, as well as Schäufele, Gillon and Shaer accept the need for phrases, rather than a completely flat structure. Unlike Schäufele, they assume that there is no linear order within phrases. Moreover, they argue against a VP, instead postulating the flat clause structure in [4], without linear order. Further, they claim that '... the strategy of deriving less common word orders with specialized information packaging functions from more basic syntactic structures ... seems to us less plausible than ones consistent with the "wild tree" claim.' (468) The paper concludes with a section on 'Some remaining puzzles' (480-485).

[4] $S \rightarrow \{V, NP_s, NP_o\}$

In support for the assumption of flat phrase-internal structures, such as [4], they claim that their corpora exhibit both left- and right-headed phrases and that therefore there is no evidence for phrasal headedness (470). In addition, they accept movement processes that extract elements out of phrases and place them in left- or right-peripheral position within the clause (475-480).

Certain features are shared between Schäufele's and Gillon's approaches — the acceptance of phrases, rather than completely flat structures, and the fact that movement processes can extract and move elements out of phrases. For the purposes of computational text analysis, therefore, there may be no significant difference.

From the perspective of linguistic theory, however, the two approaches differ considerably, and it is Schäufele's approach that provides the better insights. His account of Sanskrit is completely compatible with the linguistic typology of SOV languages, with head-finality at all phrasal levels. In fact, Sanskrit also conforms to SOV typology in its complex syntax, by making extensive use of non-finite subordination as well as of relative-correlative constructions; Hock 1989a, 2005, In Press (c). Under the Staal-Gillon approach these typological characteristics would be epiphenomenal at best.

Now, it is true that Pāṇini has no rules comparable to western generalizations about word or phrase order. But Pāṇini also has no rules comparable to western generalizations about phrases, such as NP, VP, PP. True, there are rules regarding kārakas and their realizations, but these do not address issues such as complex NPs with genitive modifiers. There is also the notion samānādhikaraṇa, but this presumably holds not only for agreement within NPs but also relates surface subject NPs to their verbs (P. 1.4.104-107) and must be assumed to hold also for agreement between subjects (kartṛs) and predicate nouns or adjectives (see 3.3 below for discussion). Even the notion "sentence" is a murky issue in the Pāṇinian tradition; see e.g. Cardona 1976: 223-224, Deshpande 1991, as well as Hock To Appear: §6. In all of these respects, and not only as regards word order, the Indian grammatical tradition and modern generative approaches are orthogonal.

It is also true that Sanskrit offers frequent examples with non-final heads. But there are considerable differences between different texts. Consider major constituent order. As noted in Hock 1984, while in Mantra Vedic and Kālidāsa’s dramatic dialogue verb-final structures amount to only about 65%, in Vedic Prose they are about 97% (see also Hock 1997). A similarly high ratio of verb-final structures is found in Patañjali’s Mahābhāṣya; see the statistics in [5]. Claims about headedness — and any other aspects of syntax — must therefore be based on a large variety of different genres, not just on the two corpora examined by Gillon. And as the evidence just cited shows, genres that do not make any claims to stylistic or literary elegance are characterized by heavy predominance of head-final constituent order; in fact, even in other genres verb-finality runs to about 65%. The “Wild Tree” assumption that phrases, including the sentence (S), have no internal order fails to capture these facts.

[5] Word order in Patañjali’s Mahābhāṣya

- a. Paspāśā (Kielhorn-Abhyankar 1.1.1-1.3.5)³
V-final: 35
V-initial: Not found in the sample
V + O in the formula ... *adhyeyam vyākaraṇam*: 7⁴
śak + (O) + infinitive: 2
- b. Śivasūtras (Kielhorn-Abhyankar 1.15.2-1.16.18)
V-final: 40
V-initial (including after linker, such as *tena*): 5
V + O/Pred: 3
V + Other: 3
V+ [] *iti*: 8

3.2. Relative-correlatives

As in the case of word order, Pāṇini has remarkably little to say about the syntax of Sanskrit relativization. The closest he comes is in three sūtras (3.3.139-140 and 3.3.156) that address the issue of modality in conditional structures which, as is well known, involve an adverbial form of the relative pronoun (*yadi*) or the particle *ced*.

At least from the time of Speijer (1886, 1896) and Delbrück (1888) western scholarship has recognized that Sanskrit relative structures consist of a relative clause, containing a relative pronoun, and a main clause, containing a correlative pronoun and that the relative clause is not inserted into the main clause.⁵ Speijer (1886: 349, 1896: 349) refers to the relationship as one between a protasis and an apodosis. Minard (1936) introduces the term ‘diptych’ for the construction which in typological and theoretical literature is now commonly referred to as ‘relative-correlative’.

³ Vedic and other traditional citations are ignored. Gerundives and *ta*-participles used as main verbs are included.

⁴ Contrast the formulaic use of the gerundive with the ordinary one in *laghvartham cādhyeyam vyākaraṇam | brāhmaṇenāvaśyam śabdā jñeyā iti*.

⁵ Speijer (1886: 349) hedges on this issue by stating that preposing of the relative clause before the main clause is ‘much more used than inserting the relative sentence in the main one’.

The syntactic account of Sanskrit and other, similar relative-correlative constructions is further refined in the 1970s and 1980s by arguments that the relative clause is base-generated as ADJOINED to the main or correlative clause; see e.g. Andrews 1975 (1985), Ken Hale 1975, Dasgupta 1980, Keenan 1985, Chr. Lehmann 1984, Srivastav 1988.

Based on a broad range of evidence, Hock (1989a) goes one step further and argues that relative clauses are syntactically CONJOINED to their correlative clauses. While some of that evidence appears to be restricted to Vedic, other evidence is also found in post-Vedic. The nature of that evidence is, I believe, such that both those working in formal syntax and those working on computational analyses will find it interesting and challenging.

First, in some cases there is no clear relationship between the relative pronoun (or phrase) of the relative clause and the correlative pronoun (or phrase) of the main clause; see [6], where [6a] was brought to my attention by Kiparsky 1989 (published as 1995), and [6c] by James Fitzgerald (March 2006). Structures of this sort are typically best rendered as conditionals.

- [6] a. yó no agne duréva á mártó vadháya dáśati | tasmān naḥ pāhy ámhasaḥ
(RV 6.16.31)
‘Which mortal_i, O Agni, with evil intention exposes us to the blow, from that distress_j rescue us.’
Or: ‘If a mortal ...’
- b. yāsām nādadate śulkaṁ jñātayo na sa vikrayaḥ (Manu 3.45)
‘Of which (women) the relatives do not appropriate the (bride) price, that is not a sale.’
= ‘If the relatives do not appropriate ...’
- c. yaś canokto hi nirdeśaḥ striyā maithunatr̥ptaye / tasyāsmārayato vyaktam
adharmo nātra saṁśayaḥ (MBh 12.258.38)
‘Which instruction to gratify one’s wife sexually is not heard, of him who does not remember (this) it is clearly, no doubt, a breach of duty.’
‘Though there is no requirement to satisfy one’s wife sexually, if a man does not remember this it is clearly a serious infraction.’

Secondly, there are some examples in which the relative clause exhibits properties normally only associated with independent main clauses, namely interrogation and imperative modality; see [7].

- [7] a. śaryāto ha vā īkṣāmcakre [yat **kim** akaram]_{RC} [tasmād idam āpadi]_{CC} + iti
(ŚB 4.1.5.4)
‘Śaryāta thought, “Because I have done what?, therefore I have gotten into this.”’
≈ ‘... “What have I done to get into this?”’
(Thus also ŚB 1.7.3.19; a similar structure with *kva* ‘where’ at ŚB 5.1.3.13)
- b. tyaje prāṇān naiva dadyām kapotaṁ (l)
saumyo hy ayaṁ kiṁ na jānāsi ... |
[yathā kleśaṁ mā **kuruṣva**+iha ... (l)]_{RC}
[nāhaṁ kapotaṁ arpayiṣye kathamcit]_{CC} (Mahābhārata 3, App. 21/5.82)

‘I abandon my life, but I may not at all give the dove; for he is gentle, don’t you know...? So that “don’t you make” trouble here ! ..., I will not hand over the dove in any way.’
 = ‘... so that you don’t make trouble here ...’

Most important, example [8] shows clearly that the relative clause must be CONJOINED to the two main clauses. It is simply impossible for the same clause to be simultaneously ADJOINED to two different clauses; and deriving the relative clause from an underlying center-embedded postnominal position would be preposterous — how can a single clause be simultaneously embedded under two different NPs, in two different clauses? In Hock 1989a I therefore propose to conceive of the relation between the relative clause and the two correlative clauses as in Figure I. The formalism is, of course, antiquated, but the syntactic relation must be something along these lines. (Davison 2009 proposes CP adjunction for structures in which the relative clause precedes, in contrast the IP adjunction, which stands for the traditional adjunct analysis.)

- [8] [sā_i vai dai_{vī} vāg]_{CC}
 [yayā_i yad_j yad_j eva vādati]_{RC}
 [tat tad_j bhavati]_{CC} (BAU 1.3.27)
 ‘That_i is divine Speech by which_i whatever_j one speaks, that_j comes about.’
 ≈ ‘Whatever one speaks by means of divine Speech comes about.’

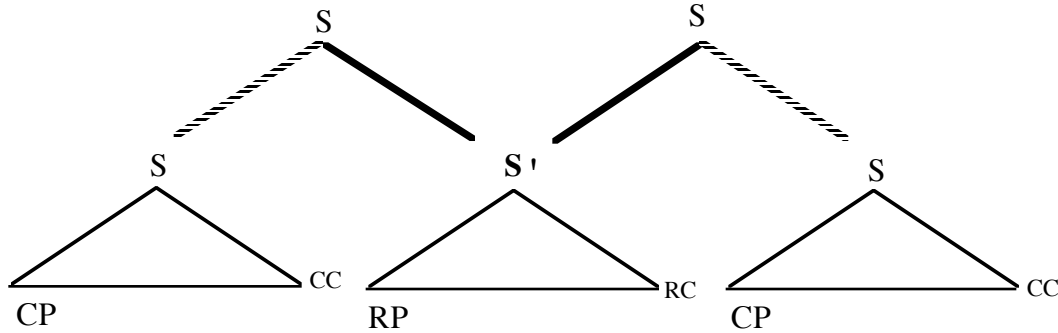


Figure I: Hock's (1989a) account for example [8]

3.3. Some issues of agreement

Pāṇini addresses some issues of agreement, in two places. One is the ekaśeṣa sūtras which address the issue of gender resolution under the specific circumstance of one word taking the place of two conjoined ones (1.2.64-73); the other are the sūtras governing person agreement between surface subjects (kartṛs or karmans) and the la-kāra of the verb (1.4.104-107). But many aspects of agreement are not covered, except perhaps implicitly under the notion of samānādhikaraṇa ‘coreference’.

In this section I map out some issues of Sanskrit agreement that I believe should be of interest, especially to linguists working on computational analyses of Sanskrit syntax.

A fairly straightforward issue is the question of gender agreement with mixed-gender conjunct antecedents, where two different strategies can be observed. One is agreement with the nearest conjunct, as in [10]; the other is gender resolution as in [11].

- [10] kāntimatī rājyam idam mama ca jīvitam apy adyaprabhṛti tvadadhīnam (Daś. 135)
'Kāntimatī [f.sg.], and this kingdom [n.sg.], and also my life [n.sg.] [is] from today under your control [n.sg].'
- [11] a. so 'śvīnau ca sarasvatīñ copādhāvaca chepāno 'smi namucaye ... (iti) || te 'bruvan ... (SB 12.7.3.1-2)
'He (Indra) went to the Aśvins [m.du.] and Sarasvatī [f.sg.], (saying) "I have sworn to Namuci ..." They [m.pl.] said ...'
- b. mṛdam gām daivataṁ vipraṁ ghṛtaṁ madhu catuṣpatham | **pradakṣiṇāni** kurvīta (Manu 4.39)
'He should keep on his right a lump of earth, a cow, an idol, a brahmin, ghee, honey, and a crossroads.'

As I show in Hock 2012b, Speijer's analysis for post-Vedic Sanskrit gender resolution (1886: 19-20), going back to Borooah (1879), best accounts for the Vedic evidence: In the case of mixed-gender antecedents that are entirely human (or animate), gender resolution is in favor of the masculine; in all other cases, including cases like [11b], where non-human/inanimate and human antecedents are mixed, the result is neuter, except that in Vedic texts some inanimate, but sacred antecedents such as the sun, the earth, or the sky may be treated as animate/human.

In the case of nearest-conjunct agreement, there is the a priori possibility that a modifier to the left may show agreement with the left conjunct, and one to the right with the right conjunct; see Arnold, Sadler & Villavicencio 2007 for Portuguese and Johnson 2008 for Latin. As it turns out, an example of this "mirror-image" agreement can also be found in Sanskrit; see [12]. It remains to be seen whether this kind of agreement occurs more frequently, and whether it does so in post-Vedic.

- [12] **vyāmamātrau** pakṣau ca pucaṁ ca **bhavati** (TS 5.2.5.1)
'the two wings [m.du.] and the tail [n.sg.] are (lit. is [sg.3]) measuring-a-fathom [m.du].'

While with the exception of the "mirror-image" agreement, the phenomena discussed so far are rather mundane, another type of agreement presents greater challenges. This is what may be called "Upside-Down" agreement.

The best-known variety of this agreement is widespread in Vedic Prose, as in [13], but is also found in the later language. This is the fact that pronoun subjects normally adopt the agreement features of their predicates, rather than the other way around. As far as I can tell, this usage was first introduced into the discussion of Sanskrit syntax by Speijer (1888: 18). The feminine singular marking on *sā* in example [13] shows that at least in Vedic Prose this pattern of agreement is clause-bound, and that structures of this kind do not exhibit cross-clausal anaphoric gender agreement (which would have required nominative masculine *te*).

- [13] ye tuṣāḥ sā tvag (AB 1.22.14)
'What (masc.) are the shells (masc.) that (fem.) is the skin (fem.).'

As it turns out, Upside-Down agreement must also be postulated for locative (and genitive) absolute constructions, such as [14]; see Hock 2009 MS.

- [14] a. vr̥te tu naiṣadhe bhaimyā lokapālā ... nalāyāṣṭau varān daduḥ (Nala 5.33)
'The Niṣadhan having been chosen by Bhaimī, the world rulers gave Nala eight boons.'
- b. teṣu gacchatsu vyaṁ sthāsyāmaḥ
'With them having gone, we will stay.'
- c. gantavye na cirāṁ sthātum iha śakyam
(MBh 1.150.4, Speijer 1886: 286)⁶
'As/since we have to go, it is not possible to stay here for long.'
Lit. "(It) having to be gone, it is not possible to stay here for long."
- d. gantuṁ niścītacetasi priyatame sarve samāṁ prasthitā
gantavye sati jīvitapriyasuhr̥t sārthaḥ kim u tyajyate ||
(Subhāṣitaratnakoṣa 1151)
'Together all set out to go to the determined-minded dearest one. (It) having to be gone, how is the dear friend of one's life, having the same goal, getting left behind?'

The nearest analogue for analyzing such constructions would be that of nominalization, which embeds a subordinate proposition into a matrix clause by means of a nominal form of the verb, whose case marking signals the status of that proposition within the matrix clause. See Yoon (1996) for an analysis of such structures.

The major difference between "ordinary" nominalizations and structures of the type [14] is that the latter involve an adjectival form, rather than a purely nominal one, a form which therefore must be supplied with gender and number features, in addition to the locative that signals the function of the construction within the matrix clause. Note that in the synchronic grammar of Sanskrit the locative case has to be assigned to the participle, not to its underlying subject, because of the fact that locative participial case marking is not restricted to structures in which the participle has a subject to agree with such as [14ab], but is also found in impersonal, subject-less structures like [14cd].

Note further that under this analysis, the subject of the participle, if any, is not in a position governed by a verb that could assign case to it; the only features that the syntax can assign to it are gender and number.

A possible way to account for the fact that the participle nevertheless gets gender and number features agreeing with its underlying subject, and that the subject, in turn, receives case, lies in adopting the post-syntactic Distributed Morphology approach of Halle & Marantz 1993. As illustrated in Figure II, in this analysis the syntactic output only has the abstract features plural

⁶ The Critical Edition instead has *gantavyam na ciram sthatum iha śakyam* (MBh 1.142.21)

masculine for the underlying subject of the locative absolute, and locative for the participle. The rest of the features needs to be filled in by the Morphology. The gender and number features of the participle are filled in by “normal” agreement control, but the case feature of the subject is supplied by “Upside-Down” agreement from the participle. (In impersonal structures like [14cd], the participle receives the usual neuter singular default features.)

Syntactic Output	tad [pl.m]	gacchat [Loc]	vayaṁ sthāsyāmaḥ
Morphology: Input	tad-∅ [pl.m.]	gacchat-∅ [Loc.]	vayaṁ sthāsyāmaḥ
Coreference	tad-∅ pl.m	gacchat-su Loc.pl.m.	vayaṁ sthāsyāmaḥ
Upside-Down	te-ṣu Loc.pl.m	gacchat-su Loc.pl.m.	vayaṁ sthāsyāmaḥ

Figure II: Locative Absolute with “Normal” and “Upside-Down” Agreement

This analysis is similar in spirit to that of Pāṇini’s account for the locative absolute, which assigns locative case to the form expressing the subordinate verbal action (*bhāva*), rather than to a nominal constituent; see [15]. However, Pāṇini’s focus, if I understand it correctly, is on the (implicit) subject of the participial structure. The fact that structures such as [14cd], without subject, also have locative, expressed only on the verb and with the usual default neuter singular agreement, shows that case assignment has to be on the participle first and then percolates from the participle to the subject, if any. (Although Pāṇini does not provide an explicit account for the locative case marking on the agent of a locative absolute construction, we can infer that he would do so in the same manner as for any other cases of agreement, namely under coreference (*samānādhikaraṇatva*.)

- [15] *yasya ca bhāvena bhāvalakṣaṇam* (3.2.37)
‘the locative ending (is) also introduced (after an element) on account of whose action (there is) qualification of (another) action.’⁷

⁷ A priori *yasya* could refer to the agent of the action *bhāva*, or to the word expressing the action. The latter is the usual interpretation and is made explicit in the *Kāśikā Vṛtti: yasya ca kriyayā kriyāntaram lakṣyate tato bhāvavataḥ saptamī vibhaktir bhavati* ‘locative case is also (used) after a word characterizing an action (*bhāvavata*) by whose action another action is characterized’. Joshi & Roodbergen (1980: 87-88) interpret *bhāva* as ‘state’, distinguishing it from *kriyā* ‘action’. However, Cardona (1976: 197 w. ref.) notes that both terms are used to refer to actions.

3.4. *Converbs (ktvā⁸), Reflexives, Oblique Subjects, and Syntactic Bracketing*

In discussions of modern South Asian syntax, converbs (variously referred to as absolutes, conjunctive participles, gerunds, and the like) combined with reflexivization and word order play a significant role as criteria that determine whether non-nominative constituents can be considered to be Subjects or not. See for instance the various contributions to Verma & Mohanan 1990.

Of these three features, only the syntax of converbs is addressed in the Pāṇinian tradition. The discussion in Speijer's *Syntax*, however, suggests that reflexives exhibit a similar syntactic behavior to converbs (1886: 200 and 297-298). More comprehensive discussions, which include not only converbs and reflexives, but also word order, are Hock 1986, 1990, 1991 (with references). This section surveys the major issues and findings.

Pāṇini's account for converb (ktvā) syntax is well known (see [16]), and its provision that ktvā requires identity of kartṛs, i.e. underlying subjects, is well motivated. The dominant pattern, at least for post-Mantra-Vedic,⁹ is that this provision holds not only for active structures, where underlying and surface subject are identical, but also for passive or passive-like structures, where they are not. See Hock 1986 for discussion.

- [16] samānakartṛkayoḥ (3.4.21)
'(ktvā) is introduced under the condition of identity of kartṛs (in past-tense reference)'

The syntax of reflexives is not covered in the Pāṇinian tradition, and most western discussions focus on Vedic and/or its Indo-European origins; see Vine 1997, Hock 2006, Kulikov 2007 for recent discussions. In his coverage of reflexives, Speijer (1886: 200) notes similar conditions for the use of reflexives as for that of converbs (1886: 297-298), without however trying to link the two phenomena. In a series of papers (Hock 1982b, 1986, 1987, 1990, 1991) I have shown that, just like converbs, reflexives are controlled by kartṛs, i.e. underlying, rather than surface subjects. Moreover, in the same publications I have shown that word order, too, is sensitive to the notion kartṛ, rather than surface subject.

Examples for kartṛ control of converbs and reflexivization abound; see e.g. [17], [18], and [19] which focus on instrumental-marked kartṛs. Note especially [19], which has both converb and reflexive control.

- [17] tatas tam āyāntaṁ **dr̥ṣṭvā** pakṣiśāvakair ... kolāhalaḥ kṛtaḥ (Hit. 1.4)
'Then, upon seeing him coming, the young birds made a racket.'

⁸ Here as elsewhere ktvā also stands for its replacement lyap.

⁹ For the Mantras, Hock (1982b, 1986, 1987, 1990, 1991) finds some (limited) evidence for surface subject, rather than underlying subject (kartṛ) control of converbs in passives and passive-like structures, and somewhat more robust evidence as regards words order and reflexive control. Zakharyin (1998) questions this finding, but his discussion only focuses on converbs and does not address the broader evidence of word order and reflexivization.

- [18] **sveṣu** sthāneṣv avahitair bhavitavyaṃ bhavadbhiḥ
(Vikram 1, p. 2; Speijer 1886: 199)
'Your lordships must be attentive on your own seats.'
- [19] atha tena taṃ śatruṃ **matvā** + **ātmānaṃ** tasyopari **prakṣipya** prāṇāḥ parityaktāḥ
(Pañc. 70; Speijer 1886: 297)
'Then he₁, considering him₂ an enemy, threw himself₁ on top of him₂ and gave up his₁ ghost.'

Although converb and reflexive control by the kartṛ (whether nominative or instrumental) is the most common pattern in Sanskrit, there are examples where other constituents — or no constituents in the same clause — seem to exert control. See the examples in [20] – [26] which focus on converb control, with the exception of [25c] which shows that genitive-marked NPs also can control reflexives.

- [20] a. alaṃ viśādena bilaṃ **praviśya** (l) vasāma sarve yadi rocate vaḥ (Rām. 4.52.31)
'Enough of entering the cave in despondency. All of us are staying if it pleases you.'
b. **aprāpya** nadīm parvataḥ sthitaḥ (traditional example for Pāṇ. 3.4.20)
'Not having reached the river (i.e. on this side of the river) stands the mountain.'
- [21] oṣadhīr **jagdhvā** + apaḥ **pītvā** tata eṣa raśaḥ sambhavati (ŚB 1.3.1.25)
'(The animals/somebody) having eaten the plants, having drunk the waters, from that arises this essence.'
- [22] a. ātithyena vai devā **iṣtvā** tān t-samaḥ avindat (ŚB 3.4.2.1)
'The Gods having sacrificed with the guest-offering — discord befell them.'
b. taṃ hainaṃ **dr̥ṣtvā** bhīr viveda (ŚB 11.6.1.7)
'Having seen him (i.e. someone else), fear befell him.'
- [23] a. **śrutvā** tv idam upākhyānam ... anyan na rocate [tasmai] (MBh.1.2.236)
'(He) having heard this story, another (story) does not please him/he does not like another (story).'
b. dvija siprānadīm **gatvā** tubhyam ahaṃ mantraṃ dāsyāmi
(Vetalapañcaviṃśati, ed. Emeneau 92.20-21)
'O brahmin, I will give a mantra to you, (you) having gone to the river Sipurānadī.'
- [24] paścād vai parītya vṛṣā yoṣām adhidravati
paścād evainām etat **parītya** vṛṣṇā ... (a)dhidrāvayati (ŚB 1.9.2.24)
'The bull mates with the female approaching her from behind. He makes the bull mate with her, (the bull) having approached her from behind.'
- [25] a. (h)**atvā** vṛtraṃ **vijitya** yuṣmābhir me 'yaṃ saha somapītha(h) (KB 15.2)
'Having slain Vṛtra, having conquered, this soma-drinking with you is mine.'

- b. susnātam puruṣam **dr̥ṣṭvā** strīṇām klidyanti yonayaḥ
(Vetālapañcaviṃśatikā, ed. Uhle 15.37-38)
'Having seen a well-bathed/graduated man, women's vaginas get wet.'
- c. sā hi **svā** rājadhānī (Kathās. 39.163)
'for this is my (= the speaker's) royal city'

[26] ity eva kāle śyenena + **ānīya** khādyamānasya sarpasya garalam
tadravye nipatitam (Vetālapañcaviṃśati, ed. Emeneau 76.11-13)
'At that very time, the venom of a snake being eaten by a hawk, (the hawk)
having carried it off, fell into his food.'

Faced with such a variety of different structures, some scholars may opt for claiming that there is no purely syntactic criterion for control and that any element that is somehow salient may serve as controller. This is close to what Zakharyin (1998) proposes.

A heuristically and theoretically more interesting position is to try to determine whether some or all of these "exceptional" structures can be accounted for by additional generalizations.

This is, of course, what Pāṇini has done — for structures like [20a] by means of sūtra 3.4.18 (see also 3.4.19) and for [20b] by 3.4.20 — with 3.4.21 taking care of "elsewhere". In both cases we are probably dealing with some kind of grammaticalization. The one in [20b] could be compared to later grammaticalizations such as *adhikṛtya* 'about', *ādāya* 'with', *ārabhya* '(starting) from' which likewise do not seem to be sensitive to control by any particular constituent.

As far as [21] and [22a] are concerned, these seem to be peculiarities of Vedic Prose; see Delbrück 1888: 408. Hock (1987) accounts for them under the notion "reduced-clause" structures, a phenomenon not limited to converbs but also found with participles.

Example [22a], however, could also be analyzed as comparable to [22b] which, together with [23a], could be — and has been — taken as equivalent to Modern Indo-Aryan Oblique Experiencer Subject constructions; see Hook 1976, 1984 for [23a], and Zakharyin 1998 more generally.

Structures of this sort, however, are extremely rare and, in the aggregate, no more frequent than structures like [23b] in which a non-experiencer indirect object controls the converb, or [24] where the converb's dependence on the causee of *adhidrāvayati* may be dittological from the preceding non-causative construction with *adhidravati*. At any rate, all of these structures are quite rare and can be dismissed as occasional examples of "loose" (or "sloppy") control.¹⁰

The examples in [25], by contrast, exemplify a much more common pattern — control by genitive-marked possessor NPs. The fact that examples of control by non-kartṛs (in Pāṇini's sense) are especially common with genitive-marked NPs was already noted by Speijer (1886:

¹⁰ Interestingly, if structures like [22b] and [23a] were to be analyzed as Oblique Experiencer Subject constructions — or as forerunners of such constructions — accusative-marked experiencers would seem to occur more frequently than dative-marked ones. In Modern Indo-Aryan, it is dative-marking which prevails. — On the syntax of *ruc* see also Cardona 1990 and Deshpande 1990.

298) who considered these NPs to be exemplars of his “dative-like genitive” category. Focusing on converb and reflexive control, as well as word order, I have argued (Hock 1990, 1991) that Possessor NPs must be recognized as a highly productive alternative to kartṛ control. (In his very different approach to the syntax of Rig Vedic reflexive *sva*, Vine (1997) similarly finds that genitive-marked NPs are the most common alternative to subject NP controllers.)

Finally, example [26] shows the need for being sensitive to syntactic bracketing. The converb *ānīya* is controlled by the kartṛ (*śyena*) of the participial structure headed by *khādyamāna*, not by the kartṛ (*garala*) of the matrix-clause verb *nīpatitam*. See the bracketing in [26]. For further discussion see Hock 1986, 1987.¹¹

- [26] [ity eva kāle
 [śyenena + ānīya khādyamānasya]
 sarpasya garalam taddravye nīpatitam] (Vetālapañcaviṃśati, ed.
 Emeneau 76.11-13)
 ‘At that very time, the venom of a snake being eaten by a hawk, (the hawk)
 having carried it off, fell into his food.’

While this phenomenon is not overtly addressed in the Pāṇinian tradition, there is nothing in that tradition that would prevent it. Given that their suffixes replace la-kāras (3.2.124, 3.4.70-71), participles are allowed to have their own kartṛs, and these kartṛs can control converbs (and reflexives) in their own domain.

Complications do however arise because participial structures are normally integrated into their matrix clauses without being set off by clear boundaries. As a consequence, in very similar structures, such as [27ab], both involving the participle form *gacchan*, it may be either the kartṛ of the entire sentence or that of the participial structure that controls the converb. In fact, as [27c] shows, it is possible for one converb to be controlled by one kartṛ, another by the other.

- [27] a. [sa yajñārthe ...
 [chāgam **upakriya** ... gacchan]
 dhūrtatrayeṇa + avalokitaḥ]
 (Hitopadeśa 43.5-6)
 ‘He, having bought a goat for the purpose of sacrifice ..., (as he was)
 going was noticed by a trio of rogues.’
 b. [taṁ putram **darśayitvā** + anena gacchan jaṭādharah samānītaḥ]
 (Vetālapañcaviṃśatī, ed. Emeneau 28. 5-6)
 ‘Having showed that boy to him he brought (back) the mendicant (as he was)
 going.’
 c. [[tān **vijitya** yathālokam āsīnān]
 indra **etya** + abravīt] (JB 1.156)

¹¹ Speijer (1886: 297-298) comes close to realizing the need for some kind of bracketing by noting that [apparent] control by locative NPs is common in locative absolute constructions. Vine (1997) similarly weighs the possibility that some instances of apparent non-subject control of reflexives may be accounted for by something like bracketing.

‘Indra, having come up, said to them, (who were) sitting according to their own worlds, having won.’

3.5. Double Direct Object constructions and Causatives

In Pāṇini’s sūtras defining karman (see [28]), 1.4.51 has met with considerable problems of interpretation. The commentatorial tradition agrees that it is intended to cover Double-Direct Object constructions such as [29], but how it does so does not seem have received a satisfactory explanation; see Deshpande 1991. The evidence of the textual tradition makes it clear that either of the two complements in these structures behaves like a true direct object, being promotable to surface subject — if it occurs by itself; see [30]. However, if both complements are present, only the more agentive one can be promoted; [31]. See Hock 1985, In Press (b) for further discussion; see also Ostler 1979 and van de Walle 1992.

- [28] a. kartur īpsitatamam karma | tathāyuktam anīpsitaṁ ca (1.4.49-50)
‘That which is most desired by the agent is karman: and also that which is not desired (but) linked (to the action) in the same way;’
- b. akathitaṁ ca (1.4.51)
‘also what (is linked in the same way and) has not been as yet specified;’ (?)
- c. gatibuddhipratyavasānārthaśabdakarmākarmakāṇām aṅikartā sa ṇau | hr̥kror anyatarasyām (1.4.52-3)
‘also the non-causative agent in the causative of roots meaning ‘go’, ‘understand’, ‘consume’, ‘communicate’, (and) intransitives, and (optionally) of hr̥- and kr̥-.’
- [29] a. kád u bravaḥ ... n̄ṛṇ (RV 10.10.6) (SPEAK)
‘What will you say to the men?’
- b. tát tvā yāmi ... (RV 1.24.11a) (ASK/ENTREAT)
‘... that I request from you.’
- c. duduhre páyaḥ ... řṣim (RV 9.54.1) (MILK)
‘They milked the milk (from) the sage.’
- d. devān ásurāḥ yajñām ajayan (MS 1.9.8) (WIN)
‘The asuras won the sacrifice (from) the gods.’
- e. yád ámuṣṇīta ... paṇím gāḥ (RV 1.93.4) (ROB)
‘... when you robbed the cows (from) the miser.’
- f. tān sahasraṁ daṇḍayet (Manu 9.234) (PUNISH)
‘... he should fine/punish them (with) a thousand.’
- [30] a. (a)sya vāg uditā bhavati (AB 1.6.12) (SPEAK)
‘His speech is spoken.’
sa ha + indreṇa + ukta āsa (ŚB 14.1.1.19)
‘He was addressed by Indra.’
- b. rayír víbhūtir īyate ... (RV 6.21.1) (ASK/ENTREAT)
‘Great wealth is implored.’
rājā medhābhir īyate (RV 9.65.16)
‘The king is implored with insight.’

- c. ... pibatu dugdhám amśúm (RV 5.36.1) (MILK)
 ‘May he drink the milked (= expressed) soma.’¹²
 duhyánte ... dhenávo (AV 7.73.2)
 ‘The cows are being milked.’
- d. svàr marútvatā jitám (RV 8.76.4) (WIN)
 ‘The sun has been conquered by (Indra) accompanied by the Maruts.’
 āsurī yudhā jitā (AV 1.24.1)
 ‘The asura woman, defeated in battle.’
- e. ned v eva nagna iva muṣita iva śayātā ity ... (ROB)
 (ŚB 1.2.2.16)
 ‘... lest he lie naked as it were, robbed as it were.’
- [31] a. vijayam uktas taiḥ (Kathās. 18.247) (SPEAK)
 ‘... (was) told (about) the victory by them.’
- b. vaśám indreṇa yācitāḥ (AV 12.4.50) (ASK/ENTREAT)
 ‘... asked by Indra for (his) cow’
- c. ... nábho duhyate ghṛtám páya(h) (RV 9.74.4) (MILK)
 ‘The cloud is milked for ghee, milk.’¹³
- d. ... sarvajyānim vā jīyate (KS 29.6) (WIN)
 ‘... or he is defeated a complete defeat.’
- e. himéva parṇā muṣitā vānāni (RV 10.68.10) (ROB)
 ‘... like trees robbed of their leaves by winter’¹⁴

While this much is known, questions remain. First, it is not clear why only certain verbs that are subcategorized for two complements have Double-Direct Object constructions. Even more puzzling — why do some verbs belonging to the semantic sets SPEAK, ASK/ENTREAT, MILK, WIN, ROB fail to enter into Double-Direct Object constructions? Consider *kath-* which to my knowledge only takes the addressee in the dative, or *hr-* ‘take away’ which takes the ablative for the source person. Presumably, the verbs participating in the Double-Direct Object construction must be specifically listed in the lexicon (together with alternative case markings, if any; see Hock 1985). But this does not explain why many of the verb classes exhibit similar behavior in other Indo-European languages; see Hock In Press (b).

¹² Hettrich (1994) cites *dugdhó amśúḥ* (RV 3.36.6d), glossed as ‘der ausgemolkene Stengel’, as an example of the source, rather than the substance NP becoming the passive subject. However, the present example suggests that *amśú* has become simply an epithet of soma, the ingestible substance produced in the ritual.

¹³ Hettrich notes that the example is formally ambiguous, since both *nábhaḥ* and *ghṛtám páyaḥ* can be both nominative and accusative. The singular on the verb and the initial placement of *nábhaḥ* favor an interpretation that *nábhaḥ* is the subject; but agreement with the nearest “antecedent” of the conjoined elements *ghṛtám* and *páyaḥ* is a possible alternative. Geldner takes *ghṛtám* and *páyaḥ* to be the subject.

¹⁴ As noted by Hettrich, formally this passage is ambiguous. However, the context favors the interpretation given here: *himéva parṇā muṣitā vānāni bṛhaspátinākrpayad való gāḥ* ‘Like the trees robbed of their leaves by winter, Vala mourned for the cows (taken from him) by Bṛhaspati.’ (Geldner: ‘Wie die Bäume ihre vom Frost geraubten Blätter so vermißte Vala die von Bṛhaspati (geraubten) Kühe.’)

Problems of a different sort arise regarding Pāṇini 1.4.52-53 which classifies the causees of certain verb classes as karman (optionally for *hr* and *kr*) and leaves others as kartṛs which, being anabhihita, surface in the instrumental. As Speijer (1886:36-7 with reference) notes, a very different situation obtains in the Classical language, irrespective of verb class:

‘If one wants to say “he causes me to do something, it is by his impulse I act”, there is room for the [accusative causee], but if it be meant “he gets something done by me, I am only the agent or instrument through which he acts”, the instrumental is in its place ...’

As shown in Hock 1981, this pragmatically sensitive marking convention is already found in the early Vedic Prose texts; see [32] and [33], where the verb in [32] belongs to the categories of verbs that by Pāṇini 1.4.52 should take karman, and the verb in [33] does not. The phenomenon can therefore not be attributed to post-Pāṇinian innovation. Rather, the difference between Pāṇini and the textual tradition of Madhyadeśa most likely reflects a difference in regional dialect. See Hock 1981, 2012a, To Appear, as well as Deshpande’s pioneering paper on “Pāṇini as a frontier grammarian” (1983).

- [32] a. dyāvapṛthivī bhūvaneṣu ārpite (TS 4.7.13.2)
‘Heaven and earth have been made to reach the worlds.’
- b. amūm te śúk | ṛchatu ... yám evá dvéṣti tám asya kṣudhā ca śucā ca + arpayati
(TS 5.4.4.1-2; similarly passim)
‘Your pain should go to him; whom indeed he hates, to him he makes his hunger and pain go.’
Or: ‘... him he afflicts with his hunger and pain.’
- [33] a. oṣadhīr eva phalaṁ grāhayati (KS 26.5)
‘He causes the plants to take fruit.’
- b. váruṇenaiva bhrátrvyam grāhayitvā brāhmaṇā str̥ṇute
(TS 2.1.8.2, similarly KS 13.4)
‘Having caused Varuṇa to seize the enemy, he lays him low with the sacrificial formula.’

3.6. “Asamartha” compounding

The syntax of constructions such as [34], called “Asamartha Compounds” by Gillon (1993), was first addressed in Patañjali’s commentary on Pāṇini 2.1.1 (Kielhorn-Abhyankar edition 1.359.21-361.24). The fact that in the reading of [34], *devadattasya* does not modify the head (*kula*) of *gurukulam*, but the non-head (*guru*), leads to a lengthy discussion, with one side arguing that the interpretation is acceptable and another one that it is not, since only heads can have external modification. The issue is in effect left unresolved. By contrast, Bhartrhari (Vākyapadīya 3.14.47) accepts the grammaticality of such structures if the non-head is a relational noun, such as ‘father’, ‘son’, ‘teacher’, ‘student’.

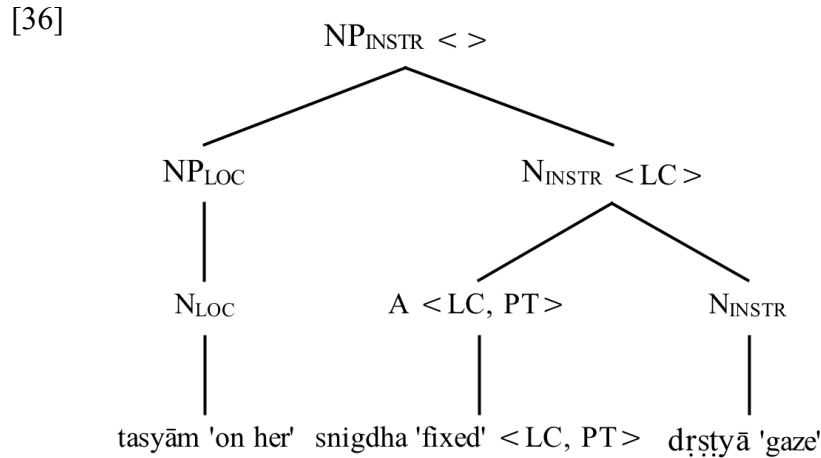
- [34] devadattasya guru-kulam
‘Devadatta’s teacher’s family’

That this issue is not just an idle invention of the grammarians is shown by the fact that structures of this sort do in fact occur, such as [35a]; and as shown by [35bc] other structures that would not be amenable to Bhartṛhari’s account are also found. As far as I can tell, Whitney (1889: 515) was the first western scholar to note the existence of such structures.

- [35] a. dantāghātasya ... duhituḥ padmāvatyā dhātṛisvasāham
(Vetālapañcaviṃśatī, Emeneau edition, 16.16-17)
‘I am the sister of the nurse of Padmāvati, the daughter of Dantāghāta ...’
- b. tasyām snigdhadṛṣṭyā sūcitābhilāṣaḥ (Śakuntalā 3.9.16)
‘... whose affection was indicated by his gaze fixed on her.’
- c. citta-pramāthinī bālā devānām api sundarī (Nala 1.18)
‘A beautiful girl disturbing the minds even of the Gods.’

In a recent paper, Kiparsky argues that structures like [34] can be interpreted as ‘apparent syntax/morphology mismatches [that] should be treated’ in terms of a semantic inheritance mechanism whereby ‘properties of individuals become properties of groups to which individuals belong’, as in *a laughing group of children* which really means ‘a group of laughing children’ rather than merely ‘a laughing group consisting of children’ (2009: 48).

A more comprehensive analysis is that of Gillon (1993, 1995). Adopting Bhartṛhari’s notion of “relational noun”, he concludes that non-heads that are associated with a kāraka or ‘whose meaning presupposes some kind of relation’ are permitted to take external heads. This allows him to account not only for the type [34]/[35a] but also for [35b], under the assumption that unlike languages such as English, Sanskrit allows transmission of unsaturated argument positions not only for heads but also for non-heads; see the diagram in [36].¹⁵



In a forthcoming paper, Molina Muñoz notes that while Gillon’s account works for [35a] and [35b], it does not for the type [35c], where *citta* is not a “relational noun” and where *devānām* is not an argument of *citta*, but syntactically merely an adjunct. She therefore argues that a different explanation is required which, in principle, works for all subtypes under [35]. Starting out with

¹⁵ This is Molina Muñoz’s (In Press) rendition of Gillon’s diagram.

Schäufele’s notion of “liberation” or “node erasure” and Pāṇini’s account for compounds as combining full words (saha supā, 2.1.4), she proposes to derive (productive) compounds in a post-syntactic component along the lines of Halle and Marantz’s (1993) distributed morphology. Compounding, under this account, can take place between two neighboring semantically compatible words in the output of the syntax and after liberation, which erases syntactic nodes and potentially, but not necessarily moves words or phrases to other positions in the clause. Example [35c] serves as an excellent example, since in this case the movement of *devānām* and *bālā* out of their original complex NP provides positive evidence for node erasure; see Figure III. (Note that *api* moves along with *devānām* because of its quasi-clitic nature.) Structures such as [35a] and [35b], then, would also be analyzed as involving node erasure, but without any overt movement.

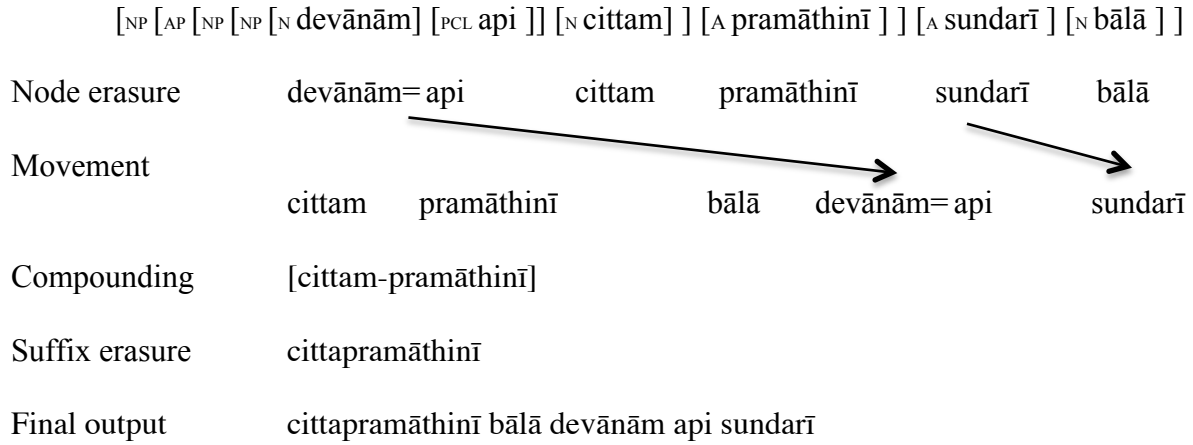


Figure III: Node Erasure, Movement, and Compounding in [35c]

4. Functional issues that should be of interest to computational approaches

In this section I address several functional or usage aspects of particular grammatical phenomena, including genre-based usages, that should be of interest to those engaged in computational analysis of Sanskrit texts. In fact, attention to genre differences and their influence on the choice of syntactic processes can also pay off for formal analyses. Consider the interaction between genre and word order discussed in §3.1 and the more comprehensive discussion in Hock 1997, 2000. Conversely, as we will see, discourse phenomena can raise interesting questions for formal analyses.

One difficulty with functional investigations is that they tend to be highly specific. For instance, Gonda (1942) observes that although, using recent terminology, Sanskrit is a “Pro-Drop” language, personal pronouns are common in dialogues. Jamison (1991) similarly focuses on dialogues in Vedic Prose which, as she notes, exhibit interesting differences from the technical discourse that surrounds them, including a much greater use of deictics such as *idam*, *adaḥ*, rather than demonstratives such as *tad*, *etad*. As regards the Vedic-Prose difference between *tad* and *etad*, Hock (1982a) finds that *etad* is preferred in cataphoric contexts, while *tad* is anaphoric or unmarked. My impression is that this difference holds also for Classical Sanskrit. Mark Hale

(1991) comes to different conclusions for the Taittirīya Saṁhitā. This is an issue that deserves fuller study. Still in the area of pronoun usage, van de Walle (1991, 1993: 119-120) notes that, while plural may be used for politeness (as in *bhavantaḥ* for *bhavān*), second plural pronouns are rarely used with singular reference. Normally either the second singular pronoun or a form of *bhavat* is used — sometimes even within the same (complex) sentence. (Van de Walle’s work, however, is not limited to pronoun use but addresses the broader issue of linguistic politeness — and distancing — in Classical Sanskrit.)

Tsiang Starcevic’s study of 1997 is a broad investigation of the use of finite (i.e. relative clause) vs. non-finite (participle, converb) subordination in Sanskrit narratives. See also Tsiang & Watanabe 1987, which focuses on the rhetoric of Fable narratives. An important finding is that non-finite structures dominate in narrative portions and that finite relative clauses tend to be restricted to dialogues embedded in the narratives.

In his monumental study of relative-clause syntax, Hettrich (1988: 745-57) claims that appositive or non-restrictive relative clauses were a feature of Proto-Indo-European poetic language, surviving in Mantra Vedic, but becoming rare in Vedic Prose and disappearing in Post-Vedic. Hock (1993) argues that the difference between Mantra and Prose can be explained in terms of genre and that non-restrictive relative clauses continue to be used in the Classical language. It would be interesting to investigate whether different Classical genres exhibit similar differences as those between Mantra and Prose Vedic.

In the following I take a more detailed look at Fronting and Extraposition, two general movement processes, both of which have interesting discourse, genre, and grammatical characteristics.

4.1. Fronting

Fronting processes play a significant role in a number of different genres, both in Vedic and in the Classical language

4.1.1. Initial strings in Vedic

Vedic-Prose texts are characterized by complex initial strings, such as [37a], consisting of topicalized elements (commonly nominal or pronominal), demonstrative and other pronouns, as well as particles. Similar, but generally less complex and shorter strings are also found in the Mantra language. Mark Hale (1987, 1996) proposes syntactic movement accounts, with some prosodic readjustment, for strings of this sort; see also Keydana 2011. By contrast, Hock (1982a, 1996, 1997) proposes a fully prosodic account, both in terms of a template defining their linear order and in terms of their domain of occurrence. Especially relevant in this regard is the evidence of the Mantra language, where initial strings may occur line-initially [37b] or even post-caesura [37c] in run-on lines — i.e. in prosodically defined domains, rather than the syntactically defined domain of clause-initiality.

- [37] a. **etām_i v eva + eṣa_i + eta_{smai} viṣṇur_i yajño vikrāntim_i viçakrame** (ŚB 1.1.2.13)
‘This Viṣṇu, the sacrifice, stepped this (world-conquering three-fold) stepping for him (the sacrificer).’
- b. hótāraṃ viśvāvedasaṃ (I) **sām hí tvā** vísa indhāte (RV 1.44.7ab)
‘For the clans light you as the all-knowing hotr.’
- c. vípraḥ présthah : **sá hy èṣām** babhūva (RV 10.61.23c)
‘For he was of/for them the dearest singer.’

To my knowledge, strings of this sort do not survive in the post-Vedic language; but see §4.1.3 for “Linkage Strings”.

4.1.2. Predicate-Subject order

The fact that predicates frequently precede their subjects, as in [38], has attracted western scholar’s attention from an early period. Speijer (1886: 10) considers this the normal order in Sanskrit, but notes that ‘Pronouns, it seems, may be put indiscriminately before or behind their noun-predicate’ (1886: 10); and in his 1896 monograph, he adds the further restriction that subject pronouns normally precede their predicates. Delbrück (1878: 27), by contrast, while acknowledging the pervasive presence of predicate-subject order in Vedic Prose, considers it marked: ‘Der Grund für diese Stellung liegt auf der Hand. Das Subject is nämlich bekannt, das Praedikatsnomen aber bringt etwas Neues hinzu, und tritt also nach dem allgemeinen Gesetz der occasionellen Wortstellung vor.’ [‘The reason for this position is obvious. The subject is known, but the predicate nominal adds something new and hence moves to the front according to the general law of occasional word order.’]

- [38] a. TEJO vai BRAHMA *gāyatrī* (KS 25.5)*
‘The *gāyatrī* is brilliance, brahman.’
- b. MANO vai *brhad* VĀG *rathantaram* ... (JB 1.128)
‘The *brhat* is mind, the *rathantaram* is speech ...’
- *Here as elsewhere in this discussion, subjects are marked by *italics*, predicates by SMALL CAPS.

For the post-Vedic language, Lahiri (1933) finds that contrary to Speijer, the normal order is subject-predicate; see also Hock In Press (a).

Even for Vedic Prose it is possible to show that predicate-initial order is marked. First, there are many examples like [39] in which only part of the predicate appears in initial, pre-subject position, while the rest remains stranded “downstairs”. Second, in longer series of equational structures, the order predicate-subject tends to break down, reverting to subject-predicate order; [40]. Finally, as noted in Hock In Press (a), predicate-initial order is regular only in a sub-genre of Vedic Prose, namely passages that equate instruments of the sacrifice (such as the meters, or body parts of the sacrificial animal) with more abstract or “supramundane” phenomena or qualities such as the Year (writ large), the Mind (again, writ large), or the World and its components.

- [39] a. MUKHYAU vā *āvām* YAJÑASYA svo (ŚB 4.1.5.16)
‘We two are the chiefs of the sacrifice.’

- b. BHŪYĀN vai *brāhmaṇaḥ* KṢATRIYĀD (AB 7.15.8)
‘A brahmin is better than a kṣatriya.’

[40] UṢĀ vā *aśvasya medhyasya śiraḥ*
SŪRYAŚ *caḥsur*
VĀTAḤ *prāṇo*
vyāttam AGNIR VAIŚVĀNARAḤ
SAMVATSARA *ātmā*
ūvadhyam SIKATĀḤ
SINDHAVO *gudāḥ*
yakṛc ca klomānaś ca PARVATĀḤ (BAU (M) 1.1.1)
‘The head of the sacrificial horse is the dawn; the eye, the sun; the breath, the wind; the open mouth, Agni Vaiśvānara; the body, the year ...; the food in the stomach, the sand; the blood vessels, the rivers; the liver and lungs, the mountains.’

Predicate-initiality, thus, is not basic, but results from (partial) fronting and, moreover, is a feature sensitive to genre and discourse. Moreover, as in the case of major constituent order, sensitivity to genre differences makes it possible to argue in favor of one formal analysis in preference to another. (See also §5 below.)

4.1.3. Narrative linkage and related issues

The use of converbs as narrative linkers at or near the beginning of the clause, as in [41a,d] is often considered a feature reflecting Dravidian contact; see e.g. Bloch 1930, Emeneau 1971. Under the name “Tail-Head Linkage” the phenomenon of nonfinite recapitulation has been shown to be more widespread in (folk) narratives, irrespective of syntactic typology (Thompson & Longacre 1985: 209-213); and under the term “Catena” it has been shown to occur also in Ancient Greek (Migron 1993). In Sanskrit, the use of converbs alternatives with that of *ta*-participles [41c] and locative absolutes [41d] in a system of “Switch Reference” (Haiman & Munro 1983), where converbs indicate kartṛ continuity, transitive *ta*-participles a switch to the karman of the preceding action, and locative absolutes a switch to some other actant. (See Hock 2013 MS.)

- [41] a. nāradasya tu tad vākyaṃ **śrutvā** vākyaaviśāradaḥ |
pūjayām āsa dharmātmā sahaśiṣyo mahāmuniḥ ||
b. yathāvat **pūjitas** tena devarṣir nāradas tadā |
āprṣṭvaivābhyanujñātaḥ sa jagāma vihāyasam ||
c. sa muhūrtaṃ **gate tasmin** devalokaṃ munis tadā |
jagāma tamasātīraṃ jāhnavyās tv avidūrataḥ ||
d. sa tu tīraṃ **samāsādya** tamasāyā mahīpatiḥ |
śiṣyam āha sthitaṃ pārśve dṛṣṭvā tīrtham akardamam ||
(Rāmāyaṇa 1.2.1-4)

‘When the eloquent one (Vālmiki) had heard this speech of Nārada, the righteous great sage (Vālmiki) and his disciples honored him. When the divine seer Nārada had been duly honored by him at that time, he went to

heaven, having asked for permission to leave and received it. When he (= Nārada) had gone to the heavenly world, the sage (Vālmiki) at that time went after a while to the bank of the Tamasā, not far from the Jāhnavī (= the Gaṅgā). But when he reached the bank of the Tamasā, the ruler of the earth, seeing a bathing spot free from mud, spoke to his pupil who was standing next to him.’

As shown in Hock 1994ab, narrative discourse linkage is accomplished by a variety of other fronting processes, including the fronting of demonstratives, finite verbs, conjunctions, or conjunction-like adverbs; see for instance [42]. Moreover, verbs — whether finite or non-finite — may be accompanied by complements and other “satellites”; and all the fronting processes may apply together, yielding “Linkage Strings” that can become quite complex, as in [43].

- [42] a. **tathai**vāsīd vidarbheṣu bhīmo bhīmaparākramaḥ | ...||
sa prajāthe param yatnam akarot ... |
tam abhyagacchad brahmaṣir damano nāma ... ||
tam sa bhīmaḥ ... toṣayām āsa dharmavit | (MBh. 3.50.5–7)
‘Likewise there was among the Vidarbans Bhīma of terrible prowess ... He made the utmost effort for the sake of progeny ... To him came a brahmin sage, named Damana ... Him that Bhīma gladdened, knowing dharma.’
- b. **abravīd** ṛtupaṇsa tam ... (MBh. 3.70.16)
‘(Then) Ṛtupaṇsa said to him ... ’
- c. **tato** ’ntarikṣago vācam vyājahāra ... (MBh. 3.50.19)
‘Then the bird said a speech ... ’

- [43] a. **tatas tā** naiṣadham **dr̥ṣṭvā** ... (MBh. 3.52.14)
adv. + *tad* + SAT + conv.*
‘Then they, having see the Niṣadhan ... ’
- b. **te tu** haṁsāḥ **samutpatya** ... (MBh. 3.50.21)
tad + conj. + SAT + conv.
‘But those swans, having flown up ... ’
- c. **praviśantīm tu tāṁ dr̥ṣṭvā** ... (MBh. 3.62.20)
pres.pple + conj. + *tad* + conv.
‘But having seen her entering ... ’

* Abbreviations: adv. = conjunction-like adverb, conj. = conjunction, conv. = converb, pres. pple. = present participle, SAT = “Satellite”, *tad* = demonstrative pronoun

As noted in Hock 2013 MS, Linkage Strings are the strongest indicators of narrativity, especially in the Epics. But even in Fable literature, which adopts a more concise narrative style (Tsiang & Watanabe 1987), linkage strings are more clearly linked with narrative than the use of individual linkers by themselves.

4.2. Extraposition

The functions of extraposition to post-verbal position are an issue that deserves further study. I am aware of three studies that treat certain aspects of the phenomenon.

4.2.2. Gonda's "Amplified Sentences"

The earliest is Gonda 1959, with its principle of Amplification — a common phenomenon both in Mantra Vedic and in the Epics, see e.g. [44]. As Gonda puts it, the structure before and including the verb (in this case *agnīm īḷe*) forms a complete sentence or proposition in itself; what follows is additional information that elaborates on what precedes (in this case on the object *agnīm*). In both Mantra Vedic and the Epics, extraposition serves to expound on the good and desirable qualities of the deity or the hero or heroine.

- [44] a. *agnīm īḷe* [puróhitam yajñásya devám ṛtvíjam | hótāram ratnadhātamam] (RV 1.1.1)
'I invoke Agni, the foremost God of the sacrifice, the priest, the hotṛ, most bestowing treasure.'
- b. *tatra sma rājate bhaimī* [sarvābharaṇabhūṣitā sakhīmadhye 'navadyāṅgī vidyut saudāmanī yathā ...
cittapramāthinī bālā devānām api sundarī] (Nala 1.12-14)
'There Bhaimī ruled, adorned with all ornaments, surrounded by her friends, having entirely praiseworthy limbs, like monsoon lightning ... the girl robbing the minds even of the Gods, beautiful.'

4.2.2. Purpose datives in Vedic Prose

A peculiarity of Vedic Prose, which generally is heavily — and some might say, unimaginatively — verb-final, is the frequent extraposition of dative purpose phrases, as in [45]. Delbrück (1888: 25) considers such structures a Satzanhang (clause appendix). More specifically, Hock (In Press a) argues for a genre-based use of extraposition, indicating a benefit that extends beyond the simple sacrificial action. The relation between the preceding structure and the extraposed dative phrase can thus 'be interpreted as an iconic reflex of the contrast between ritual-internal action and ritual-external benefit.'

- [45] a. *tāny āhur nānopetyāni | nāneva vā ime lokāḥ | eṣām lokānām vidhṛtyā* iti (JB 2.218)
'They say these (sāmans?) are to be undertaken variously — these worlds are various, as it were — for keeping apart these worlds.'
- b. *taṁ indrāgnī anusamatanutām | prajānām prajātyai* (ŚB 4.3.1.2)
'Indra and Agni preserved him (Soma); for the procreation of creatures.'
- c. *digvad bhavati bhrāṭṛvyasyāpanut[t]yai* (PB 12.4.10)
'It contains the word "direction", for repelling the enemy.'

4.2.3. Kartṛ backing and extraposition, and politeness

Wallace (1984) finds that backing of kartṛs to post-karman position in passives, gerundives, and *ta*-participle constructions, as in [46a], is a common feature of dialogues in the *Vetālapañcaviṁśati*, while narrative portions typically have the kartṛ in the unmarked initial

position. Based on the contextual evidence, he argues that this reordering serves purposes of politeness, indicating either modesty on the part of the speaker or deference to an addressee. As it turns out, the phenomenon is not limited to passive-like structures but also occurs in actives; see e.g. [46b]. Moreover, similar considerations probably account for the frequent extraposition of addressees or speakers, as in [47],¹⁶ and both reordering and extraposition are a widespread feature of dialogues. What seems to be shared by both processes is that they downgrade the addressee or speaker, thereby avoiding the threatening of “Face” (see van de Walle 1991, 1993 on this latter issue).

- [46] a. tava poṣaṇam **āvābhyām** kartavyam
(Vetālapañcaviṁśati, Emeneau edition
'We will take care of you.'
- b. tasmān mām **bhavāns** tyajatu (Vetālapañcaviṁśati, Emeneau edition, 70.3-4)
'Therefore may your lordship release me.'
- [47] a. kutra gatvā sthitam **bhavatā** (Vetālapañcaviṁśati, Emeneau edition, 44.26)
'Where did your lordship go and stay (so long)?'
- b. yad ādiśati **deva(h)** (Vetālapañcaviṁśati, Emeneau edition, 8.2)
'As the lord commands.'
- c. yuvayor ... akhilam eva kathitam **mayā**
(Vetālapañcaviṁśati, Emeneau edition 16.20-21)
'I have told everything to the two of you.'
- d. vacasā manasā caiva yathā nābhicarāmy **aham**
tena satyena vibudhās tam eva pradiśantu me (Nala 5.18)
'As I do not transgress by speech or mind, by that truth let the very wise ones (the Gods) point him (Nala) out to me.'

5. Conclusions and implications for further research

What is remarkable is that extraposition seems to have at least two very different purposes. In the context of politeness it serves to down-grade the addressee or the speaker, in Gonda's Amplification as well as the more restricted phenomenon of Vedic-Prose purpose-dative extraposition it serves to provide additional and important information. Presumably there would be a prosodic difference, with politeness extraposition being realized with low or reduced pitch, while there would be no such prosodic reduction in Amplifications and, perhaps, even a raised pitch for Vedic-Prose purpose-datives. Nevertheless, there seems to be no clear syntactic difference between the different types of extraposition.

Following the reasoning in Hock 1993 (for different pragmatic uses of non-restrictive relative clauses), it is possible to account for this situation by assuming that extraposition is one syntactic process, which leads to syntactically “marked” structures. Such marked structures, in turn, make it possible for the speaker to invite the hearer to assume that there is a special reason for using them, along the lines of Grice's (1975) notion of “implicature” or “invited inference”, with the precise pragmatic inference being determined by discourse and genre.

¹⁶ Some of these, such as [47a], are included in Wallace's data.

If this line of reasoning is correct, we must conclude that functional accounts, however interesting and important for textual interpretation they may be, cannot substitute for formal syntactic accounts, and that the latter must be formulated irrespective of the uses to which different possibilities permitted by the grammar can be put.

At the same time, as already noted, functional accounts can be helpful in assessing conflicting formal accounts such as the issue of major constituent order (§3.1), the question of subject-predicate vs. predicate-subject ordering (§4.1.2), or the phenomenon of marked *karṭṛ* backing (§4.2.3). In fact, the idea of *karṭṛ* backing makes it possible to account for a large number of structures with predicate-subject order, beyond the Vedic-Prose equational structures discussed in §4.1.2. See e.g. the examples in [48], where *karṭṛ* or subject backing can be attributed to the same politeness concerns as in §4.2.3 — modesty on the part of the speaker or deference to an addressee.

- [48] a. *sādhvī bhavatī* (Vetālapañcaviṁśati, Emeneau edition, 68.13)
 ‘Your ladyship is good.’ = ‘You (polite) are a good woman.’
- b. ... *pramāṇam tu bhavantas tridaśeśvarāḥ* (Nala 4.31)
 ‘... but your lordships, rulers of the thirty(-three Gods), are the authority.’
- c. *kṣāntiśīlo nāma kāpāliko* ‘ham mahāyogī
 (Vetālapañcaviṁśati, Emeneau edition, 8.14)
 ‘I (am) a mendicant, Kṣāntiśīla by name, a great yogi.’
- d. *rājaputrāv āvāṁ paryatanaśīlāv atrāyātau*
 (Vetālapañcaviṁśati, Emeneau edition, 16.14)
 ‘We are princes, in the habit of wandering come here.’

There may even be cases where functional evidence may create interesting challenges for formal syntactic accounts. Let us take another look at [44b], specifically its passage *cittapramāthinī bālā devānām api sundarī*, which in Figure III was analyzed as involving movement of *devānām api* and *sundarī* out of their matrix NP. That the structure involves movement is suggested by the particle *api* which indicates special emphasis on the preceding *devānām* — ‘even of the Gods’; and *sundarī* can be considered an elaboration — à la Gonda — of *cittapramāthinī bālā*, which would be a complete structure in its own right.

- [44] b. *tatra sma rājate bhaimī* [sarvābharaṇabhūṣitā
sakhīmadye ’navadyāṅgī vidyut saudāmanī yathā
 ...
cittapramāthinī bālā devānām api sundarī]
 (Nala 1.12-14)
 ‘There Bhaimī ruled, adorned with all ornaments, surrounded by her friends,
 having entirely praiseworthy limbs, like monsoon lightening ... the girl robbing
 the minds even of the Gods, beautiful.’

From the functional, pragmatic perspective such an account is, I believe, entirely reasonable. From the formal perspective, however, the account presents a challenge, since it operates with the idea of extraposition within a phrase, rather than a sentence. More than that, the phrase itself

has been extraposed within the larger matrix sentence. Put differently, we would have to assume an extraposition WITHIN an extraposed structure.

Clearly, such an account is highly “unorthodox”, and its lack of “orthodoxy” might be taken to favor the Staal/Gillon “Wild Tree” account which does not stipulate linear order within phrases. However, under a “Wild Tree” account the functional difference between [49a] and [49b] would merely be epiphenomal. The advantage of operating with base-generated linear order and accounting for all deviations through movement, whether within the phrase or beyond, is that it invites attempts to account for such differences; and that, I believe, is a methodological strong point.

- [49] a. cittapramāthinī bālā devānām api sundarī
b. devānām api cittapramāthinī sundarī bālā

Still, I would hope that advocates of the “Wild Tree” approach will continue pushing their account, testing its predictive power and comparing it to theories that operate with base-generated linear order. Whatever the outcome, we are bound to gain additional insights into Sanskrit syntax.

There is, moreover, ample room for further research, especially on the syntax of Classical Sanskrit which offers a much broader range of texts and genres than the Vedic Tradition and which, in part because of that, has received much less coverage.

Areas of further research that I would personally find interesting are relative-correlatives as well non-finite subordination, agreement (especially in complex-numeral constructions), and the extent to which post-syntactic Distributed Morphology accounts may provide insights.

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