

Grammatica et verba
Glamor and verve

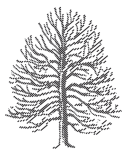
Studies in South Asian, historical, and Indo-European
linguistics in honor of

Hans Henrich Hock

on the occasion
of his seventy-fifth birthday

edited by

Shu-Fen Chen and Benjamin Slade



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Sanskrit Compounds and the Architecture of the Grammar*

ADRIANA MOLINA-MUÑOZ

I Introduction

Compounding has been traditionally defined as a morphological operation that combines two or more free forms into a new word. Compounds are particularly interesting because they are “words,” but at the same time exhibit a type of “internal syntax.” This fact has raised questions about the division of labor between morphology and syntax, especially after Chomsky’s “Remarks on nominalization” (1970), which pointed out the need for a separate theory of derivational morphology distinct from the theory of syntactic transformations. This view is often called Lexicalism, because the Lexicon functions as the active component of the grammar in which words are assembled (the “Morphology”).

It has often been observed, however, that compounds are morphological constructions that very closely resemble syntactic constructions, so much so that there is no general agreement in the literature on which component of the grammar is responsible for their formation (syntax: Harley 2009; Lieber 1992, 1988; Roeper 1988; Sproat 1985; lexicon: Di Sciullo and Williams 1987; Lieber 1983; Selkirk 1982; Roeper and Siegel 1978; or postsyntax: Shibatani and Kageyama 1988).

In the present paper, I aim to demonstrate the limitations of a Lexicalist approach in analyzing Sanskrit compounds. I also advance the proposal that compound formation in Sanskrit operates on the output of syntactic processes, i.e. the PF (i.e. phonological form) stage of derivation. The empirical focus in this paper is on one type of Sanskrit compound construction traditionally called *asamartha*. An example found in Patañjali (*Mahābhāṣya* 1.360.20) is shown in (1).¹ In these structures, a non-head

*I would like to thank Hans Henrich Hock and James Yoon for many valuable comments. Thanks also to the audiences at the 28th Annual Meeting of the South Asian Language Analysis Roundtable (October 2009) and the 85th Annual Meeting of the Linguistic Society of America (January 2011), where earlier versions of this paper were presented. All remaining errors are of course my own.

¹Notation: (i) Compounds are marked in italics in the examples. (ii) The internal members of a compound are separated by a hyphen (-). (iii) Boldface is used as emphasis. (iv) ⟨ ⟩ encloses a list, possibly empty, of argument positions. Argument positions with which a valence is associated are indicated by the valence: AG for Agent, LC for Location, PS for Possessor, and PT for Patient. Argument positions with which no

constituent of a compound (*guru*), rather than the entire compound, is modified by an element outside the compound (*devadattasya*). The non-head is marked in bold-face.

1. devadattasya *guru-kulam*
 Devadatta.GEN.M.SG teacher-family.NOM.N.SG
 ‘Devadatta’s teacher’s family’

The structure of this paper is as follows. In §2, I provide an overview of compound formation in Sanskrit. This overview includes a discussion of the properties of compounds according to traditional Indian grammar. It also includes an overview of the typology of Sanskrit compounds, as well as a characterization of *asamartha* constructions. Section 3 discusses a Lexicalist account of Sanskrit compounds and the limitations of this approach. Section 4 presents an alternative analysis that places compound formation in Sanskrit postsyntactically, at PF. In this section I summarize the assumptions of Distributed Morphology and its challenges. I also refer to the case of Japanese postsyntactic compounds. Section 5 provides the conclusion for the paper.

2 Overview of Sanskrit compound formation

2.1 Sanskrit compounds and the notion of “word”

Compounding is defined operationally in Pāṇini’s grammar. He introduces the process of compounding in rule 2.1.3, which states that the constructions up to rule 2.2.38 are called compounds or *samāsa*. Compounds are formed by combining fully inflected words or *padas*.² The case ending is then deleted by another rule (2.4.71). In some types of compounds, however, the case endings are retained, e.g. (2). These compounds are called *aluk*.

2. *priyam-vadaḥ*
 sweet.ACC.N.SG-speaking.NOM.M.SG
 ‘speaking kindly’ (lit. ‘sweet-speaking’)

valence is associated are indicated by ‘-’. (v) Other abbreviations used in the glosses are: 1 = 1st person; 2 = 2nd person; 3 = 3rd person; ABL = ablative; ACC = accusative; DAT = dative; DU = dual; EMPH = emphatic; ERG = ergative; F = feminine; FUT = future; GEN = genitive; GERND = gerund; IMPER = imperative; IMPERF = imperfect; INF = infinitive; INST = instrument; INTERR = interrogative; LOC = locative; M = masculine; NOM = nominative; PART = participle; PAST = past; PERF = perfect; PL = plural; PRES = present; PRON = pronoun; PTCL = particle; REL = relative; SG = singular; VOC = vocative.

²See Pāṇini’s rule 2.1.1 *samarthaḥ padavidhiḥ*, which states that whenever a rule relating to *padas* or complete words is found, that must be understood to apply to *samartha* words, whose senses are connected together (i.e., semantically connected); and rule 2.1.4 *śabhasupā*, “a case-inflected word may be compounded with a (case-inflected) word with which it is connected in sense.” In both rules, *pada* refers to fully inflected words (see also rule 1.4.14 *suptinantam padam* “that which ends in *sUP* (case affix) and *tiN* (tense affix) is called *pada*”).

The following are the main features of compounds in Sanskrit that characterize them as “words” (Gillon 1995; Dash 1986; Tiwary 1984; Mahavir 1978; Murti 1974):

i. The accentuation of a compound is that of a simple word, not of a phrase, e.g. Patañjali’s example in (3).³ The accented syllables are marked in boldface.

- | | | |
|----|--|----------------|
| 3. | a. rājā ṇaḥ pu ruṣaḥ | Nominal Phrase |
| | king.GEN.M.SG man.NOM.M.SG | |
| | b. <i>rāja</i> - pu ruṣaḥ | Compound |
| | king-man.NOM.M.SG | |
| | ‘a king’s servant’ (lit. ‘a king’s man’) | |

ii. Compounds are subject to the inflectional and derivational morphology of simple words. For example, compounds can be converted into abstract nouns by adding the suffix *-tva*, e.g. (4b). The suffix is marked in boldface. In addition, only the final member of a compound is case-marked to indicate the compound’s relation to other words in the sentence.

- | | | |
|----|--------------------------------------|--|
| 4. | a. <i>dīrgha</i> -kaṇṭha | |
| | long-neck | |
| | ‘long-necked’ | |
| | b. <i>dīrgha</i> -kaṇṭha- tva | |
| | long-neck-ness | |
| | ‘long-neckedness’ | |

iii. Morphophonemic changes (*sandhi*): Since compounds are treated as a unit, they present phonological changes particular to words (“internal sandhi”), and not the ones pertaining to phrases (“external sandhi”). For example, in (3b), the stem suffix *-an* of the first member of the compound is substituted by *-a*, e.g. *rājan* → *rāja*.

iv. Constituents of a compound, unlike constituents of phrases, have fixed order (Gillon 1995).⁴ Change in the order could result in a meaningless form or a different compound, e.g. (5).

- | | | |
|----|----------------------------------|--|
| 5. | a. <i>rāja</i> - pu ruṣaḥ | |
| | king-man.NOM.M.SG | |
| | ‘servant’ (lit. ‘king’s man’) | |

³See Pāṇini’s rule 6.1.158 and Patañjali’s commentary on rule 2.1.1.

⁴See Pāṇini’s rule 2.2.30 and Patañjali’s commentary on rule 2.1.1.

- b. *puruṣa-rājāḥ*
man-king.NOM.M.SG.
'a man who is a king'

v. A compound is usually analyzable into two immediate constituents (rule 2.1.4). If the compound is endocentric (i.e. it has a head), the head is the second immediate constituent to the right (rules 1.2.43 and 2.2.30). Sanskrit compounds are binary and right-headed.

2.2 Typology of Sanskrit compounds

Pāṇini recognizes four main classes of compounds: adverbial (*avyayībhāva*), copulative (*dvandva*), determinative (*tatpuruṣa*), and exocentric (*bahuvrīhi*). The last two are relevant for the purposes of this paper.⁵

Determinative compounds are endocentric (i.e., contain an internal head). The first member “determines” or modifies the second one. There are two subtypes of determinative compounds: dependent compounds, in which the head (noun or adjective) is in a case-relation with the non-head, e.g. (6) below; and descriptive compounds, in which the non-head qualifies the head (noun or adjective) adjectively or adverbially, e.g. (7) below.⁶

- | | | |
|----|--|---------------------|
| 6. | a. <i>deva-senā</i>
god-army.NOM.M.SG
'army of gods' | Possessive Relation |
| | b. <i>ākhu-damṣitāḥ</i>
rat-bitten.PART.NOM.M.SG
'bitten by a rat' | Agentive Relation |
| 7. | a. <i>dīrgha-kanṭhāḥ</i>
long-neck.NOM.M.SG
'a long neck' | |
| | b. <i>alavī-kṛtāḥ</i>
ready-made.PART.NOM.M.SG
'made ready' or 'adorned' | |

Exocentric compounds, on the other hand, can be formed from the determinative class, in various subtypes. They receive an adjective inflection (or even an adjectival suffix), taking the meaning of 'having' or 'possessing'. These compounds qualify some other element standing outside the compound. Therefore, they show gender,

⁵For a complete typology of Sanskrit compounds see Dash (1986), Tiwary (1984), Mahavir (1978), and Murti (1974).

⁶This is the distinction between *tatpuruṣa* (dependent) and *karmadhāraya* (descriptive) in Sanskrit.

case, and number agreement with the noun they modify or refer to. Notice, however, that there may be no formal difference between a determinative compound and an exocentric one—at least in the Classical language, which no longer has accent distinctions. It is the context that helps to understand the meaning of a particular compound. Take for example the compound in (7a) above: it can alternatively be interpreted as an exocentric compound ‘having a long neck’.

2.3 *Asamartha* constructions⁷

Asamartha constructions, e.g. (1) above, repeated below as (8), were first addressed in Patañjali’s commentary on Pāṇini’s grammar in his discussion of the conditions required for compound formation in Sanskrit, in particular, regarding the notion of *samartha* or ‘semantic connection’.⁸ In (8), the non-head constituent of a compound (*guru*) is modified by an element outside the compound (*devadattasya*).

8. devadattasya *guru-kulam*
Devadatta.GEN.M.SG teacher-family.NOM.N.SG
‘Devadatta’s teacher’s family’

Constructions such (8) are analyzed by Bhartṛhari as cases where the subordinate element in the compound expresses a relation. Nevertheless, it is not only relational words which can license *asamartha*. Gillon (1993:119) found in his survey that for most cases of *asamartha* the subordinate lexical element in the compound was a deverbal noun or adjective, either subcategorizing for a noun phrasal complement or having a thematic role associated with its verbal root, as illustrated in (9). The internal element of the compound selecting an argument outside the compound is marked in boldface.

9. tasyām *snigdha-dṛṣṭyā* *sūcīta-abhilāṣaḥ*
her.LOC.F.SG fixed-gaze.PART.INST.F.SG indicated-affection.NOM.M.SG
‘whose affection was indicated by his gaze fixed on her’ (Śakuntalā 3.9.16)

In example (9) we find a determinative compound *snigdha-dṛṣṭyā* ‘fixed-gaze’ and an exocentric compound *sūcīta-abhilāṣaḥ* ‘having an indicated-affection’. The non-head of the exocentric compound, *sūcīta* ‘indicated’, is a perfect passive participle derived from the verbal root *sūc*, which selects an external element at the phrasal level in the instrumental case (*snigdha-dṛṣṭyā* ‘gaze fixed [on her]’). The non-head of the determinative compound, *snigdha* ‘fixed’, is a perfect passive participle derived from the

⁷*Asamartha* constructions are often translated as ‘non-constitutive compounds’. I believe this translation is not appropriate; given that the term *asamartha* does not refer to a type of compound, but rather a particular construction in which compounds (generally, but not exclusively, determinative and exocentric) intervene. Whitney (1889:315, §1316) refers to them as “loose constructions with compounds.”

⁸Patañjali in his commentary on rule 2.1.1 discusses whether *samartha* is used to refer to a ‘single integrated meaning of words’ (*ekārthābhāva*) or rather to a ‘meaning-independence’ (*vyapekṣā*). Notice that the compounds licensing *asamartha* do not fulfill either sense since the compound requires an outside element to be completed. The discussion of this distinction, however, is outside the scope of the present paper.

verbal root *snih*, which selects an external element at the phrasal level in the locative case (*tasyām* ‘on her’).⁹

Note that *asamartha* constructions are not isolated occurrences. Gillon’s (1993:118) study of approximately three hundred sentences—chosen at random from the Classical Sanskrit corpus—revealed thirteen unequivocal cases of *asamartha*; and his study of the first approximately five hundred sentences of a single text revealed forty-three cases.¹⁰

3 Lexicalist account of Sanskrit compounds

3.1 Differences between Sanskrit and English

Gillon (1995) argues that context-free rules of the sort used by Selkirk (1982) and by Di Sciullo and Williams (1987) to analyze English derivational morphology and compound formation can be applied to Sanskrit with minimal changes.¹¹ In spite of the structural similarity between word-formation in Sanskrit and English, Gillon observes four generalizations that hold for English compounds, but do not hold for Classical Sanskrit, namely:

i. English strongly resists compounds with personal names while Sanskrit does not, as (10) illustrates. The proper names are marked in boldface.

10. *arundhatī-puraskṛtān mahārāja-daśarathasya*
 Arundhatī-headed.ACC.F.PL king-Daśaratha.GEN.M.SG
dārān adhiṣṭhāya
 wife.ACC.F.PL escort.GERUND
 ‘having escorted the wives of King Daśaratha, headed by Arundhatī’
 (Uttararāmacarita 4.1.7)

ii. Pronouns do not occur within English compounds, but they do occur in Sanskrit, as illustrated in (11). The pronoun is marked in boldface.

11. *katham tat-śaktiḥ upayujyate*
 how.INTERR its-potentiality.NOM.F.SG employ.PRES.PASS.3.SG
 ‘In what way does its potentiality have a causal role?’
 (Pramāṇavārtika-svavṛtti 10.3)

⁹The analysis and translation are Gillon’s (1993:119).

¹⁰The single chosen text was the *Pramāṇavārtika-svavṛtti*, Raniero Gnoli’s edition (1960).

¹¹For example, Gillon (1995:32) argues that Sanskrit has the compounding rules $V \rightarrow AV$ and $V \rightarrow NV$, which are absent in English according to Selkirk (1982). On the other hand, Selkirk claims that English has the rule $N \rightarrow VN$, which is absent in Sanskrit. For a complete description of the context-free rules see Gillon 1995.

iii. Constituents of compounds do not enter into anaphoric relations in English, but they do in Sanskrit, as we see in (12). The elements in anaphoric relation are marked in boldface.

12. [RC **yat**_i-**arthah** dr̥ṣṭāntaḥ ucyate]
 which.REL-sake.NOM.M.SG example.NOM.M.SG say.PRES.PASS.3.SG
 [MC **saḥ**_i arthaḥ Ø siddhaḥ]
 that sake.NOM.M.SG (is) established.PART.NOM.M.SG
 ‘The thing for the sake of which the example is stated is established.’
 (Lit. ‘Having which sake the example is said, that sake is established.’)
 (Pramāṇavārttika-svavṛtti 18.12)

iv. Subordinate constituents of English compounds are not construed with constituents external to them, but they do occur in Sanskrit, as illustrated in the *asamartha* examples in (8) and (9).

These properties, particularly (iii) and (iv), represent a potential problem for the Lexicalist Hypothesis and the division of labor between syntax and morphology. Gillon (1995) focuses only on property (iv) and the different mechanisms of argument assignment in Sanskrit.

In the following section (3.2), I outline the discussion on argument structure and compounding in Lexicalism, as well as Gillon’s (1995) account of *asamartha* constructions. Properties (ii) and (iii) are addressed in §3.3.2.

3.2 *Asamartha* and transmission of argument structure

Since Lexicalism states that a syntactic rule can never operate on part of a word, but only on the word as a whole, the word system is allowed to communicate with the phrase system only through a narrow channel, the “top-level” properties of words (Williams 2007:354). This is done by means of feature percolation, a mechanism that transmits features of one of the members of a morphological construction (usually the head) to the node that immediately dominates both members.¹²

Through the mechanism of feature percolation, a verbal derivative can inherit “empty” arguments from the base verb in its head, arguments which must be satisfied outside the compound in its immediate syntactic context (Carstairs-McCarthy 1992), as shown in (13).

13. a. John_i *bar-j-tends* on Sundays ⟨AG_i, TH_j⟩
 b. *man-j-eating* shark_i ⟨AG_i, TH_j⟩

Notice that the transmission of the argument structure is allowed only of the head. (14) illustrates the failure of the non-head to contribute to the argument structure of

¹²There are different versions of the “Feature Percolation Convention”. Selkirk (1982) and Di Sciullo and Williams (1987), for example, make use of the notions “head” and “underspecification” (vs. Lieber 1983).

the compound (Di Sciullo and Williams 1987:30). The non-head is marked in bold-face.

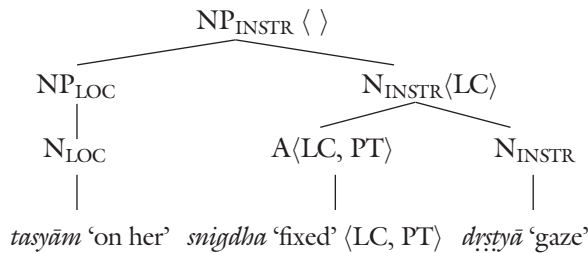
14. *the **destruction**-story of the city
 ‘the story of the destruction of the city’

As mentioned earlier, in the *asamartha* construction in (9), partly repeated here as (15), the non-head of the compound (*snigdha* ‘fixed’) is the one selecting the external element at the phrasal level, not the head. The non-head is marked in boldface.

15. tasyām **snigdha**-dr̥ṣṭyā
 her.LOC.F.SG fixed-gaze.PART.INST.F.SG
 ‘(whose affection was indicated) by his gaze fixed on her’

Gillon reconciles the Sanskrit case in (15) with the Lexicalist approach by assuming a difference in the transmission of argument structure from a compound’s immediate constituents to the compound itself. In other words, he argues that Sanskrit allows the transmission of unsaturated argument positions of the head as well as those of the non-head, as illustrated in (16).

16.



In (16) *dr̥ṣṭyā* ‘gaze’ is the head of the compound, and it is the locus of case marking. The non-head *snigdha* ‘fixed’ presents the argument structure ⟨LC, PT⟩. The argument PT (patient) is satisfied internally by the head *dr̥ṣṭyā* ‘gaze’, and the argument LC (location) percolates to the mother node, allowing the selection of an external element at the phrasal level.¹³

3.3 Limitations of the Lexicalist account

3.3.1 *Asamartha* constructions

Gillon’s (1995) modification of the feature percolation mechanism accounts for the fact that the argument structure of the non-head, rather than the head, percolates to

¹³Gillon (2007) argues that this analysis also accounts for cases of ambiguity in exocentric compounds, that is, depending of which unsaturated argument position is transmitted (head or non-head). This analysis of exocentric compounds also assumes that adjectives possess argument structure. This particular issue, although interesting, is outside the scope of this paper.

the mother node in Sanskrit. Gillon's account, however, does not address two remaining problems to Lexicalism: (i) case-marking of the element outside the compound, and (ii) external modification of a constituent of a compound.

The first problem regards the case-marking of the element outside the compound. Under previous Lexicalist approaches, once the unsaturated arguments of the head are satisfied outside the compound, they must be case-marked by the compound as a whole. This constraint applies not only to compounds, but also to other complex words, as shown in (17), where *John* is governed by the complex word *kill-er* and hence case-marked by it (i.e. noun-to-noun modification). Recall that since the complex words are opaque to syntax in this framework, the option that one of the members of the complex word (either *kill* or *-er*) case-marks the external element is unavailable (Santinello 1991:135).

17. kill-er of John

We expect then that, regardless of the constituent of the compound (the head or the non-head) from which the argument structure is transmitted, the element outside the compound should be case-marked by the whole compound. Nevertheless, this does not seem to be the situation in (15). According to Gillon, the verbal derivative *snigdha* 'fixed' inherits the argument structure from the verbal root *snih*, which subcategorizes for an argument in the locative case. The element outside the compound is case-marked only by the non-head. Gillon's analysis, however, does not clarify why this is possible in Sanskrit. We also know that there is no one-to-one correspondence between the thematic roles and case-endings in Sanskrit, so in principle the thematic role Location does not always get the case-marking "locative".¹⁴

Notice that Gillon's analysis also has the undesired consequence of "parametrizing" the transmission of the argument structure, and the principles of argument structure assignment/realization are not likely candidates for parametrization, since they concern putatively universal properties of languages.

The second problem regards the cases of *asamartha* constructions in which the external element is not an argument, but rather a modifier, an adjunct. The problem here is that adjuncts are not part of the argument structure, hence an analysis based on transmission of argument structure cannot account for such cases. Take for example the construction in (18), where the non-head *śarīra* 'body' is modified by *nīṇām* 'of men' at the phrasal level. The externally modified constituent is marked in boldface.

18. *śarīra-anta-karo* nīṇām yamo
 body-end-causing.NOM.M.SG man.GEN.M.PL Yama.VOC.M.SG
 'Yama, the slayer of mortal bodies' (Nala and Damayantī 3.4)

¹⁴See Pāṇini's rule 1.4.23 *kārake* 'the *kāra*...' and subsequent rules. Also 2.3.1 *anabhibhite* 'when not expressed otherwise' and subsequent rules.

Even more interesting is the example in (19), where the theme of the verbal derivative *pramāthini* ‘disturbing, confusing’, which is the head of the compound, is satisfied internally by *citta* ‘mind’, and its agent is satisfied at the phrasal level by *bālā* ‘girl’. This particular case seems to follow the Lexicalist predictions stated above, namely (i) the features of the head are the ones percolating to the mother node, and (ii) the external element is case-marked in agreement with the whole compound (nominative, feminine, singular). In this construction, the non-head of the compound *citta* ‘mind’ is also modified by an element outside the compound, specifically *devānām api* ‘of the gods even’. Note also that the modifier *devānām api* ‘of the gods even’ is not adjacent to the compound. The externally modified constituent is marked in boldface.

19. *citta-pramāthini* *bālā* *devānām* *api*
 mind-disturbing.NOM.F.SG girl.NOM.F.SG god.GEN.M.PL even.PTCL
sundarī
 beautiful.NOM.F.SG
 ‘a beautiful girl who disturbs the minds even of gods’
 (Nala and Damayantī 1.18)

Recall that Bhartṛhari analyzes constructions of the type in (8), repeated here as (20), in which there is also external modification of a constituent of a compound, as expressing a relation.

20. *devadattasya* *guru-kulam*
 Devadatta.GEN.M.SG teacher-family.NOM.N.SG
 ‘Devadatta’s teacher’s family’

A modern (also Lexicalist) account of (20) is given by Kiparsky (2009). Kiparsky argues that such cases are “apparent syntax/morphology mismatches [that] should be treated at the level of semantics.” He proposes that a semantic inheritance mechanism whereby “properties of individuals become properties of groups to which individuals belong is needed in any case. For example, a laughing group of children is really a group of laughing children: it is not the group that laughs, but the individual children that it consists of” (p.48). However, this analysis works only when there is a part-whole relationship between the component parts, and not in cases such (15) or (19).

As a summary, we can say that previous Lexicalist approaches require two separate analyses to account for *asamartha* constructions, depending on whether the external element is an argument or a modifier. Moreover, neither Gillon’s nor Kiparsky’s accounts successfully work for examples such as (19). I believe, however, that a unified account for all of these structures can be given if we assume that compound formation occurs postsyntactically, at PF. See §4 for the details of the analysis.

3.3.2 Violation of anaphoric islandhood

Gillon's Lexicalist analysis (1995) of Sanskrit compounds focuses on two main issues: describing the context-free rules that apply to Sanskrit compound formation and modifying the transmission of the argument structure in Sanskrit compounds. Although he notes that Sanskrit compounds, unlike English, violate anaphoric islandhood, Gillon does not address this particular matter. Anaphoric islandhood, however, constitutes a standard part of the argumentation used in defining the "word" and in favor of the Lexicalist Hypothesis (see Harris 2006).

Postal (1969) argued that inbound anaphora, where a word contains a referential pronoun, such as in (21), are ungrammatical in English. This restriction also applies to compounds, as shown in (22), and follows a major claim that restricts syntactic operations from applying to parts of words. The pronouns are marked in boldface.

21. McCarthyite, ***him**ite
childless, ***you**less
Clinton-like, ***him**-like

22. car-robber, ***it**-robber

Sanskrit, however, allows all pronouns—personal, interrogative, and relative—to occur within a compound. For example, in (11), repeated here as (23), the personal pronoun *tat* 'it' is compounded with *śakti* 'potentiality'.¹⁵ The pronoun is marked in boldface.

23. katham **tat**-śaktiḥ upayujyate
how.INTERR its-potentiality.NOM.F.SG employ.PRES.PASS.3.SG
'In what way does its potentiality have a causal role?'

Moreover, in (12), repeated here as (24), the relative pronoun *yat* 'which' occurs within the exocentric compound *yat-arthaḥ* 'for the sake of which' (lit. 'having which purpose'). (24) is a relative-correlative construction, in which the relative pronoun *yat* 'which' is co-indexed with the demonstrative pronoun *saḥ* 'that' in the main clause. The anaphoric relations are marked in boldface.

24. [RC **yat**_i-arthaḥ dṛṣṭāntaḥ ucyate]
which.REL-sake.NOM.M.SG example.NOM.M.SG say.PRES.PASS.3.SG
[MC **saḥ**_i arthaḥ Ø siddhaḥ]
that sake.NOM.M.SG (is) established.PART.NOM.M.SG
'The thing for the sake of which the example is stated is established.'

Finally, in Sanskrit interrogative pronouns can also occur within compounds, as shown in (25).

¹⁵Note that *tat* in *tat-śaktiḥ* 'it(s) potentiality' in (23) is not an inflected form of the pronoun *tat*.

25. tayoh baddhayoh Ø *kim-nimittah*
 two.GEN.M.DU prisoners.GEN.M.DU (is) what.INTER-basis.NOM.M.SG
 ayam mokṣaḥ
 this.NOM.M.SG release.NOM.M.SG
 ‘What basis does this release of the two prisoners have?’
 (*Mālavikāgnimitra* 4.5.7)

It is reported in the literature that violations of anaphoric islandhood occur in other languages, for example in Warlpiri and Georgian (Harris 2006). Harris points out that the constraint against words formed on pronouns is language-specific. Inbound anaphora in general is not ruled out by any universal grammatical principle. However, it presents evidence against the Lexicalist Hypothesis, and it has not received an account in previous studies of Sanskrit compounds.¹⁶ I believe that a postsyntactic analysis of Sanskrit compounds not only presents a unified account of the two main types of *asamartha* constructions, but also account for violation of anaphoric islandhood.

4 A postsyntactic account of Sanskrit compounds

4.1 Assumptions

The main goal of this section is to present the primary theoretical assumptions, as well as the implications of current frameworks for the analysis of Sanskrit compounds. I first discuss the tenets of Distributed Morphology and its analysis of compound formation (§4.1.1). Then I discuss Shibatani and Kageyama’s (1988) postsyntactic analysis of Japanese compounds (§4.1.2).

4.1.1 Distributed Morphology and compounding

Distributed Morphology (henceforth DM) provides an alternative analysis that allows us to consider a grammar without Lexicalist assumptions. According to this framework, there is no component specifically designed for word formation (i.e. Lexicon). Instead, there is a unique generative component, namely syntax, which is responsible for both word and phrase structure (Halle and Marantz 1993). Syntax manipulates terminals, which can contain two types of morphemes: “abstract morphemes” and “roots” (represented with $\sqrt{}$). The former are bundles of universal grammatical features (e.g. [Past]), which are related to functional categories, while the latter are com-

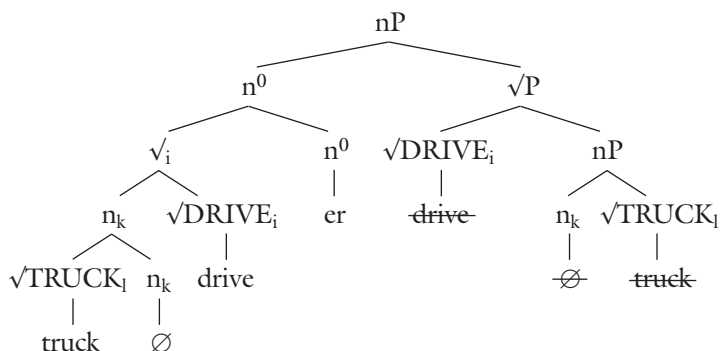
¹⁶Bresnan and Mchombo (1995:192) claim that “the inbound anaphoric island constraint is a valid test of lexical integrity when it is restricted to a subclass of meaning-changing morphological operations that are found in derivation and compounding.”

plexes of language-specific phonological features, which are assumed to be category neutral and are related to lexical categories.¹⁷

Complex heads can be created in syntax in different ways, by “head movement/raising” or “lowering/merger-under-adjacency”. On the way to PF, terminal nodes can undergo some readjustment operations (e.g. fusion, fission), before they are given phonological content by insertion of Vocabulary Items. Such readjustment operations can explain mismatches between syntactic and morphological structure (cf. Embick and Noyer 2007; Marantz 2001, 1997; among others). Word formation takes place either in syntax or through postsyntactic operations during “Morphology”. “Morphology” here refers to the series of operations that occur on the PF branch (or Spell-Out) following the point at which the syntactic derivation splits between PF and LF (i.e. logical form) (Embick and Noyer 2001:556).

Compounds in DM are understood as incorporation structures (cf. Baker 1988), in which internal arguments and modifiers of roots are merged with roots first, before the root undergoes categorization (Harley 2009).¹⁸ To illustrate this process, take for instance the structure in (26b). In (26b), the root $\sqrt{\text{DRIVE}}$ is first created by merging $\sqrt{\text{TRUCK}}$ and the nominalizing N head; then, this structure merges as the argument of $\sqrt{\text{DRIVE}}$ and incorporates into it. Incorporation being syntactic, it must be feature-driven, i.e. case-related.

26. *truck driver*



Whether Harley's (2009) analysis can be extended to the Sanskrit structures under discussion is not clear. First, it is not clear what the incorporation analysis predicts regarding violation of anaphoric islandhood in Sanskrit. If anaphoric reference is a property of maximal projections (cf. Sproat 1985), word-internal elements should not enter into referential dependencies. In particular, Harley (2009:133) argues that the

¹⁷Note that roots must be categorized by a functional node containing categoral information (i.e. n^0 , a^0 , v^0) (Marantz 1997).

¹⁸For arguments against Harley's (2009) claim that internal arguments merge with the roots that select them before the roots are categorized, see Padrosa 2010.

behavior of compounds as syntactic X°s (invisibility, etc.), as well as the impossibility of phrasal movement out of them, indirectly accounts for the impossibility of discourse antecedence within a compound. Strictly speaking, however, there can be no “Lexical Integrity Principle” in a theory of this type, since this principle excludes syntactic word formation in the first place.

On the other hand, Harley’s incorporation analysis says nothing concerning the (im)possibility of external modification (e.g., *asamartha* constructions). One could argue that *asamartha* constructions are cases of “failure of incorporation of the argument or the modifier”. If the argument or the modifier does not incorporate, however, we cannot account for the case-marking of the (stranded) external element: the external element is case-marked by the non-head, not by the whole compound.

4.1.2 Japanese postsyntactic compounds

Shibatani and Kageyama (1988) argue for the existence of postsyntactic compounds in Japanese. Shibatani and Kageyama’s architecture of the grammar is different from DM’s. They assume a modular theory of grammar, in which word formation takes place in different modules: syntax, lexicon, and post-syntax (PF). Nevertheless, some characteristics of Japanese postsyntactic compounds are relevant to the present discussion of Sanskrit compound formation.

A postsyntactic compound is “postsyntactic”, according to Shibatani and Kageyama, because it appears to consist of the turning of syntactic material into a compound. In particular, it consists of a noun phrase followed by a verbal noun which takes it as a complement, as (27) illustrates. The accented segment is marked in bold-face. Notice in (27b) that the case particle *o* is dropped in the formation of the compound (1988:458). Compare this case with Pāṇini’s derivation of Sanskrit compounds and the deletion rule of the case markings.

- | | | | |
|-----|----|---|-------------------------|
| 27. | a. | amerika o hoomon no ori
Amerika ACC visit GEN occasion | Phrasal Construction |
| | b. | amerika-hoomon no ori
America-visit GEN occasion
‘the travel to America’ | Post-syntactic Compound |

Notice in (27) that Japanese postsyntactic compounds do not have a tonal pattern associated with lexical words. Shibatani and Kageyama (1988) argue that the postsyntactic compounding process is fed not just by syntax but also by phonology. Recall, however, that Sanskrit compounds receive the accent of a word and not of a phrase (§2.1).

Important for the present paper is the fact that Japanese postsyntactic compounds are interpretively transparent. They are also transparent to syntactic processes such as anaphoric coreference, and they can contain demonstratives and honorifics, e.g. (28).

The elements in anaphoric relation are marked in boldface. In this sense, Sanskrit compounds and Japanese postsyntactic compounds behave similarly.

28. Taroo wa senzitu, **tyuukosya_i-hanbai** no sai ni,
 Taroo TOP the.other.day used.car-sell GEN occasion PTCL
sorera_i no itidai o kowasite simatta
 them GEN one.car ACC damage ended.up
 ‘The other day, on the occasion of selling used cars, Taroo ended up damaging one of them.’

Despite these syntactic characteristics, the structures are considered words (i.e. compounds), because (i) the case particle (following the first NP) is omitted; (ii) there is no tense on the verbal element; and (iii) the compound cannot be interrupted by an adverb.

4.1.3 Deriving Sanskrit compounds postsyntactically

DM assumes that some aspects of word formation arise from syntactic operations such as head movement, which is Harley’s (2009) position on compound formation. As I showed above, Harley’s (2009) analysis of compounding as incorporation has its limitations when accounting for *asamartha* constructions and violation of anaphoric islandhood. Other aspects of word formation in DM, however, can be accounted for by operations that occur in the PF stage of derivation.

In this context, I argue that in Sanskrit compound formation is a postsyntactic operation. This analysis of compound formation is partly supported by Shibatani and Kageyama’s (1988) observations. Nevertheless, one particular challenge to this account rests in determining the conditions under which compounding occurs, and even identifying the ordering of postsyntactic processes.

According to Embick and Noyer (2007), morphological operations that occur in PF can apply before or after “Vocabulary Insertion”, which provides abstract terminal nodes with phonological exponents. Depending on where they apply, the operations can be sensitive to hierarchical or linear order. For instance, if a set of postsyntactic operations applies prior to “Vocabulary Insertion”, then they are not sensitive to phonological properties of morphemes; but if they apply after “Vocabulary Insertion”, then they are sensitive to phonological processes (Arregi and Nevins 2008).

Based on the empirical data presented above, I postulate the following considerations regarding the ordering of postsyntactic operations:

- i. *Case assignment must precede compounding.* Recall that in the Sanskrit construction in (19), repeated here as (29), the element outside the compound is case-marked only by the non-head of the compound and not by the whole compound. This means that case must be assigned within the phrase dominated by *citta* ‘minds’ before compounding occurs, as shown in (30).

29. *citta-pramāthini* *bālā* *devānām* *api*
 mind-disturbing.NOM.F.SG girl.NOM.F.SG god.GEN.M.PL even.PTCL
sundarī
 beautiful.NOM.F.SG
 ‘a beautiful girl who disturbs the minds even of gods’

30. [[[[*devānām api*]_{GEN} *cittāni*]_{ACC} *pramāthini*]_{NOM} [*sundarī*]_{NOM} *bālā*]_{NOM}

ii. *Linearization must precede compounding.* In (29), the external modifier *devānām api* ‘of the gods even’ is not adjacent to the compound, and it is still case-marked by the non-head of the compound *citta* ‘mind’. In fact, it is clear in this example that scrambling applies to other elements in the sentence, for instance, *sundarī* ‘beautiful’ does not occur adjacent to the noun it modifies (*bālā* ‘girl’).

This movement operation follows general principles of Sanskrit movement and word order. For instance, in Sanskrit, scrambling of single words out of a phrase is possible (Gillon and Shaer 2005; Schäufele 1991; Staal 1967). Schäufele (1991) calls this phenomenon “liberation”. Take for example the constructions in (31), in which a word within a phrase is moved out to a topicalized position. The scrambled element is marked in boldface.

31. a. **svargam**_i *eva* *tena* [_{NP} *t_i* *lokam*]
 heavenly.ACC.N.SG just.PTCL that.INSTR.N.SG e world.ACC.N.SG
samāśnuvata
 attain.IMPERF.3.PL
 ‘By means of that they attained the heavenly world.’
- b. **manah**_i *ha* *devāḥ* [_{NP} *manuṣyasya* *t_i*]
 mind.ACC.M.SG PTCL god.NOM.M.PL man.GEN.M.SG e
ājānanti
 know.PRES.3.PL
 ‘The gods know the mind of men.’

Based on these examples, we can argue that the phrase *devānām api* ‘of the gods even’ was “liberated” before it scrambled to the right periphery, as shown in (32). In particular, (32a) shows the “liberation” of the phrase, and (32b) shows its scrambling to the right periphery. (32c) also shows scrambling to the right periphery of *sundarī* ‘beautiful’, also to the right edge of the phrase.

32. a. [[*devānām api*]_{GEN_i} [*t_i* [*cittāni*]_{ACC} *pramāthini*]_{NOM} [*sundarī*]_{NOM} *bālā*]_{NOM}

- b. [t_i [Ø [cittāni]_{ACC} pramāthini]_{NOM} [sundarī]_{NOM} bālā]_{NOM}
[devānām api]_{GEN_i}
- c. [t_i [Ø [cittāni]_{ACC} pramāthini]_{NOM} t_j bālā]_{NOM} [devānām api]_{GEN_i}
[sundarī]_{NOM_j}

iii. *Case-assignment must precede linearization.* The relation between case-assignment and linearization in Sanskrit, however, presents interesting challenges for DM. Linear order in DM is not a property of syntactic representations but it is imposed at PF. It occurs after “Vocabulary Insertion” (Embick and Noyer 2001). The morphological properties of a word, including case-markings, are not present until after Spell-Out, i.e. after word order has already been determined.

Nevertheless, in Sanskrit case-assignment seems to occur before linearization: the element outside the compound receives case from its governing element before it moves out of the phrase. One option is to assume that case features are already there before they are spelled-out (McFadden 2004). Notice that this option fits very nicely with Pāṇini’s derivation of compounds: compounds are derived from fully inflected words, and then a rule deleting case-endings of internal constituents of a compound applies. (Also compare the Japanese postsyntactic compounds discussed in §4.1.2.)

Note that agreement (case, gender, number) of the noun phrase *bālā* ‘girl’ with the compound *citta-pramāthini* ‘disturbing the mind’ in (29) above can be explained through a later readjustment operation at PF.

iv. *Anaphoric relations precede compounding.* Violation of anaphoric islandhood can be accounted for if we stipulate that anaphoric relations are established before compounding occurs.

v. *Linear precedence and adjacency condition compounding.* According to Embick and Noyer (2007), in DM, the operations that occur after “Vocabulary Insertion” are sensitive to linear precedence and adjacency. Earlier I stipulated that case-assignment and linearization must precede compounding in order to account for the empirical data. If this analysis is on the right track, compounding in Sanskrit is sensitive to relations of linear precedence and adjacency between constituents, and not syntactic headedness directly; it must be “local” and cannot skip any adjoined elements.

Adjacency and linear precedence can account for the fact that the arguments or modifiers seem to be stranded in the incorporation operation in *asamartha* constructions: the argument or modifier moves, and compounding occurs within the adjacent elements. This also accounts for the fact that pronouns can form part of compounds. The fact that compounding in Sanskrit seems to be sensitive to linear order also suggests that compounding is a late and optional postsyntactic application of Merge.

Adjacency is a necessary but not sufficient condition for the formation of compounds in Sanskrit. I believe that other conditions, such as “semantic connection”

(cf. Patañjali), interfere; hence the importance of incorporating the insights of Indian grammatical commentaries in the analysis (see n. 8).

5 Conclusions and implications

In this paper, I examined two phenomena in Sanskrit compound formation: *asamartha* constructions and violation of anaphoric islandhood. Both phenomena present challenges to both a strong Lexicalist approach and also a purely syntactic account. Consequently, I proposed an alternative approach which uses as its starting point Distributed Morphology's claim that there is no component specifically designated for word formation (Lexicon), with some aspects of word formation arising from syntactic operations and others being accounted for by operations that occur at PF (Embick and Noyer 2007; Halle and Marantz 1993). In this context, I present compelling evidence that a better approach to Sanskrit compound formation assumes that compounding operates on the output of syntactic processes. Interestingly, this analysis seems to align with certain treatments of compound formation in traditional Indian grammar.

A postsyntactic analysis of Sanskrit compounds allows us to analyze all cases of *asamartha*, as well as violations of anaphoric islandhood, under a unified account. The properties of these constructions are explained by establishing certain orderings of postsyntactic operations, such as ordering case-assignment and linearization before compounding. Given that the formation of compounds in Sanskrit seems to be sensitive to adjacency and linear precedence, I characterize this process as a late and optional postsyntactic operation of Merge.

Some additional issues need to be addressed in further research, as for instance the existence of compounds that seem to have been lexicalized, as shown in (33). In (33) the compound, even though it clearly derives from a phrasal construction, is not transparent at the phrasal level. Moreover, in (34) we can observe the contrast between the “opaque” proper name in (34a) vs. the “transparent” compound in (34b). The first one presents word-internal sandhi (i.e. this sandhi rule, called ruki, never occurs between words in the Classical language), but not the latter.

33. *itihāsa* ‘legend’ < iti + ha + āsa
 thus.PTCL indeed.PTCL be.PERF.3.SG

34. a. *yudhiṣṭhira* ‘proper name’ (name; note retroflex/ruki sandhi)
 b. *yudhi-sthira* ‘firm in battle’

The examples in (33) and (34) raise two interesting issues. For one, there is the question whether it is valid to assume a single generative mechanism for compound formation (e.g. Distributed Morphology's “syntax all the way down”). This is particularly important not only due to Sanskrit, but also due to Japanese data (see Shibatani

and Kageyama 1988). Another issue is the role of the Lexical Integrity Principle under Distributed Morphology assumptions. For instance, if word formation is postsyntactic, there should be no difference between structures spelled out as words and those spelled out as phrases. In other words, Lexical Integrity violations should be attested massively, but this is not what we observe in all types of Sanskrit compounds.¹⁹

I believe this paper contributes to the understanding of compound formation in free word-order languages, and presents empirical evidence that can be used to expand on the discussion of the place of compounding within the grammar and the general issue of the architecture of grammar.

References

- Arregi, Karlos, and Andrew Nevins. 2008. "A principled order to postsyntactic operations." Manuscript, University of Illinois at Urbana-Champaign and Harvard University. Available at ling.auf.net/lingbuzz/000646. Accessed August 2011.
- Baker, Mark. 1988. *Incorporation: A Theory of Grammatical Function Changing*. Chicago: University of Chicago Press.
- Bresnan, Joan, and Samuel A. Mchombo. 1995. "The lexical integrity principle: Evidence from Bantu." *Natural Language and Linguistic Theory* 13:181–254.
- Carstairs-McCarthy, Andrew. 1992. *Current Morphology*. New York: Routledge.
- Chomsky, Noam. 1970. "Remarks on nominalization." In *Readings in English Transformational Grammar*, ed. Roderick Jacobs and Peter S. Rosenbaum, 184–221. Waltham: Blaisdell.
- Dash, Siniruddha. 1986. *The Syntax and Semantics of Sanskrit Nominal Compounds*. Poona: University of Poona, Centre of Advanced Study in Sanskrit.
- Di Sciullo, Anna Maria, and Edwin Williams. 1987. *On the Definition of Word*. Cambridge, MA: MIT Press.
- Embrick, David, and Rolf Noyer. 2001. "Movement operations after syntax." *Linguistic Inquiry* 32:555–95.
- . 2007. "Distributed Morphology and the syntax-morphology interface." In *The Oxford Handbook of Linguistic Interfaces*, ed. Gillian Ramchand and Charles Reiss, 289–324. Oxford: Oxford University Press.
- Gillon, Brendan. 1993. "Bhartr̥hari's solution to the problem of asamartha compounds." In *Bhartr̥hari: Philosopher and Grammarian. Proceedings of the First International Conference on Bhartr̥hari*, ed. Saroja Bhate and Johannes Bronkhorst, 117–33. Delhi: Motilal Banarsidass.
- . 1995. "Autonomy of word formation: Evidence from Classical Sanskrit." *Indian Linguistics* 56:15–52.
- . 2007. "Exocentric (bahuvr̥hi) compounds in Classical Sanskrit." In *Proceedings*

¹⁹For a thorough discussion of this issue refer to Yoon's (2013) analysis on denominal predicates in Korean.

- of *First International Symposium on Sanskrit Computational Linguistics*, ed. Gérard Huet and Arma Kulkarni, 1–12. Rocquencourt: INRIA. Available at sanskrit.inria.fr/Symposium
- Gillon, Brendan, and Benjamin Shaer. 2005. “Classical Sanskrit, ‘wild trees’, and the properties of free word order languages.” In *Universal Grammar in the Reconstruction of Ancient Languages*, ed. Katalin É. Kiss, 457–93. Berlin: de Gruyter.
- Gnoli, Raniero, ed. 1960. *The Pramāṇavārtikam of Dharmakīrti: The First Chapter with the Autocommentary. Text and Critical Notes*. Rome: Istituto Italiano per Il Medio ed Estremo Oriente.
- Halle, Morris, and Alec Marantz. 1993. “Distributed Morphology and the pieces of inflection.” In *The View from Building 20: Essays in Linguistics in Honor of Sylvain Bromberger*, ed. Kenneth Hale and Samuel Jay Keyser, 111–76. Cambridge, MA: MIT Press.
- Harley, Heidi. 2009. “Compounding in Distributed Morphology.” In *The Oxford Handbook of Compounding*, ed. Rochelle Lieber and Pavol Štekauer, 129–44. Oxford: Oxford University Press.
- Harris, Alice C. 2006. “Revisiting anaphoric islands.” *Language* 82:114–30.
- Kielhorn, Franz, ed. 1980. *The Vyākaraṇa Mahābhāṣya of Patañjali*. 4th ed. Poona: Bhandarkar Oriental Research Institute.
- Kiparsky, Paul. 2009. “On the architecture of Pāṇini’s grammar.” *Lecture Notes in Computer Science* 5402:33–94.
- Lieber, Rochelle. 1983. “Argument linking and compounding in English.” *Linguistic Inquiry* 14:251–86.
- . 1988. “Phrasal compounds in English and the morphology-syntax interface.” *Papers from the Parasession on Agreement in Grammatical Theory. CLS* 24:202–22.
- . 1992. *Deconstructing Morphology: Word Formation in Syntactic Theory*. Chicago: University of Chicago Press.
- Mahavir. 1978. *Pāṇini As Grammarian: With Special Reference to Compound Formations*. Delhi: Bharatiya Vidya Prakashan.
- Marantz, Alec. 1988. “Apparent exceptions to the Projection Principle.” In *Morphology and Modularity: In Honour of Henk Schultink*, ed. Martin Everaert et al., 217–33. Dordrecht: Foris.
- . 1997. “No escape from syntax: Don’t try morphological analysis in the privacy of your own lexicon.” In *Proceedings of Annual Penn Linguistics Colloquium (21st, Philadelphia, Pennsylvania, February 22–23, 1997)*, eds. Alexis Dimitriadis, Laura Siegel, Clarissa Surek-Clark, and Alexander Williams, 201–25. Philadelphia: Pennsylvania Working Papers in Linguistics.
- . 2001. “Words.” Manuscript, MIT.
- McFadden, Thomas. 2004. “The position of morphological Case in the derivation: A study on the syntax/morphology interface.” Ph.D. dissertation, University of Pennsylvania.

- Murti, Srimannarayana. 1974. *Sanskrit Compounds: A Philosophical Study*. Varanasi: The Chowkhamba Sanskrit Series Office.
- Padrosa-Trías, Susanna. 2010. "Complex word-formation and the morphology-syntax interface." Ph.D. dissertation, Universitat Autònoma de Barcelona.
- Postal, Paul. 1969. "Anaphoric islands." In *Proceedings of the 5th Regional Meeting of the Chicago Linguistic Society*, 205–39. Chicago: Chicago Linguistic Society.
- Roeper, T. 1988. "Compound syntax and head movement." *Year of Morphology* 1:187–228.
- Roeper, Thomas, and Muffy E. A. Siegel. 1978. "A lexical transformation for verbal compounds." *Linguistic Inquiry* 9:199–260.
- Santinello, Caterina. 1991. "The unified case-marking hypothesis and the semantic interpretation of verbal compounds." *Rivista di Grammatica Generativa* 16:119–49.
- Schäufele, Steven. 1991. "Single-word topicalization in Vedic prose: A challenge to Government and Binding?" In *Studies in Sanskrit: A Volume in Honor of Speijer's Sanskrit Grammar*. Delhi: Motilal Banarsidass Publishers.
- Selkirk, Elisabeth. 1982. *The Syntax of Words*. Cambridge, MA: MIT Press.
- Sharma, Rama Nath. 2002. *The Aṣṭādhyāyī of Pāṇini*. 3 vols. Delhi: Munshiram Manoharlal.
- Shibatani, Masayoshi, and Taro Kageyama. 1988. "Word formation in a modular theory of grammar: A case of postsyntactic compounds in Japanese." *Language* 64:451–84.
- Sproat, Richard. 1985. *On Deriving the Lexicon*. Cambridge, MA: MIT Working Papers in Linguistics.
- . 1988. "On anaphoric islandhood." In *Theoretical Morphology*, ed. Michael Hammond and Michael Noonan, 291–301. San Diego: Academic Press.
- Staal, J. F. 1967. *Word Order in Sanskrit and Universal Grammar*. Dordrecht: Reidel.
- Tiway, Kapil Muni. 1984. *Pāṇini's Description of Sanskrit Compounds*. Delhi: Janaki Prekashan.
- Whitney, William Dwight. 1889. *Sanskrit Grammar: Including Both the Classical Language, and the Older Dialects, of Veda and Brahmana*. 2nd edition. Leipzig: Breitkopf & Härtel.
- Williams, Edwin. 2007. "Dumping Lexicalism." In *The Oxford Handbook of Linguistics Interfaces*, eds. Gillian Ramchand and Charles Reiss, 353–81. Oxford University Press.
- Yoon, James Hye Suk. 2013. "Lexical integrity and suspended affixation in two types of denominal predicates in Korean." Seminar, Department of Linguistics, University of Illinois at Urbana-Champaign.