

The Syntax and Semantics of Tense-Aspect Stem Participles in Early Ṛgvedic Sanskrit



John J. Lowe
Wolfson College
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A thesis submitted for the degree of

Doctor of Philosophy

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In this thesis I investigate the syntax and semantics of tense-aspect stem participles in the *Ṛgveda*, focusing primarily on the data from the earlier books II–VII and IX, seeking to establish a comprehensive and coherent analysis of this category within the linguistic system of Ṛgvedic Sanskrit. In recent literature tense-aspect stem participles are usually treated as semantically equivalent to finite verbs wherever possible, but contradictorily where they differ from finite verbs their adjectival nature is emphasized. I argue that tense-aspect stem participles are a fundamentally verbal formation and can be treated as inflectional verb forms: they are *adjectival verbs* rather than verbal adjectives. At the same time, however, they constitute an independent sub-category of verb form which is not necessarily semantically dependent on corresponding finite stems.

I examine the syntactic and semantic properties of tense-aspect stem participles both in relation to finite verbal forms and their wider syntactic context, formalizing the evidence in the framework of Lexical-Functional Grammar. Consequently I am able to categorize the syntactic and semantic deviations which many participles exhibit in comparison to finite verbal forms. I contend that many such forms cannot be treated synchronically (and sometimes diachronically) as participles, but form distinct synchronic categories. My analysis permits a considerably more refined definition of the category of tense-aspect stem participles, dependent on clear morphological, syntactic and semantic criteria, as opposed to the usual, purely morphological, definition.

From a diachronic perspective I argue that the category of tense-aspect stem participles as found in the *Ṛgveda* more closely reflects an inherited Proto-Indo-European category of tense-aspect stem participles than is usually assumed. I also reconsider theoretical treatments of participial syntax and semantics, and develop a more precise typology of non-finite verb systems which adequately accounts for Sanskrit participles.

Thesis word count: 99,932.

सीमा न विद्यते को ऽपि बहुपुस्तकलेखने ।
विद्याभ्यासस्य चाधिक्यं शरीरार्थं श्रमावहं ॥

उपदेशकस्य अध्या. १२, सू. १२

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Abbreviations

a.	accusative	MS	<i>Maitrāyaṇīsaṃhitā</i>
ab.	ablative	Myc.	Mycenean
abs.	absolutive	n.	nominative
act.	active	neg.	negation/negative
adv.	adverb	Nigh.	<i>Nighaṇṭu</i>
aor.	aorist	nt.	neuter
Arm.	Armenian	OAv.	Old Avestan
Aṣṭ.	<i>Aṣṭādhyāyī</i>	obj.	object
aux.	auxiliary verb	OCS	Old Church Slavonic
Av.	Avestan	OE	Old English
AV	Atharvavedic/ <i>Atharvaveda</i>	OHG	Old High German
B-S	Balto-Slavic	OIr.	Old Irish
BHS	Buddhist Hybrid Sanskrit	ON	Old Norse
CLuw.	Cuneiform Luwian	OP	Old Persian
conv.	converb	opt.	optative
d.	dative	OS	Old Saxon
dct.	deictic pronoun	PG	Proto-Germanic
des.	desiderative	PIA	Proto-Indo-Aryan
(1/2/3)du.	(1 st /2 nd /3 rd person) dual	PIE	Proto-Indo-European
f.	feminine	PII	Proto-Indo-Iranian
g.	genitive	pcl.	particle
Gmc.	Germanic	pf.	perfect
Goth.	Gothic	Pkt.	Prakrit
Gr.	Greek	(1/2/3)pl.	(1 st /2 nd /3 rd person) plural
Hit.	<i>Hitopadeśa</i>	Pra.	<i>Prakīrṇaparakāśa</i>
Hitt.	Hittite	prs.	present
HLuw.	Hieroglyphic Luwian	prv.	preverb
i.	instrumental	ps.	passive
I-E	Indo-European	pst.	past
imf.	imperfect	ptc.	participle
imp.	imperative	RCS	Russian Church Slavonic
ind.	indicative	RV	<i>Ṛgvedic/Ṛgveda</i>
inj.	injunctive	ŚB	<i>Śatapathabrāhmaṇa</i>
int.	intensive	sbj.	subjunctive
JB	<i>Jaiminīyabrāhmaṇa</i>	(1/2/3)sg.	(1 st /2 nd /3 rd person) singular
Kāś.	<i>Kāśīkāvṛtti</i>	Skt.	Sanskrit
l.	locative	Toch.	Tocharian
Lat.	Latin	TS	<i>Taittirīyasamhitā</i>
Lith.	Lithuanian	TU	<i>Taittirīyopaniṣad</i>
Lyc.	Lycian	Umb.	Umbrian
m.	masculine	v.	vocative
MBh.	<i>Mahābhāṣya</i>	Ved.	Vedic
med.	medial, middle	YAv.	Younger Avestan

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Chapter 1

Introduction

This thesis explores the syntactic and semantic employment of a particular category of words, traditionally known as participles, in the language of the *Ṛgveda*. In this chapter I firstly explain and define this aim; I then review previous approaches to this question and consider it in its wider linguistic context; finally I consider particular problems and issues which I aim to address in the forthcoming investigation.

1.1 Why Investigate Participles in the *Ṛgveda*?

1.1.1 The *Ṛgveda*

The *Ṛgveda* is a collection of texts which together constitute the oldest significant linguistic corpus of the Indo-Aryan language family, and more specifically of the Sanskrit language.¹ It consists of one thousand and twenty-eight hymns (*sūktas*), highly-crafted poetic compositions originally intended for recital during rituals and for the invocation of and communication with their gods.² The precise date and geographical location of the composition of these hymns is controversial and uncertain; it is a fair approximation to say that they were probably composed around 1500–1200 B.C. during the eastward migration of the Indo-Aryan tribes from the mountains of what is today northern Afghanistan across

¹For a brief introduction to the *Ṛgveda* see Gonda (1975, esp. p.7–265), Witzel and Gotō (2007, p.427f.). The most important translations of the *Ṛgveda*, of which I have made considerable use, are those by Geldner (1951–1957, henceforth Geldner, RV) in German, and Renou (1955–1969, henceforth Renou, EVP) in French; the first two books have been recently retranslated into German by Witzel and Gotō (2007).

²See e.g. Brereton (1985, p.1f.).

the Punjab into north India.³ The hymns of the *Ṛgveda* are neither chronologically nor dialectally homogenous, but are for the most part linguistically more similar to each other than to any other text, and so can be treated as a single body of evidence for the purposes of synchronic study.⁴

The importance of the *Ṛgveda* for the study of early Indo-Aryan historical linguistics cannot be underestimated. Its language (at least in the ‘older’ sections) appears distinctly more archaic than the second oldest collection of Sanskrit texts, the *Atharvaveda*, and at the same time notably similar in many respects to the most archaic poetic texts of related language families, the Old Avestan *Gāthās* and Homer’s *Iliad* and *Odyssey*, respectively the earliest poetic representatives of the Iranian and Greek language families. Moreover its manner of preservation, by a system of oral transmission which has preserved the text almost without change for three thousand years, makes it a very trustworthy witness to the Indo-Aryan language of North India in the second millennium B.C. Its importance for the reconstruction of Proto-Indo-European (PIE), particularly in respect of the archaic morphology and syntax it preserves, has in the past perhaps been overestimated but is nonetheless considerable. Any linguistic investigation into Old Indo-Aryan, Indo-Iranian or Proto-Indo-European cannot avoid treating the evidence of the *Ṛgveda* as of vital importance.

However the *Ṛgveda* is not without its problems or limitations from the perspective of linguistic study. It is a limited, though not small, corpus in terms of size, but is more significantly limited in terms of subject and genre by the ritual context of its composition. Moreover the *Ṛgveda* is the product not just of a literary flowering among the early Indo-Aryans of North India, but also of an ancient poetic tradition stretching back to Proto-Indo-European times.⁵ Among the traditional subject matter and formulae preserved and adapted by the *Ṛgvedic* poets, archaic linguistic features, potentially lost from everyday

³On the migrations of the Indo-Iranians see Kuz'mina (2007).

⁴The tenth and parts of the first book are generally agreed to be later than the other books. However it is also generally accepted that individual books and even some hymns consist of chronologically disparate material, such that no absolute conclusions about the relative date of a particular hymn, verse or even word can necessarily be drawn from its position in the *Ṛgveda* as we have it. Besides this, no absolute consensus exists on the attribution of particular linguistic features to earlier or later periods; for attempts at such linguistic chronologies (which must be treated with care, if only because of the uncertainties of the enterprise) see e.g. Arnold (1905), Witzel (1987, 1989, 1990).

⁵On this see Watkins (1995).

speech, were also preserved, adding considerably to the chronological diversity of the language.

These facts hinder the use of the *Ṛgveda* for synchronic linguistic study, but they do not prevent it. The *Ṛgveda* is not a faithful record of the ‘natural’ spoken language of any group of Indo-Aryans at any point in history, but it is a record of a particular literary dialect or register used by some Indo-Aryans (primarily but not exclusively priests and poets) in the second half of the second millennium B.C. It is a poetic, perhaps hieratic, language, but a language nonetheless.⁶ In its failure to accurately represent the contemporary spoken language of any period by preserving archaic features alongside more contemporary linguistic elements it is not qualitatively different from the language in which this thesis is written.

In this respect then, synchronic linguistic analysis of the *Ṛgveda* is a valid and worthwhile undertaking.⁷ The synchronic study of Ṛgvedic syntax, however, has not always been considered a worthwhile pursuit. The metrical and poetic nature of the text, coupled with the apparent freedom of word order in the Ṛgvedic language, led early Western scholars (e.g. Delbrück, 1888, p.15) to assume that the syntax (primarily in respect of word order) of the language was unnatural and metrically determined, in contrast to the highly regular syntax of the later prose Vedic texts of the *Brāhmaṇas*.⁸ Many early syntactic investigations of Vedic Sanskrit therefore bypassed the *Ṛgveda* and other metrical texts, discounting the synchronic and even diachronic worth of their evidence.

More recently, however, the tables have turned. Jamison (1991b) has argued that the rigid word order of Vedic prose is itself artificial, “a kind of technical discourse. . . developed by restricting the possible types of expression and by investing certain terms, particles, and syntactic constructions with highly conventional, discourse-shaping values” (Jamison, 1991b, p.40).⁹ Again it is not thereby any less a language, but its relation to the language of the *Ṛgveda* is that of a sister dialect, rather than that of a ‘grammatically correct’ use

⁶There is no purely linguistic definition of the distinction between a ‘language’ and a ‘dialect’, ‘sociolect’ or even ‘register’; it is therefore not inappropriate to speak of a distinct ‘language’ when referring to the distinct ‘grammar’ (in the sense used by Hale, 2007, p.5–15) which is attested in the *Ṛgveda*.

⁷It is more the subsequent diachronic analysis (since diachronic analysis should always follow synchronic) which may be complicated by the nature of the evidence.

⁸Benveniste (1964, p.25) contrasts “la sobriété de la prose brahmanique” with “l’exubérance chatoyante des hymnes.”

⁹Similarly Hale (1991).

of the language beside a ‘grammatically loose’ poetic variant.¹⁰

Ṛgvedic Sanskrit has apparently free word order not because it is poetic variant of a configurational language, but because it is a nonconfigurational language, where the order of words is not constrained as it is in many Western European languages.¹¹ Moreover recent studies have shown that the language of the *Ṛgveda* is subject to certain syntactic rules and constraints, just like any ‘natural’ spoken language.¹²

It must also be remembered that Ṛgvedic Sanskrit is a ‘dead’, or corpus-based, language, for which the lack of native speakers able to make judgments about grammaticality presents a considerable challenge to any attempted linguistic analysis. It does not make the job impossible, but makes any conclusions drawn necessarily less secure.¹³

Bearing all this in mind then, we can and indeed should investigate the language of the *Ṛgveda* as a real and living means of communication which existed and was used by the early Indo-Aryans, which represents a diachronic development (admittedly not uniform) of the Indo-European parent language and hence can be used in diachronic linguistic studies as well as having validity as a synchronic language (e.g. for language typology).

1.1.2 Ṛgvedic participles

The term *participle* is commonly used to refer to word forms which have both adjectival and verbal properties, namely to adjectives which are in some sense ‘verbal’. In English, there are two types of ‘participle’, the present participle in *-ing*, e.g. *smiling*,¹⁴ and the past (passive) participle in *-ed/-en* etc., e.g. *smiled*.¹⁵ As we will see, the precise definition of the term and category ‘participle’ is by no means clear cross-linguistically; nor is it necessarily clear within Sanskrit or even, perhaps, English. In broad terms, however, the concept that participles are adjectives but at the same time also verb forms is correct, and this broad assumption will be the basis of our further discussion and definition.

¹⁰Hock (1997, 2000) attributes many differences between poetic and prose Vedic syntax entirely to genre, rather than to differences of dialect or grammaticality.

¹¹For an introduction to nonconfigurationality see Baker (2001).

¹²See especially Hale (1987a, 1996) and other references under §2.3, p.40f. below.

¹³For an introduction to the problems and methods of synchronic syntactic analysis of corpus-based languages, with specific reference to Sanskrit, see Jamison (1993).

¹⁴As in ‘*he spoke, smiling*’, not to be confused with the morphologically identical gerund.

¹⁵As in ‘*smiled at meaningfully, I spoke*’.

As discussed in more detail below, the term *participle* can be and has been applied to a variety of formations in Vedic Sanskrit, but in this thesis the term *participle* will be restricted to *tense-aspect stem* participles.¹⁶ These participles require investigation for several reasons. Firstly, they are extremely common: there are roughly 5,850 tense-aspect stem participles in the *R̥gveda*, on average more than five per hymn; consequently they are a very important part of the language. Secondly, they are syntactically and semantically polyvalent: the possibilities and ambiguities of their use are therefore a source of uncertainty in the interpretation of the *R̥gveda*. Thirdly, their syntactic functions are central to the *R̥gvedic* methods of clause construction and clause combination, such that a proper understanding of the function of participles is central to an understanding of *R̥gvedic* sentence syntax.

In recent years great advances have been made in both philological understanding and syntactic analysis of the *R̥gveda* and its language. Due to their high frequency and semantic polyvalency, participles are of central importance to both these undertakings. Nevertheless the participles of the *R̥gveda* have not been studied in detail as a category since the publication of a short monograph by Louis Renou (1936b) seventy-five years ago.

To an extent, the reason why participles are interesting may also be the reason why serious study of them has been avoided. Morphologically, participles are adjectives which are built to verbal stems, or verb forms with adjectival endings and agreement properties. This morphological fact is mirrored in their syntax and semantics: participles can and do display syntactic and semantic properties of both adjectives and verbs. They therefore span the divide between two huge areas of research, the syntax and semantics of adjectives and verbs respectively. The Vedic verbal system has been the subject of several significant monographs over the last 50 years, treating individual verbal stems, tenses and moods.¹⁷ Participles are formed to almost every verbal stem, and have generally been treated as equivalent to finite forms wherever possible, with differences perhaps noted but not systematically studied. And it is perhaps right that the study of participles as a category should follow the study of the distinct verbal stems to which participles are built: one cannot hope to understand the perfect participle, for example, before one understands the perfect itself. But at the same

¹⁶As defined in §1.3, p.11 below.

¹⁷Notably Narten (1964); Hoffmann (1967); Jamison (1983a); Gotō (1987); Schaefer (1994); Kümmel (1996, 2000a); Heenen (2006); Tichy (2006); Baum (2006); Dahl (2010).

time one cannot understand the perfect participle simply by reference to the perfect tense, without investigation of the category ‘participle’ as a whole and comparison and contrast with other participles such as present and aorist.

Ṛgvedic tense-aspect stem participles are, morphologically, adjectives derived from verbal tense-aspect stems.¹⁸ They are therefore part of the category of *non-finite*¹⁹ verbal forms, such as infinitives.²⁰ As stated above, in most treatments of the Ṛgvedic verb system, the verbal properties of participles are largely taken for granted, participles being treated alongside finite forms with little distinction made.

However participles are also formally adjectives, and therefore nominal as well as verbal. If we operate with fully discrete categories such as ‘verb’, ‘noun’, ‘adjective’ etc. the status of participles is unclear: participles “constitute a persistent problem in the drawing of category boundaries” (Hopper and Thompson, 1984). A more sophisticated approach to the categorization of word types sees ‘verb’, ‘noun’ and ‘adjective’ as points or fuzzy-edged areas on a continuum of increasing/decreasing verbality vs. decreasing/increasing nominality: the ‘cline of verbality’.²¹ Hopper and Thompson (1984) argue that the categories ‘noun’ and ‘verb’ are prototypical concepts into which actual words fit more or less neatly; so for example modals and dependent verb forms are less prototypically ‘verbs’ than indicative main clause verb forms; participles are even less prototypically verbal than modals, and at the same time more nominal.²²

Understanding the difference between verbal and nominal forms as a non-discrete continuum undermines the assumption that participles can be treated as equivalent to finite verbs. Participles are relatively less ‘verbal’ and relatively more ‘nominal’ than finite verb forms and therefore, while they will undoubtedly share some syntactic and semantic features with finite verbs, they are also likely to differ in some respects.

¹⁸Cf. §2.4, p.47 below.

¹⁹It is not clear that the categories of finite and non-finite verb forms, and even the very concept of finiteness, can be defined in any cross-linguistically valid way (cf. the various contributions in Nikolaeva, 2007). Within Sanskrit itself, however, it is relatively easy to distinguish finite from non-finite verb forms, for example by referring to the unique agreement features of finite verb forms, or their deaccentuation in non-initial, main clause position.

²⁰Another reason why participles have been relatively neglected may be because other early Sanskrit non-finite categories seem more interesting: for example the *-tá-* adjective because of its links to the later development of split-ergativity, or the absolutive due to its bearing on questions of areal influence.

²¹See e.g. Ross (1972).

²²Similarly on the position of participles between verb and adjective see Haspelmath (1994, p.171).

While maintaining a relatively firm division between Sanskrit verbal and non-verbal categories, Kulikov (2010) likewise recognises a continuum of verbality within the verbal paradigm. Basing his argument primarily on compounding, partly also on verbal government, he argues that finite verb forms, participles, infinitives and *-tvā/-ya* absolutes are “core” members of the verbal paradigm, the absolutes being less central and in late Sanskrit showing a tendency to move toward the periphery. The periphery of the verbal paradigm includes the gerundives, agent nouns in *-tr-*, both of which show drift outside of the paradigm, and the absolute in *-am*, which is on the boundary.²³ Other forms, including the *-tā/-nā-* adjective and various verbal nouns, are located outside the verbal paradigm.²⁴

On this analysis, which is not particularly controversial in broad outline, participles are one of the most verbal of the non-finite verb categories. However the actual evidence of the syntax and semantics of participles in the *Ṛgveda* is less clear. Unlike infinitives and absolutes, which are functionally relatively homogenous, participles appear to have a wide functional range, sometimes functioning in very ‘verbal’ ways, sometimes functioning in very ‘nominal’ or ‘adjectival’ ways. It may be that some participles or sub-groups of participles may be more or less ‘verbal’ than others. Moreover the exact positioning of the category ‘participle’ on the continuum, and its relative closeness to the prototypical finite verb, is unclear. Hence even the category ‘participle’ itself may best be analysed as a prototypical category into which actual participles fit more or less well.

The status of participles in the *Ṛgveda* is also significant from a diachronic point of view. In Germanic and Latin it has been observed that in the earliest stages of the language participles are relatively less verbal than in later stages.²⁵ This has led to the suggestion that in Proto-Indo-European participles were considerably less verbal than they appear to be in

²³On some semantic and syntactic similarities between the absolute in *-am* and present participles, see Renou (1935, p.361f.).

²⁴It is questionable whether the *-tā/-nā-* adjective can really be excluded from the verbal system even of early Vedic. Although it is not at this stage being used to form a periphrastic past tense, comparative evidence suggests that the connection of the *-tā-* adjective with the verbal system may go back to Proto-Indo-European (see Drinka, 2009). Moreover, according to Jamison (1990), in Vedic the *-tā/-nā-* adjective has an apparently verbal default (present) tense reference, similar to the apparent default optative modality of the gerundive and passive infinitive in negative clauses (Jamison, 1984).

²⁵For Germanic see Callaway (1901, p.297–314), Thim-Mabrey (1990), Killie (2007); for Latin Laughton (1964).

the earliest attested Greek and Sanskrit. An investigation into participles in this earliest stage of Sanskrit then, may shed light on the status of participles in PIE. In addition, it will contribute to an understanding of the diachronic development of participles within Sanskrit and Indo-Aryan more generally.

1.2 The Term ‘Participle’

The English word *participle* derives, via Old French, from the Latin *particeps* or *participium*, a calque of the Greek grammatical term *μετοχή*, derived from *μετέχειν*, ‘to have a share in’, which was in use since at least Aristarchus’ scholia of the third century B.C. Dionysius Thrax (2nd century B.C.) defined *μετοχή* in the following way.

- (1.1) *Μετοχή ἐστὶ λέξις μετέχουσα τῆς τῶν ῥημάτων καὶ τῆς τῶν ὀνομάτων ιδιότητος.
Παρέπεται δὲ αὐτῇ ταῦτά α̅ καὶ τῶ ὀνόματι καὶ τῶ ῥήματι δίχα
προσώπων τε καὶ ἐγκλίσεων.* (Τέχνη Γραμματική 15)

‘A participle is a word-type which participates in the nature of verbs and nouns.

Common to it are the same (features common) to the noun and the verb, except for persons and moods.’

This relatively loose definition has influenced the modern use of the terms *participle* and *participial* in Indo-European linguistics. Broadly speaking, participles can be thought of as adjectives which display verbal characteristics.²⁶ But it is not immediately clear to what extent the syntax and semantics of participles are ‘verbal’ rather than ‘adjectival’, nor to what extent an adjective must display ‘verbal’ characteristics in order to be a participle. In Ṛgvedic Sanskrit, as in many other Indo-European languages, some adjectives are morphologically more ‘verbal’ than others, in that they are derived from tense-aspect stems found in the finite verbal system, rather than from verbal roots or nominal stems. However morphology does not necessarily coincide with function; nor has it therefore always coincided with terminology or categorization. To take one clear example, the present participle of Latin is formed to the verbal present tense stem, but the perfect participle is built not to the finite perfect stem but to a separate stem peculiar to the participle and which can only

²⁶So any adjective which in some way reflects the meaning of a verbal base (as most, if not all, do!) can be called ‘participial’; it is on such a vague basis that e.g. Hamp (1980, 1989) argued for ‘participial’ *-do- in PIE.

be called a ‘verbal’ stem by the circular argument that participles must be built to verbal stems.²⁷

The rejection of a morphological definition and the assumption of a loose functional definition (loose precisely because the functionality of participles has never been strictly defined across Indo-European languages) also entails the conclusion that, as Benveniste (1935b, p.126) said, “La catégorie du « participe » comme telle est sans doute moins ancienne qu’il ne semble et moins strictement délimitée” (similarly Jamison, 1979a, p.218 fn. 35). Since in the oldest Indo-European languages various types of adjectives appear to display ‘verbal’ functionality (which can be as little as expressing the meaning of the verbal base), while at the same time in some Indo-European languages morphologically clear participles appear to lack traditionally ‘participial’ functions,²⁸ it appears to follow that in Proto-Indo-European there was no strictly defined morphological category of participle such as arguably appears in RV Sanskrit, Ancient Greek etc.

Even within Sanskrit, the term *participle* has been used differently by different authors. One formation often called a participle or at least referred to as participial is the agent noun in *-tr-*, which when accented on the root syllable is said to function like a participle, including having the ability to take an accusative object.²⁹ Benveniste (1959) suggested that the primary adjectives in *-má-* are “quasi-participes de verbes intransitifs,” connecting them with the medio-passive participle in Luwian and the present passive participle in Balto-Slavic. According to Tucker (1988, p.101) desiderative adjectives in *-sú-* are “often attested in equivalent function to a [desiderative] participle.” De Lamberterie (1990, p.6) calls the adjectives in *-sú-* and *-yú-* “quasi-participes”; similarly Gusmani (1968, p.114–115). Adjectives in *-asāna-* have often been labelled participles, primarily due to the phonological form of the suffix, which is similar to the medial participle suffix *-(am)āna-*. Clearly a vague morphological similarity to participles is no better than a vague functional similarity to a verb as a basis for categorization as a participle: as shown by Renou (1937) and Leumann

²⁷Here also there is the problem of traditional terminology which categorized the present and perfect ‘participles’ of Latin together, despite significant functional differences; the problem presumably originated in the transfer of Greek linguistic terminology to the study of Latin.

²⁸For example it has been argued that the present participle of Proto-Germanic could not govern accusative objects, this being a later borrowing from Latin and Ancient Greek; see Killie (2007, p.150–151).

²⁹So *dātā vāsu* (RV 6.23.3) ‘giving wealth’ as against *dātā vāsūnām* (RV 8.51.5) ‘giver of wealth’ (examples from Benveniste, 1948, p.11). On this formation see Tichy (1994).

(1952) adjectives in *-asāna-* are largely formed from *s-*stem nouns, or secondarily by analogy with those; functionally, none need be taken to display any ‘participial’ attributes, and the morphological similarity may well be coincidental.³⁰

Speyer’s *Sanskrit Syntax* (1886, §358–378, p.278–296) makes no categorial distinction between participles derived from tense-aspect stems and ‘participles’ derived from verbal roots (i.e. the past passive participle, and the gerundive or future passive participle), despite fundamental differences in morphology, syntax and semantics. He appears to have considered any appositive or ‘non-restrictive’ use to be ‘participial’, even stating (§364, p.283) that any adjective or noun can be employed as a ‘participle’, with or without the addition of the participle *sant-* ‘being’. The same author’s later *Vedische und Sanskrit-Syntax* (1896) differs in treating the gerundive separately.³¹ Delbrück’s more detailed and comprehensive *Altindische Syntax* (1888) also treats the future passive participle separately, under the category ‘Verbaladjectiva’, but considers the past passive participle in the category ‘Participia’ on the grounds of functional similarity (§215, p.382). Speyer (1896, §201, p.61) similarly justifies his classification on functional grounds. Functionally there are, however, both similarities and differences between the past passive participle and the participles built from tense-aspect stems. Moreover, neither of the above authors treats the absolutive in the category of participle despite its obvious functional similarity to the perfect participles of Ṛgvedic Sanskrit and also, for example, to the Greek aorist participle. The only reason the absolutive is not considered as much a participle as the past passive participle is simply that it is indeclinable, which undermines any definition of the term *participle* on functional grounds.³² Only Renou (1936b) treats tense-aspect stem participles entirely in separation from other ‘participial’ adjectives; however he provides no rationale for this.

As discussed above it is perhaps wrong to assume a strict categorial distinction between participles and non-participles; a more realistic view would be to conceive of the category as an area on a continuum, with some forms more centrally ‘participial’ than others. So the *-tá/-ná-* adjective (the ‘past passive participle’) in the RV is undeniably more closely related

³⁰Cf. §4.6.3, p.227.

³¹§200, p.60–61. “Das Particip” is treated in the following sections, §201–213, p.61–65.

³²Whitney (1896, §989, p.355) recognized that the absolutive has “the virtual value of an indeclinable participle.” The equivalent formation in some modern South Asian languages, e.g. Tamil, is termed the ‘adverbial participle’. On the categorization of the absolutive see further below.

to the verbal system than many other adjectives (sometimes being formed to tense-aspect stems and showing some participial functions), but it is clearly less closely integrated into the verbal system than present participles.³³ It is valid, then, to speak of the *-tá-* adjective as ‘more participial’ than e.g. the adjective in *-má-*, but ‘less participial’ than the present participle in *-nt-*. However a line must be drawn somewhere on this ‘cline of participiality’ in order for a study to be undertaken; otherwise every adjective in the *R̥gveda* would have to be considered. Our line will be primarily a morphological one: only adjectives derived from verbal tense-aspect stems will be considered ‘participles’.

1.3 Adjectives Derived from Tense-Aspect Stems

The definition of the term *participle* adopted here for R̥gvedic Sanskrit will be the following: *A participle is an adjective derived by a productive process from a verbal tense-aspect stem.*

In effect, this includes the traditional categories of present, stative, aorist and future participle, and the perfect active and mediopassive participles, but it excludes from consideration the ‘past/perfect passive participle’ in *-tá-/-ná-* (henceforth ‘the *-tá-* adjective’), the ‘future passive participle’ or gerundive, the *-tr-* agent noun, the absolutes, and any other ‘participial’ adjectives.

This definition is, at first sight at least, justifiable in the light of typological definitions of the category *participle*. A non-finite verb form is defined by Nedjalkov (1998, p.421) as one which “cannot be the only predicate of the matrix clause without auxiliary verb forms.”³⁴ In that they are verb forms, participles should display a regular, productive derivation from verbal stems or roots, and they should preserve the argument structure of the verb from which they are derived.³⁵ Participles are first and foremost verb forms and are, additionally, adjectives by virtue of their derivation. Therefore a participle is an adjective which is formed by a regular and productive derivational process from a verbal root or stem, which preserves the argument structure of the verb or stem, and which cannot be the only predicate of a

³³On the ‘verbality’ of the *-tá-* adjective see now Dahl (2011b, p.293–294) who briefly discusses this in the context of the participial system and its possible use as what he assumes was a periphrastic resultative construction in Proto-Indo-Iranian.

³⁴This definition is cross-linguistically problematic, but for our purposes can be taken at face value. ‘Finiteness’ in this context will be considered further below (§5.3, p.283f.).

³⁵Ylikoski (2003, p.189).

matrix clause. This definition precisely fits tense-aspect stem participles in Sanskrit; it excludes the *-tá-* adjective, the gerundive and the *-tr-* agent noun since these can stand without a copula as the only predicate of a main clause;³⁶ furthermore the *-tá-* adjective and the gerundive are excluded because they do not preserve the argument structure of the verb from which they are derived. Nevertheless the functional aspects of this typological definition will not be utilized at this stage, as discussed above, in order not to prejudice the investigation; it should simply be noted that the strictly morphological definition proposed above fits both with traditionally recognised functional differences within the various forms labeled ‘participle’ in Sanskrit, and also fits with typological definitions of a participle.

The specification ‘adjective’ in the definition given above requires further discussion. Firstly it excludes the absolutive, which functionally overlaps with some uses of participles but which is morphologically clearly distinct. Secondly, however, the term *adjective* should be understood loosely, since the distinction between adjectives and nouns is not so clear-cut in Sanskrit as it is in English. Adjectives can function as nouns without any kind of marking, so in principle it can be ambiguous whether a particular word is a noun or an adjective qualifying an ellipsed or implied noun, or whether a word is an adjective qualifying a neighbouring noun with which it grammatically agrees or is a separate noun in apposition. In principle our definition implies that a participle which has become lexicalized as a noun is no longer a participle; however in practice only use can provide a(n inexact) guide as to whether a particular participle is lexicalized or not.³⁷

The specification ‘by a productive process’ in the above definition intentionally excludes certain marginal formations which are occasionally formed to tense-aspect stems rather than roots. Present, future and perfect (active and medio-passive) participles are the only nominal derivatives freely and productively formed to tense-aspect stems in the *R̥gveda*. Besides these there are a few words which also show the presence of a tense-aspect stem. A few *R̥gvedic* (and *Avestan*) infinitives are built not to verbal roots as we would expect but to tense-aspect stems, e.g. *gr̥n̄īṣāni* ‘to sing’ to the Class 9 present *gr̥n̄āti* ‘sings’; *pībadhyai* ‘to drink’ to Class 1 *pībati* ‘drinks’. The infinitival suffixes which are attached to tense-

³⁶On apparently predicated tense-aspect stem participles see §2.9.

³⁷Lexicalized participles are discussed in detail in §4.7, p.229f. below.

aspect stems are not productive and are suffixed also to verbal roots; for these see e.g. Jeffers (1975) and Benveniste (1935a, p.72f.). Some agent nouns occurring as the second member of a determinative compound are formed not to the verbal root, as would be expected, but to present stems by suffixation of the thematic vowel, e.g. *punar-manyá-* ‘remembering’ to the Class 4 present *mányate* ‘thinks’; *viśvam-invá-* ‘moving all’ to the Class 5 present *inóti* ‘moves, urges, impels’; *aminá-* ‘undiminishing’ to the Class 9 present *mináti* ‘diminishes’.³⁸ A few *-tá-* adjectives are also built to reduplicated (present or perfect) tense-aspect stems, e.g. *dattá-* ‘given’ to $^1\sqrt{dā}$ ‘give’; *jahitá-* ‘left’ to $\sqrt{hā}$ ‘leave’; *jagdhá-* ‘eaten’ to \sqrt{ghas} ‘eat’. These are formally irregular and can be explained as replacements of ambiguous or phonologically unclear forms with derivationally clearer ones: so *dattá-* replaces the phonologically regular **ttá-* (preserved in the Classical *ātta-*); *jahitá-* replaces expected **hitá-* homophonous with *hitá-* ‘placed’ to $\sqrt{dhā}$.³⁹ It has also been suggested that certain adjectives in *-ú-* and *-i-* formed to reduplicated stems are specifically derivatives from perfect tense-aspect stems (Wackernagel-Debrunner AiG, 2:2, §287f, p.472–473); even if this is the case, the lack of productivity in these constructions permits us to eliminate them from consideration. This productivity is specifically linked to *inflectional* morphology as opposed to *derivational* by de Lamberterie (1990, p.32–33); in other words the productivity or lack thereof of this kind of adjectival formation is directly related to the type of formation we are dealing with; looking at it from the other side, the lack of productivity in other categories (such as adjectives in *-ú-*, or the thematized compounds) are evidence of their non-inflectional (and therefore non-participial) nature.⁴⁰

The specification ‘derived from a verbal tense-aspect stem’ specifically excludes the *-tá-* adjective, the ‘future passive participle’ or gerundive, the *-tr-* agent noun and the absolute,

³⁸Further examples in Wackernagel-Debrunner (AiG, v.2:2, p.178–183).

³⁹It may be noted that it is almost exclusively the present tense-aspect stem which is found in these less productive categories. This may be simply incidental, due to the greater frequency of the present tense-aspect in general, or may reflect an incipient reanalysis of the present stem as the most basic form of the root (particularly derivative stems like the causative, which are beginning to be reanalysed as separate verbal stems already in the *R̥gveda*). An aorist stem is apparently seen in the agent noun *néṣṭr-* beside regular *nétr-* (Tichy, 1994, p.40); the same suffix, regularly attached to verbal roots, is also often attached to present stems. A few infinitives are also built to aorist stems in Old Avestan, e.g. *anāšē* < **-nāś-š-ai* to \sqrt{nas} , *vaocájhē* to \sqrt{vac} , but the use of the aorist stem is clearly unproductive.

⁴⁰On the problematic distinction between *inflectional* and *derivational* morphology see Haspelmath (1996, esp. p.58f.), Bauer (2004), Booij (2006). Although in some respects problematic the distinction does have a cognitive basis, see e.g. Miceli and Caramazza (1988), Badecker and Caramazza (1989), Laudanna et al. (1992), Bozic and Marslen-Wilson (2010).

all of which are regularly built to verbal roots rather than stems.⁴¹ However there is some inherent ambiguity here, since tense-aspect stems can be identical to verbal roots, namely in the root present, the root aorist, and unreduplicated perfect stems. This ambiguity will be considered further later; however at this stage we will include only ambiguous forms which could conceivably be built to tense-aspect stems (i.e. where a corresponding root present or aorist or unreduplicated perfect is conceivable) and of which the suffixes are found unambiguously attached to tense-aspect stems in other forms (i.e. the suffixes *-nt-*, *-(m)āna-* and *-vāms-*).⁴²

Although the formation of participles should be considered a verbal process, deriving adjectives from verbal tense-aspect stems, it has been demonstrated (e.g. by Tucker, 1988) that certain denominal participles, in particular those with a desiderative sense, were actually formed by means of an adjectival derivation process from nominal bases; e.g. *gavyánt-* ‘desiring cows’ from *gáv-* ‘cow’. In principle a word formed by adjectival derivation ought not to be considered a verbal form, and therefore such adjectives should be excluded from the category ‘participle’. However the situation is not so simple. Many such denominal adjectives have corresponding finite verbal forms, meaning that formally at least they could be considered participles. Syntactically and semantically too, there is no reason to separate the apparent participles from the verbal stem. In all likelihood the finite forms were created on the basis of the denominal adjectives in *-yánt-*, but once the creation of finite forms became possible, it would have equally become possible for the adjectives to be considered participles derived from the verbal stems. Even if finite verbal forms never existed for some roots (e.g. $\sqrt{tvāy}$, attested only in the participle *tvāyánt-* ‘desiring you’, for which Tucker, 1988, p.100 considers it “absurd” to reconstruct a finite verb **tvāyāti*), this does not mean that an adjective in *-yánt-* could not have synchronically patterned or have been analysed as a verbal form to a root which simply lacked finite forms (as some roots lack one or another tense-aspect stem). In the end, it cannot be proven that a finite form did not or could not

⁴¹The desiderative adjective in *-sú-* and the desiderative-denominative adjective in *-yú-* are built to stems which are similar (and probably related) to verbal stems, but lack the thematic vowel of the verbal stem.

⁴²For Latin Vester (1977, p.272–273) specifies that a participle must be “part of a complete verbal paradigm forms of which occur in texts of the same period as the word in question”, which may get around this definitional difficulty. However such a strict formulation is not appropriate for the language of the *R̥gveda* since it is by no means a complete record of the geographically and historically wide range of dialects spoken by its authors.

have existed to any denominal root, and therefore all denominal ‘participles’, even those of which the non-verbal origin is clear, must be considered synchronically participles, unless there is clear functional evidence to suggest a synchronic disjunction between participle and verbal stem (which, in the case of stems attested only in the participle, is impossible).

Having defined the category of tense-aspect stem participles for the purposes of this thesis, we now move on to consider the morphological features and subcategories of these words.

1.4 The Morphology of Participles in the *Ṛgveda*

Morphologically, participles consist of a verbal tense-aspect stem followed by an adjectival suffix. There are up to six tense-aspect stems, four of which have two voices, active and mediopassive, while there are only three adjectival suffixes, *-nt-*, *-váms-* and *-(m)āna-* to cover all these stems. The *-nt-* suffix is used for all specifically active stems except the perfect active; the *-váms-* suffix is used for the perfect active alone; and the *-(m)āna-* suffix is used for all mediopassive stems. All three suffixes form participles in at least some other Indo-European languages, and hence can be reconstructed to at least late PIE.⁴³

1.4.1 The suffixes

The use of the *-nt-* suffix for active participles outside the perfect is seen also in many other Indo-European languages, and is clearly inherited. It is the most securely reconstructable tense-aspect stem adjectival suffix for PIE, being the only one attested in Hittite.

The *-nt-* suffix is in some ways the most interesting of the participial suffixes, because it is not exclusively a participial suffix, but is found as an adjectival suffix in other categories too. Although there is something of a tendency to assume that any word in *-nt-* must be a participle in origin (as e.g. Shatskov, 2005), the PIE **-nt-* suffix is found in an unusually wide variety of uses in the Indo-European languages.⁴⁴ It is used for proper names of places and peoples (Kretschmer, 1925), e.g. Latin *Picentes*, Greek *Ἰβαντες*, and is found as an adjectival

⁴³On the morphology of non-finite verbal forms in PIE see García Ramón (forthcoming).

⁴⁴Solta (1958) provides the best collection of data.

suffix in the Caland system, e.g. Vedic *bṛhánt-* ‘high’ (Nussbaum, 1976, p.23–24).⁴⁵ It is also found in the pronominal system, e.g. Latin *tantus* ‘so great’, *quantus* ‘how great’ (thematized, if not **-to-* derivatives to *tam*, *quam*), Ṛgvedic *kíyant-* ‘how great’, *íyant-*, ‘so great’, Av. *yānt-* ‘as great’ (Sims-Williams, 1997; Klingenschmitt, 1972, p.101, p.108 fnn. 6 & 8). In Tocharian (A *-ntu*, *-antə*, *-untə*, B *-anta*) it functions as a plural marker, according to Melchert (2000) deriving from an inherited function of forming count plurals to neuter nouns.⁴⁶ In Anatolian the suffix forms various nominal derivatives (Kammenhuber, 1956; Josephson, 2004), often associated with the archaic neuter **-r/-n-* stems, and cognates to some of these forms are found, thematized, in Sanskrit, e.g. Hittite *gimmant-*, Sanskrit *hemantá-*, ‘winter’ beside *n-*stems seen in Skt. adv. *heman*, Greek *χειμῶν*, similarly Sanskrit *vasantá-* ‘spring’ beside Lat. *vēr*, Gr. *ἔαρ* etc.⁴⁷ It may also be related to the Hittite ‘ergative’ suffix (on which Melchert, forthcoming b), but this is disputed; see e.g. Garrett (1990) against a relation between the two; in contrast Oettinger (2001), Josephson (2004) and Kloekhorst (2008, p.184–185) in favour. At least in some cases, the suffix **-nt-* (full-grade **-ént-*) may be an earlier form of the adjectival suffix **-uént-* (according to Sims-Williams, 1997, p.321–322), suggested by word pairs such as Ṛgvedic *ívant-* ‘so great’ beside *íyant-* ‘id.’, *kívant-* ‘how great’ beside *kíyant-* ‘id.’. For **-nt-* in river names throughout Indo-European territory, both as an adjectival and participial suffix, see Kitson (1996).

In Sanskrit the *-nt-* suffix has three patterns of ablaut: hysterodynamic, found in all athematic stems except class 3 (reduplicated) presents; thematic, originally a non-ablating declension with the suffix appearing directly after the thematic vowel of thematic stems, but largely analogically rebuilt after the hysterodynamic declension (except in the feminine; the non-ablating thematic stem is preserved in Avestan); acrostatic, found in class 3 and intensive present stems and the sigmatic aorist, all of which show a fixed accent on the root or reduplicating syllable, leaving the participial suffix in a constant reduced grade. In all these the *-nt-* participles essentially follow the ablaut pattern of the verbal stem from which they are derived.

⁴⁵The Caland system is discussed further below (§4.6).

⁴⁶See also Mezger (1965) for a possible trace of this ‘individualizing’ function of the suffix in the Gothic noun *frijōnds* ‘friend’, usually considered a present participle in origin.

⁴⁷In contrast Shatskov (2005) rejects all the evidence for a non-participial *-nt-* suffix, in particular but not only in Hittite, and analyses these ‘season’ words as *-t-* derivatives from *-n-* stems (p.108, fn.10).

The perfect active participle suffix (Skt. *-vāms-*, PIE **-u_s-*)⁴⁸ is not found in any other functions in Sanskrit or in related Indo-European languages, and may be assumed to have been exclusively the only suffix forming perfect tense-aspect stem participles in early PIE (the development of the perfect mediopassive being probably a later development).⁴⁹ The possibility that PIE **-u_s-* may be an enlargement of the ‘participial’ adjective-forming suffix **-u-* has been explored by e.g. Benveniste (1935b, p.85–86) and Gusmani (1968, p.117–119); but such speculations are irrelevant to the synchronic situation in R̥gvedic Sanskrit (or even late PIE).

All mediopassive and passive (tense-aspect stem) participles in Sanskrit are built by attaching *-(m)āna-* to the relevant tense-aspect stem: *-māna-* to thematic stems, *-āna-* to athematic stems. From a diachronic point of view this suffix cannot be broken down or easily related to any other suffix or category.⁵⁰

⁴⁸On the unusual declension of the *-vāms-* suffix see Jamison (1991a); the earlier reconstruction of a varying **-s-/t-* stem can no longer be supported (see especially Szemerényi, 1967), although it has nevertheless been maintained by e.g. Beekes (1982), Rasmussen (1994), Olsen (2004).

⁴⁹Drinka (2009) has discussed in detail the possibility, suggested by Flobert (1975, p.482), that the PIE **-tó-* adjective, ancestor of the Sanskrit *-tá-* adjective, may have been a perfect passive participle, perhaps even forming a periphrastic perfect passive in PIE. The usual argument against a connection between the **-tó-* adjective and the verbal system (particularly the perfect) is based on the clearly adjectival nature of the *-to-* adjective in Ancient Greek. However Drinka (2009, p.142) makes the point that in nearly all other Indo-European languages it was ultimately integrated into the verbal system (and usually the perfect tense/aspect), and that there is even evidence in Greek, in the oft quoted *ἴσα ἀκίνητα καὶ κεινημένα* (Plato *Σοφιστής* 249d, first discussed by Meillet, 1929, p.635), where the *-to-* adjective functions as a compoundable form of the perfect mediopassive participle. Although some connection between the PIE **-tó-* adjective and the PIE verbal system should be accepted, it is at least clear that it was not morphologically integrated into the verbal system in the same way as the tense-aspect stem participles. Meillet (1929) also came to the same conclusion.

⁵⁰The PIE form of this suffix, **-mh₁no-/-m_hno-*, was established by Klingenschmitt (1975, p.159–163) on the basis of the attested reflexes in Indo-Iranian (Sanskrit *-(m)āna-*, Prakrit also *-māna-*, Avestan *-āna-* and *-mna-*), Greek (*-μενο-*, expected post-consonantal **-μ₁νο-* presumably remodelled analogically after the post-vocalic variant) and Tocharian (A *-mām*, B *-mane/-māne*). The Sanskrit thematic form *-māna-* must be an analogical remodelling of an earlier **-mina-/-mīna-*, preserved in certain Middle Indic dialect forms, e.g. Aśokan *palakamāmīna-* ‘exerting oneself’ (= Sanskrit *parakramamāna-*) and Ardhamāgadhī *agamamīna-* ‘coming’ (cf. Sanskrit *āgáčchamāna-*).

This reconstruction of the PIE form of the suffix has been doubted or rejected by several scholars, e.g. Melchert (1983, p.23–26), de Bernardo Stempel (1994), Meier-Brügger (2003, p.186 with references). However the primary objections are the loss of the connection to **-men-* and the indivisibility of **-mh₁no-*, neither of which are valid arguments. We must simply accept the suffix in the form in which the available evidence forces us to reconstruct it, rather than choose our reconstructions on the basis of supposed or desired connections which have no necessary basis in fact. There is absolutely no need to assume a connection to **-men-*; even if we did follow this line of argument it would be utterly unexpected to find the thematic vowel attaching to different ablaut grades of the same suffix. A useful and clear summary of the situation is provided by Forssman (2000, p.69–70).

The suffix **-mh₁no-* is attested as a productive formation only in the participial systems of certain daughter languages. Besides Indo-Iranian, Greek and Tocharian, discussed above, it is found also in Armenian *-own-*, and traces, deriving perhaps from an original participial use, may be preserved in Latin *femina* ‘woman’, *alumnus* ‘nursling’ and the verbal 2pl. passive ending *-mini* (Watkins, 1969, §166–169, p.176–179). In other languages a different suffix is used for mediopassive participles, **-mo-* (found also as a purely adjectival suffix across

As usual with morphology there exist irregularities and problematic forms. There is at least one clear example in the RV of the analogical replacement of the strong form of *-váms-* by the weak stem *-ús-*, *cakrúṣam* a.sg.m. at 10.137.1c for regular *cakṛvám̐sam*.⁵¹ There is also evidence for interaction between *-váms-* and the adjectival suffix *-vant-*: *dadhanvátaḥ* (RV 6.48.18) may stand for expected *dadhanúṣaḥ*.⁵² It has also been argued that *cikitvánā* at 8.60.18b may show interference between the adjectival *-ván-* stem and *-váms-*. The distinction between the thematic and athematic mediopassive suffixes is occasionally obscured by the creation of thematic participles to otherwise athematic stems, e.g. *sasṛmāṇá-* for expected *sasrāṇá-*.⁵³

More significantly, there is evidence for the use of the ‘wrong’ suffix in some words, e.g. the perfect participle suffix attached to the present stem in *vijānúṣaḥ* (RV 10.77.1b, cf. §4.8.2, p.240). More frequently, the mediopassive suffix is found where the active would be expected and where there is no discernable medial or passive sense; Gotō (1987, p.28) argues the mediopassive suffix was occasionally used in place of the active since it is easier to inflect. This may foreshadow or be related to the Middle Indo-Aryan development whereby *-māna-* takes over *-nt-* in some dialects e.g. Pkt. *samāṇa-* ‘being’ for Skt. *sánt-* (while in other dialects *-nt-* is thematized to *-nta-* and *-(m)āna-* is entirely lost along with the rest of the middle).⁵⁴ A wealth of data, albeit somewhat outdated in certain respects, relating to the confusion of voice in Ṛgvedic participles was collected by Renou (1925, ch. 6). Renou argues that this apparent lack of voice differentiation is an archaism, showing the originally nominal origin of the participles, but this need not be the case: it is at least as likely that it is an innovative development, perhaps showing a developing loss of diathetic distinction in the participial system.

Indo-European languages); this is found in Baltic, Slavonic, and may be preserved in the Sabellian future passive imperatives, Oscan *-mor*, Umbrian *-mu*. Luwian and Lycian *-mma/i-* has been connected to PIE **-mo-* (Benveniste, 1959) and **-mh₁no-*, but may rather derive from **-mn-o-* (Melchert, forthcoming a); functionally the suffix is equivalent to the Hittite *-nt-* participle. There is no mediopassive participle in Hittite.

⁵¹This becomes more common in Epic Sanskrit, e.g. n.du. *viduṣau*, n.pl. *viduṣaḥ*, whence a stem *viduṣa-*.

⁵²The interference is clear, but not well understood, in Avestan also: Skt. PN *Vivasvant-*, Av. *Vīuuahuuṇt-* but patronymic Av. *vīuuṇhuša-*.

⁵³Insler (1975, p.122) argued that in Gāthic Avestan all mediopassive participles were thematized, so this may be an inherited tendency. but see also Knobl (2004, p.266–267).

⁵⁴Cf. Bloch (1965, p.251–266). The essential pattern here is the replacement of athematic *-nt-* by a thematic participle suffix, either *-nta-* or *-māna-*, along with the Middle Indic syncretism of active and middle.

1.4.2 The present stem

The present is the most common tense-aspect in the *Ṛgveda* and the one which displays most variety of form. Traditionally there are ten classes of present stem, formed by reduplication, suffixation, infixation or ablaut of the verbal root.

The many different present stem forms can broadly be split into two groups, primary and secondary stems. Primary stems are those which form basic present stems to a root, with no semantic specification beside the meaning of the root and the present tense-aspect. Different roots form their basic present stems in different ways, and roots can form more than one primary present stem, often with no semantic difference between them. Secondary stems are those which alter the meaning of a root; these stems tend to be formed in the same way by all roots. So for example the causative, which forms a stem in which the meaning of the root has been transitivized or causativized; likewise the desiderative, the intensive, the passive.

There is something of a grey area between primary and secondary stems, since secondary stems can sometimes become lexicalized and treated as a primary stem; and indeed this same development at an earlier stage of the language is thought to explain the variety of primary stems in use. Moreover some primary stems retain traces of an earlier semantic function, e.g. the reduplicated present of \sqrt{bhr} , *bíbharti* ‘carry’ retains something of an earlier iterativizing function beside the perhaps more semantically basic class 1 present *bhárati* ‘bring’.

The distinction between the present tense-aspect and the aorist and perfect is at times somewhat unclear, as there was a tendency for aorist subjunctives and perfect stems to be reanalysed as presents. Such reanalysis is often seen first in the participles; this may be the case, for example, with *juṣámāṇa-*, apparently attesting the present stem *juṣá-* (based on the subjunctive of the root aorist of $\sqrt{juṣ}$ ‘enjoy’), first attested post-RV.

1.4.3 The stative stem

This tense-aspect stem is of somewhat uncertain status. The stative is generally treated as a distinct tense-aspect, relatively rare in the *Ṛgveda*, formed mainly to the verbal root, but

also to some nasal and intensive stems.⁵⁵ The derivation from nasal present stems does not mean that the stative should be considered a secondary present stem rather than a distinct tense-aspect, since the spread of the nasal stem in the stative appears to have analogical origins; likewise the intensives can as well be considered intensive statives as statives to the present intensive. That the stative can form participles in *-āna-* is conclusively shown by Kümmel (1996, e.g. p.58).⁵⁶

Kulikov (2006b, p.67–68; 2009, p.79–80) has recently argued that unexpectedly ‘passive’ or patientive examples of the perfect middle, allegedly occurring only in the 3sg., 3pl. and participle, are actually statives built to the perfect stem.⁵⁷ Following this argument to its logical conclusion means that the stative is merely a secondary stem form which can be found in principle with any tense-aspect stem. Kulikov’s argument can be countered by the existence of non-3rd person perfect middle forms which are patientive, as 2sg. *jaḡñiṣe* ‘you were born’.⁵⁸ Even if his rule generally holds, the 3sg., 3pl., and participle are among the most common forms of verbs, and so even a considerable statistical weighting in their direction is unlikely to be probative.

The existence of a distinct stative tense-aspect will therefore be assumed here; stative participles will be further discussed below (§4.9.1, p.244f.).

1.4.4 The aorist stem

Aorist Active and Middle

The aorist tense-aspect stem has the second largest variety of formations, after the present. Many aorists are built to the verbal root (the root aorist), but the productive aorist stems

⁵⁵By the stative I mean not the derived stative stems in **-ē-* but the system of formations typified by medial ‘*t*-less’ or perfect-like 3sg. endings such as *śáye* ‘lies’ for expected (later) *śéte*. See Oettinger (1976, 1993) and in particular Kümmel (1996).

⁵⁶Jasanoff (1978, §64, p.74) takes *-nt-* participles as sometimes related to stative or middle paradigms, e.g. *duhánt-* to *duhé* (despite the fact that this participle is routinely transitive). Following from this he assumes they were later replaced by more ‘regular’ *-āna-* forms, e.g. *dúhāna-*, *dhṛṣāná-* for *dhṛṣánt-*, *vṛdhāná-* for *vṛdhánt-* (Jasanoff, 1978, §75, p.88). There is little to support this argument; it may be more likely that **-uṣ-* was the original stative participle suffix.

⁵⁷The only participle Kulikov specifically mentions in both articles is *yuyujāná-* in the compound *yuyujāná-sapti-* ‘whose horses have been yoked’ at 6.62.4; however a secure argument cannot be based on this compound, since it could perhaps be taken as a governing compound ‘having yoked one’s horses’ (cf. Geldner’s translation, RV, ad loc., “wenn sie ihre Rossen angeschirrt haben”), in which case it is not unexpectedly patientive, but regularly agentive.

⁵⁸Cf. Kümmel’s (2000a, p.92–93) list of roots where the perfect middle is patientive.

are the thematic aorist, the *s*-aorists,⁵⁹ and the reduplicated aorist (which usually functions as the aorist to a ‘causative’ present stem in *-áya-*).

The aorist participles of Sanskrit are almost entirely confined to the *R̥gveda*; only a very few are found in other Vedic texts, and they are entirely absent from the Classical language. The category of aorist participles, inherited from PIE, is assumed to have become obsolescent due to its functional equivalence firstly to perfect participles and secondly to the emerging absolutive, which itself consigned also the perfect participle to obsolescence (cf. Tikkanen, 1987, p.216–221, 226). Aorist participles are considered characteristic of the earlier levels of the *R̥gveda* by Arnold (1905, p.31).

However the collection of word forms traditionally categorized as aorist participles is not, like the categories of present, perfect and future participles, a group of word forms sharing a particular morphological feature, such as clear derivation from a present, perfect or future tense-aspect stem, but rather the set of participles or apparent participles which do not clearly fit in to any of the other categories. Although a slim majority of this supposed class of active aorist participles formally correspond to an attested active aorist stem, the corresponding figure for mediopassive participles is less than one fifth. In some instances the existence of a corresponding aorist stem can be assumed, but in many cases a form has been classified as an ‘aorist’ participle simply because it cannot obviously be classified as a present participle.

It is notable that all but four of the roughly twenty forms listed as active ‘aorist’ participles by different authors, and all but four of the alleged medio-passive ‘aorist’ participles are or can be treated as being formed directly to the verbal root (which may or may not be identical to an aorist tense-aspect stem).⁶⁰ This distribution reveals a notable fact: aorist participles are rare or non-existent to the productive aorist stem formations.⁶¹ Synchroni-

⁵⁹I use the term *s*-aorist to include all aorist stems which contain an *s* in the suffix, i.e. those formed with the suffixes *-s-*, *-iṣ-*, *-siṣ-* and *-sa-*. On the relations between these suffixes see Narten (1964).

⁶⁰The four medio-passive exceptions are all built to a thematic stem (*guhámāna-*, *jásamāna-/dásamāna-*, *dhṛṣámāna-*, *śúcámāna-*). Of the four active exceptions two are built to an apparent *s*-aorist stem (*d(h)ákṣat-*, *prasákṣat-*), one, arguably, is haplogogized from a reduplicated aorist (*rīṣant-*), and one, *citánt-*, is thematic.

⁶¹There are around 10 aorist participles found in Avestan (listed by Kellens, 1984, p.361–371); most are athematic root formations, as in Sanskrit, but two are identifiable as thematic, namely *vīdant-* (Ved. *vidhánt-*) and *hanaṇt-* (Ved. *sánant-*). The apparent *s*-aorist participles in Avestan have a temporally future reference (Kellens, 1984, p.397–398) and may be best related to the Greek sigmatic future, reflecting an inherited desiderative-type secondary stem, as argued by Tichy (2006, p.317–318).

cally this suggests that this was no longer a fully productive formation from verbal stems, and any productivity observed may not be verbal.⁶² Diachronically it is possible that a category of aorist participles lost productivity at an early date, before the reduplicated and *s*-aorists became productive; alternatively it may be that there never was a fully productive derivation of participles from aorist tense-aspect stems, whether in PIE or PII.⁶³

It is no surprise then, that there is no absolute consensus on the exact constitution of the category of aorist participles. The collection of ‘aorist participles’ is in fact a conglomeration of groups of forms with different origins, some of which have been incorrectly categorized together. Several can be and have been alternatively classified, e.g. as present participles (so *jásamāna-* by Jasanoff, 2003a, p.201, 225). Morphology alone cannot determine what is and is not an aorist participle: one aim of this investigation will therefore be to sort out the confusion surrounding this category on the (hopefully) more secure basis of a combined functional and morphological analysis.⁶⁴

The Passive Aorist

The passive aorist is morphologically distinct from the aorist proper, being formed directly to the verbal root regardless of whether the root forms a root, thematic or *s*-aorist in the active/middle. Kulikov (2006a) argues that some Ṛgvedic participles should be analysed as participles to the aorist passive stem; that the aorist passive could form participles is also assumed by Jasanoff (2002, 2003a).⁶⁵ However this is far from certain, and the evidence will be considered in more detail below (§4.9.1, p.244f.).

⁶²Nevertheless the existence of around two hundred individual occurrences of aorist participles means there is sufficient productivity for aorist participles to ‘pass’ our definition proposed above, at least at this stage.

⁶³Aorist participles are rare or non-existent in other Indo-European languages, except Ancient Greek, where the participial system has been filled out to such an extent that no inheritance need be assumed to account for their existence. It is also notable that perfective participles are absent from Russian despite the systematic aspectual opposition in the Russian verbal system, although there are some perfective participles in Old Church Slavonic (Růžička, 1963, p.63–65).

⁶⁴It is worth remarking, however, that over half of the forms usually or occasionally analysed as aorist participles are attested only once; it is therefore often difficult or impossible to be certain whether a certain hapax legomenon is to be classed in one way or another, or whether it should simply be explained as a non-formation (an explanation which should, however be used only as a last resort). Nevertheless it will be possible to draw some conclusions by considering these rare or unique forms in relation to one another.

⁶⁵Technically Jasanoff is reconstructing participles to his PIE intransitive aorist conjugation, which he argues became the passive aorist in Indo-Iranian. Moreover he assumes that the form of the suffix was **-nt-* in PIE, but was medialized in PII (Jasanoff, 2003a, p.168).

1.4.5 The perfect stem

The perfect tense-aspect is formed in the same way for (nearly) all roots, with reduplication according to regular patterns. The perfect participles are formed by addition of the suffix (-*váms-* in the active, -*ānā-* in the mediopassive) to the weak grade of the perfect stem, which is usually the zero-grade root plus reduplication syllable; so e.g. to \sqrt{kr} , perfect participles *ca-kr-váms-*, *ca-kr-ānā-*.

A few roots lack reduplication in the perfect, most notably $^2\sqrt{vid}$ ‘know’, of which the mediopassive perfect participle *vidānā-/vídāna-* has been variously analysed as a present, a stative, or even an aorist to $^1\sqrt{vid}$ ‘find’.⁶⁶ In the active of course there is no ambiguity, since -*váms-* is exclusive to the perfect. It is however unclear whether the isolated vocative *khidvaḥ* at 6.22.4c should be attributed to an unreduplicated perfect stem *khidvám-* or to a nominal -*van-* stem; the latter analysis is most commonly found and is followed here (cf. Mayrhofer, EWA, v.1, p.454 and Wackernagel-Debrunner, AiG, v.2:2, p.896).

In a few other forms the perfect reduplication has been obscured by phonological developments, e.g. *okivám-* to \sqrt{uc} ‘be contented’, from **Ha-Huk-* < **h₁e-h₁uk-* (Kümmel, 2000a, p.128); *sāhvám-* to \sqrt{sah} ‘prevail’ with early loss of voiced sibilant and compensatory lengthening from **sa-zjh-* < **se-sĝh-* (Kümmel, 2000a, p.563–567); *dāśvám-* to $\sqrt{dāś}$ ‘offer worship’ showing a possibly PIE development from original **de-dĥ-* (Kümmel, 2000a, p.242–245).⁶⁷ The isolated *cakhvám-* may be a regularly formed perfect participle to a root $^? \sqrt{khā}$ ‘stretch out, open’ (Kümmel, 2000a, p.152; Mayrhofer, EWA, v.1, p.451). On the difficult *mīdhvám-* see Manessy-Guitton (1964, p.279f.); whatever its explanation, the assumption of an ordinary perfect active suffix -*váms-* is complicated by the apparent secondary derivative *mīlhúsmant-*; Kümmel (2000a) does not even mention the form.

Although the participial suffixes are regularly attached to the zero-grade reduplicated root, a few stems show secondary ablaut of the stem as well as the suffix in the ac-

⁶⁶For the most acceptable analysis, as a perfect participle with perhaps some synchronic association with the stative, see Kümmel (1996, p.101–104). For alternative treatments, see e.g. Seebold (1973), Schaefer (1994, p.184 and fn.551), Tremblay (1997, p.113–115).

⁶⁷A possible PIE sound change **d > *h₁ / * \hat{k}* is supported by e.g. Gr. *πενήχοντα* ‘fifty’, Skt. *pañcāśát-* ‘id.’. Other explanations have been put forward for *dāśvám-*: LIV assumes the lengthening is due to analogy with a supposed ‘Narten’ present; Tremblay (1997, p.119) argues the perfect participle comes from an inherited ‘long vowel’ perfect.

tive, presumably for reasons of euphony, e.g. *jaganváms-* to *jagmús-* replacing **jagnváms-* /*jagaváms-*.

Due to the distinctive suffix in the active and the relatively distinctive marking of the perfect by means of reduplication, there is usually little ambiguity between perfect participles and those of other tense-aspect stems. There is however the possibility of ambiguity between the perfect mediopassive and reduplicated present mediopassives; e.g. *ísāna-* / *īsāná-* ‘ruling, ruler’ has been variously considered part of the present, perfect, or even stative of the root \sqrt{is} ‘rule’. Accent on the suffix is typical of the perfect, while accent on the reduplication syllable or root is typical of the present, but accent is not always consistent (as in *ísāna-* / *īsāná-*) and is in some forms absent (as in the compound *īsāna-kṛt-* ‘playing the ruler’).

1.4.6 The future stem

The so-called ‘future’ stem is built by adding the unambiguous suffix *-(i)sya-* to the full-grade verbal root; the participial suffixes *-nt-* and *-māna-* are then added to this stem to form participles. Jasanoff (1975) has pointed out that in the *R̥gveda* there are 29 future participles built to 12 roots, whereas there are only 20 finite future forms built to 10 roots; he therefore argued that the *-sya-* future began life as an adjectival formation (necessarily therefore to a non-verbal stem) and that finite forms were secondarily created on the basis of the adjective. Further weight is added to this theory by the fact that the only word equations supporting the reconstruction of a **-sje/o-* formation in PIE are participles: Skt. *dāsyánt-* is cognate with Lithuanian *dúosiant-*; Av. *būšiant-*, Lith. *būšiant-* and OCS *byšōst-* are also cognate.⁶⁸

The diachronic origins of the future tense and participle are not irrelevant to its synchronic status in the *R̥gveda*, where it has been argued to be not a distinct future tense, but some sort of secondary present stem parallel to the desiderative. Tichy (2006, p.125–131)

⁶⁸Jasanoff’s proposal (repeated without significant change in Jasanoff, 1978, p.103–105) is criticised by Klein (1984) who argues that a participle cannot cause the back formation of a tense stem because a participle already presupposes the existence of a tense stem. However this argument is circular, in so far as prior to the existence of a finite form such a ‘participle’ would rather be an adjective and hence would not presuppose finite forms, and moreover it is clear that in other cases finite verb forms have been created on the basis of adjectives or participle-like adjectives (e.g. the desiderative-denominatives in *-yánt-*, cf. §1.3, p.14 above).

terms the *-sya-* future “das Präparativ”, contrasting it with other derived sigmatic stems, the desiderative and the “Voluntativ”, which is a **-sa-* present stem derivative still found in Avestan (notably in participles in *-sa-*), in the Greek future, and e.g. in the Sanskrit stems *hāsa-*, *abhi-dāsa-* etc.⁶⁹ In contrasting the *-sya-* ‘future’ with the subjunctive, Tichy (2006, p.169) argues that in the second and third persons the ‘future’ expresses the “Befürchtung” (fear, apprehension) and “Voraussicht” (foresight) of the speaker, occasionally also “Voraus-sage” (prediction), while the subjunctive expresses rather the “Erwartung” (anticipation, expectation) of the speaker. In contrast in the first person the subjunctive has a hortative function (‘let’s’), while the ‘future’ has a more intentional sense (‘I am going to’). If this is true, the ‘future’ does seem to be closer to expressing simple future tense than the subjunctive (which is normally assumed to be the basic way of expressing future time in the *Ṛgveda*). According to Pāṇini the future tense, including the participle, can refer to general future time or specifically to the expression of purpose (Aṣṭ. 3.3.10,13).

In his cross-linguistic examination of the future tense, Ultan (1978) observed that future tenses tend to be more marked (both semantically and morphologically) than present or past tenses, that they often derive historically from desideratives (beside other categories), and that futures can have atemporal functions beside temporal ones, such as imperative, hortative and desiderative functions, or the expression of probability, possibility, supposition, and hypothesis. This may leave it a moot point whether we treat the Sanskrit ‘future’ tense as a true future or as a “Präparativ” (present) stem.⁷⁰

Ultan (1978, p.101) makes the following typological claim about future participles: “A future participle implies both present and past participles but neither of the two converses is necessarily true.” How exactly he would define ‘participle’ and how this would work in purely aspectual participial systems is unclear, but it is worth noting that the existence of participles which clearly refer to relative ‘present’ time and to relative ‘past’ time at least license the existence of a specifically future participle in the *Ṛgveda*. Our functional investigation will show the extent to which ‘future’ participles can really be considered to

⁶⁹For other discussions of the function of the future in Indo-Iranian see e.g. Renou (1961); Hintze (1995).

⁷⁰Dahl (2011b, p.289) for one seems to despair of drawing any firm conclusions regarding the semantics of the various future-like stems found in Indo-Iranian when he concludes that “it is therefore reasonable to assume that the Future... the desiderative and the Voluntative... represented competing expressions of future time reference in Indo-Iranian.”

express future time, and the extent to which they parallel secondary present stems like the desiderative.

1.5 Previous Treatments of Sanskrit Participles

This section will consider previous treatments of participles in the *Ṛgveda* and in Sanskrit in general. As stated above, Sanskrit participles have never been studied in detail (except by Renou, 1936b), but they have of course been treated in larger works on Sanskrit syntax. The study of Sanskrit grammar begins not with Western scholars but with the native Indian tradition, with the *Aṣṭādhyāyī* of Pāṇini, itself the product of a now lost tradition of grammatical study which had its origins in the Vedic period.

1.5.1 The Indian grammatical tradition

The *Aṣṭādhyāyī* of Pāṇini is a collection of around four thousand concise rules, or *sūtras*, probably written between about 500 and 300 B.C. It is a generative grammar of sorts, by which any grammatical sentence of Classical Sanskrit can be correctly formed. Although the Sanskrit described and defined by Pāṇini is later than the language of the *Ṛgveda*, his early date and comprehensive and insightful treatment of the language make his work and the subsequent grammatical tradition invaluable for any study of Sanskrit grammar, including *Ṛgvedic*. Pāṇini does attempt to specify the points of variance between the contemporary spoken Sanskrit being defined and the language of the metrical Vedic texts (*chandas*), and it is agreed that Pāṇini had the *Ṛgveda* in substantially the same form in which we now have it.⁷¹

Pāṇini does not distinguish tense-aspect stem participles as a group within the verbal or nominal systems; rather the different tense-aspect stem participles are defined separately. The participial suffixes are nominal suffixes, but in contrast to other nominal suffixes the participial suffixes are attached to a tense-aspect stem, rather than a verbal root or nominal stem. This is not merely a morphological fact, independent of the semantics: the function

⁷¹According to Cardona (1991, p.130) “there is irrefutable evidence that Pāṇini knew Śākalya’s *Padapāṭha* to the *Ṛgveda*”; as Bronkhorst (1991, p.104) states in the same volume, this fact “leaves little room for changes other than sandhi.”

of the tense-aspect stem in the participle is identical to the function of the tense-aspect stem in the finite verb forms. So the present tense is marked by the suffix *laṭ*, which is specified for an action taking place in ‘present time’.⁷² In the same way as the finite verb suffixes, the present participle suffixes are direct substitutes of *laṭ*, and therefore necessarily have the same temporal reference as finite present forms.⁷³ This is distinctly different from, for example, the *-tá-* adjective, of which the temporal reference (namely, past time) is defined independently of any finite verb stem (Aṣṭ. 3.2.102).

Moreover, syntactic properties which participles share with finite verbs are, in Pāṇini’s system, directly due to their common derivation from a tense-aspect stem. Rule 2.3.69 (*nalokāvyayaniṣṭhākhalarthatṛṇām*) prohibits the use of the genitive case to express either the object or agent after a variety of suffixes; here, both finite verb forms and tense-aspect stem participles are specified by the single reference to tense-aspect stem formants (*la-*). Rules 3.2.128–133 treat certain participle-like nominals which we might analyse as historically participles, but which for Pāṇini were not participles synchronically. Rule 3.2.129 (*tācchīlyavayovacanaśaktiṣu cānaś*) shows that, for Pāṇini, a present participle could only be formed to a tense-aspect stem for which finite forms existed. It defines a suffix, *cānaś*, to express habitual disposition, age or ability: this suffix produces, in the final output of the grammar, a word phonologically and morphologically identical to a medio-passive present participle, except that it can be formed to any root, including those which do not form finite medio-passive present stems. An example often given in the commentaries is *katīhanighnānāḥ* ‘how many here are killers?’, which for Pāṇini cannot be a participle since \sqrt{han} (or *ni-√han*) does not form a finite medio-passive present stem.

There is therefore a very clear distinction in the *Aṣṭādhyāyī* between participles, productively derived from tense-aspect stems, and other adjectives, including participle-like adjectives. This extends to functional differences, which are only specified briefly by Pāṇini (see §3.1.1, p.108).

Unfortunately the participial system of Pāṇini’s language was less rich than that found in the *R̥gveda*. He does not recognize the existence of aorist participles, and recognizes

⁷²For the definition of the present tense in the Indian grammatical tradition, see §3.1.2, p.109.

⁷³The present participle suffixes are codenamed *śatṛ* (for *-nt-*) and *śānac* (for *-(m)āna-*), and collectively designated *sat* by Aṣṭ. 3.2.127.

perfect participles as a productive formation only in the ‘*chandās*’ as an alternative method of forming a finite perfect tense (Aṣṭ. 3.2.106–107). A very few perfect participles survived into Pāṇini’s language as lexicalized verbal adjectives; these are specified (Aṣṭ. 3.2.108–109) as replacements of the perfect tense marker, just as present participles are of the present.

The future participle, which is formed with the same suffixes found in the present, is treated in a parallel manner to the present participles. By Aṣṭ. 3.3.14 the participial suffix is an alternative of the finite endings of the future tense, employed according to exactly the same patterns.

Pāṇini’s treatment of participles is brief but rich in implications for his assumptions regarding their position within the verbal and nominal system of the language. But his aim is prescriptive, not analytic, and we can only learn from him how he considered participles should be used, not how they were used.

1.5.2 Jacob Speyer

Speyer’s *Sanskrit Syntax* (1886) has remained one of the most important reference works on Classical Sanskrit syntax. Present participles are described as “participles for the continuous action”, the present tense having “chiefly the character of expressing the durative” (§358, p.278–279). In defining the use of participles in Classical Sanskrit, Speyer’s primary division is between participles functioning as “simple attributive adjectives” or substantives, and “participles [which] serve to express attending circumstances or other qualifications of the main action, whether temporal or local, causal, concessive, conditional, hypothetical etc.” These latter uses he considers equivalent to subordinate clauses of various kinds: “the participle equivalent to a simple relative clause”; “the participle denoting time, state, condition, circumstance”; “the participle denoting cause, motive”; “the participle equivalent to a concessive sentence”; “the participle expressive of the protasis of a conditional or hypothetical sentence”; “the participle denoting a purpose, aim, intention” (§362, p.281–282). Other syntactically distinct uses of participles are treated separately: absolute constructions (§365–372, p.284–291); completive participles (§374, p.291–292); periphrastic verb forms (§376–378, p.293–296). Beyond this descriptive treatment, Speyer provides no analysis of the functions of participles or of the place of participles in the grammatical system

of Sanskrit. His brief *Vedische und Sanskrit-Syntax* (1896) adds nothing in this respect.

1.5.3 Berthold Delbrück

The most important contribution to the study of Vedic syntax is still Delbrück's *Altindische Syntax* (1888). He provides a wealth of data, gives a comprehensive overview of the subject, and treats the participles separately according to their tense-aspect stem, but his aim, like Speyer's, is primarily the organized presentation of data rather than interpretation. Participles are classed together with other non-finite verbal categories, the gerundives, absolutes and infinitives. Delbrück's definition of the function of present participles is as follows.

“Das Part. des Praes. wird einem Nomen des Satzes beigesellt, um auszudrücken, dass das Nomen sich in einer Handlung (dieses Wort im weitesten Sinne genommen) befindet, welche in die Satzhandlung hineinfällt. Die beiden Handlungen werden als gleichzeitig, als gegensätzlich, oder sonst wie in innerlicher Beziehung stehend gedacht.” (Delbrück, 1888, §211, p.368)

These relationships between the participle and predicate are not, however, fleshed out or further analysed. The different functions of present participles are not categorised; the only functions discussed are the expression of intention (“Absicht”, p.371), state (“Zustand”, p.371), and the participle constituting a Noun Phrase (p.372). As in Speyer's work, the syntactically distinct functions such as the absolute construction are treated separately (§216–220, p.386–396). There is no attempt to provide an overall analysis of the functions and status of participles in the Vedic language.

1.5.4 Louis Renou

The most significant work on tense-aspect stem participles in Sanskrit is a sixty-page monograph by Renou in his *Études de grammaire sanskrite* (1936b). He first treats the uses of participles in the *Brāhmaṇas*, then in the post-Vedic language; finally 20 pages (plus 7 pages of footnotes) are devoted to the participle in the *Ṛgveda*. Renou's monograph provides examples of almost every conceivable use of participles, but he does not analyse or develop any conclusions about individual participial functions or groups of functions. Renou's comparison of the participle in the *Ṛgveda* with those of the later stages of the language led

him to the conclusion that the participle of the *Ṛgveda* has primarily an adjectival function, the verbal function becoming the more frequent only from the *Brāhmaṇas*. This supposedly supports the view that the participle is in origin a simple adjective which gradually assumed verbal characteristics. The adjectival value of the participle is seen in its frequent ‘substantival’ use, that it signifies “un état durable, une qualification”, and that it is regularly coordinated with ordinary adjectives (§39, p.26). This argument is not developed further or explicitly supported by evidence, and it is not clear what Renou means when he says that the morphology as well as the semantics of the participle supports this view.⁷⁴ However leaving aside periphrastic, completive and absolute uses of participles, which are incontestably further developed in the post-Ṛgvedic language, any difference between the participle of the *Ṛgveda* and that of the *Brāhmaṇas* need not be due to a development of a greater variety of participial functions, but a change in proportion. We will see that participles have a wide functional range in the *Ṛgveda*, as wide as is found in the *Brāhmaṇas*. If in the *Brāhmaṇas* a greater proportion of present participles display participial functions, this need not be due to any historical change but simply the different genres of literature involved: a high proportion of participles in the *Ṛgveda* are epithets (usually of gods), which is to be expected in hymns of divine invocation; they are by no means so common in the prose of the *Brāhmaṇas*.

Overall Renou’s work attempts to analyse the functions of participles in the *Ṛgveda* from a diachronic perspective without, however, undertaking a full treatment of the synchronic status of participles in the text. Renou makes assumptions about the synchronic status of participles on the basis of diachronic observations, which is a case of putting the cart before the horse.

1.5.5 Others

In more recent times participles have been briefly considered in most of the many monographs published on the Ṛgvedic verb system, and some areas of the participial system,

⁷⁴Perhaps the existence of the root-derived ‘aorist’ participles in the *Ṛgveda*? In contrast the relative lack of secondary derivatives from participles, in particular those in *-kā-* which become common only from the *Atharvaveda* (Renou, 1936b, §41, p.27f.), is a morphological argument in favour of an early distinction between participles and adjectives.

e.g. denominal participles, have been treated in journal articles and the like. Where these briefer treatments have something notable to say in specific contexts they will be mentioned in the relevant sections below. However there has been no overall treatment of participles as a category in themselves, and this work is an attempt to fill that gap.

1.6 Typologies of Non-Finite Verb Systems

Although participles have until now remained the least studied part of the non-finite verb system of the *R̥gveda*, recent work on non-finite verb systems, both cross-linguistically and in particular languages, can make a considerable contribution to our understanding of them.

The typology of non-finite verb systems is by no means settled at the present time (even the terminology can vary), but it is generally agreed that cross-linguistically the process of deriving an adjective from a verb is common, and the resulting form can be called a *participle*.⁷⁵ But it is also possible to derive other classes of words, besides adjectives, from verbs. Nouns can be derived from verbs, and these are called *action nouns*, *verbal nouns* or *masdars*.⁷⁶ Another category is that of *converbs*: adverbs derived from verbs.⁷⁷

Functionally, the categories of *participle* and *converb* can overlap. Converbs can be defined as non-finite verb forms which have a semantically adverbial function; that is, the *converb* interacts semantically with the main verb or predicate of the clause rather than any other element.⁷⁸ However this is a well established function of participles cross-linguistically, including in Indo-European languages such as Sanskrit.

There are two ways to define the difference between *converbs* and *participles* from a

⁷⁵This process of deriving a word belonging to one category (here an adjective) from a word or stem belonging to a different category (here a verb) is discussed by Haspelmath (1996), who labels it “word-class-changing inflection.”

⁷⁶The term *masdar* comes from Arabic grammar.

⁷⁷On the term *converb* see Haspelmath (1995, esp. p.45–46); the two most common terms in older literature were *gerund* and *adverbial participle*, both of which are ambiguous and hence unsuitable for use as typological labels. Sanskrit has *converbs*, but they are traditionally labelled *gerunds* or *absolutives*. Two major cross-linguistic studies of *converbs* and their functions are Haspelmath and König (1995) and Ebert et al. (2008); these contain studies of *converbs* in a wide variety of individual languages, and also more general cross-linguistic studies. For an overview of the subject and the problems of defining *converbs*, see Tikkanen (2001).

⁷⁸Haspelmath (1995, p.3) defines a ‘prototypical’ *converb* as follows: “a non-finite verb form whose main function is to mark adverbial subordination. Another way of putting it is that *converbs* are verbal adverbs, just like *participles* are verbal adjectives.” Haspelmath’s definition depends on a definition of non-finiteness (cf. above fn.19, p.6), which Nedjalkov (1995, p.97) avoids by specifying a *converb* as “a verb form which depends syntactically on another verb form but... does not realize its semantic valencies” [i.e. is not subcategorized for].

typological point of view: morphologically and functionally. The ‘ideal’ distinction between participles and converbs, where the two categories are both morphologically and functionally distinct, is rarely found. The morphological distinction can be illustrated by the difference between Sanskrit participles and absolutes (i.e. converbs). Participles are morphologically adjectives and therefore show adjectival agreement with an argument in the clause in which they appear and which is understood as its subject. In contrast the absolute is an indeclinable verb form, its subject being contextually determined (usually the most agentive argument in the clause). Functionally, however, there is an overlap between participles and absolutes; for example both the perfect participle and the *-tvā/-ya* absolute can express an action of the subject prior to that of the main verb.

The functional difference can be illustrated by Hungarian: Hungarian participles can *only* have certain functions, which are considered ‘adjectival’, while converbs display an entirely different set of functions, which are considered ‘adverbial’ (de Groot, 1995, p.287–288).⁷⁹ But functional differences may be accompanied by morphological overlap: in Classical Arabic the converb agrees in number and gender with a noun, features usually taken as adjectival rather than verbal features. Neither morphological nor functional grounds serve to distinguish participles and converbs in Modern Russian, however, where there is a kind of suppletive relationship between the two: Russian converb (деепричастие) paradigms lack passives, which are supplied by participles (причастие).⁸⁰

While morphologically the participles of the *Ṛgveda* fit the typological definition of a participle, functionally their categorization is less clear, since they apparently display features of both ‘participles’ and ‘converbs’. This is not exclusive to Sanskrit; Haspelmath (1995, p.17) recognises it as a feature of “older Indo-European languages, in particular... Latin and Classical Greek”; nevertheless he claims it is rare cross-linguistically.⁸¹ Haspelmath (1995, §4.1, p.17–20) labels such participles “copredicative participles”; in the same volume Nedjalkov (1995) uses the term “quasi-converb”.

⁷⁹For a detailed discussion of the difference between ‘adjectival’ and ‘adverbial’ functionality, see chapter 3.

⁸⁰See Weiss (1995).

⁸¹Even so the close relationship between converbs and participles is not only true in Indo-European languages, but is true in most languages in which converbs are found, according to Nedjalkov (1998, §6, p.451); this is often, perhaps wrongly, understood historically as the adoption of converbal functions by (originally purely adjectival) participles.

This terminological distinction raises a difficult question, namely how to classify forms like the participles of the *Ṛgveda* (as also the participles of Latin and Ancient Greek) which do not necessarily fit neatly into only one of the categories *participle* or *converb*. Clearly for Haspelmath the morphological criteria are fundamental; the same is true of Ebert (2008a). Although the morphology is clear in Sanskrit and many other languages, it is not always: in Modern German predicative participles could be analysed as converbs since all predicative adjectives tend to lack agreement. On the other hand V. Nedjalkov (1995, esp. p.103–106, 116–118) is happier to accept forms which are morphologically participles as converbs given the functional overlap between them. I. Nedjalkov (1998, §2.3, p.425) defines converbs entirely by function, classing any participle which is capable of adverbial function as a converb, specifically a “nonstrict” converb which retains its “participial” use.⁸² In marginal cases (e.g. English *-ing*)⁸³ both Haspelmath (1995, p.20) and Nedjalkov (1995, p.103) have recourse to the relative frequency of ‘participial’ vs. ‘converbal’ use; but frequency is a shaky foundation on which to build any kind of definition, and this is rightly criticized by Kortmann (1995, p.190–192).

Typologically, then, there is no clear definition of a participle or of a converb.⁸⁴ For our purposes, the typological status of *Ṛgvedic* participles is not central; but recognizing the functional parallels between *Ṛgvedic* participles and the converbs found in many other languages enables us to utilize work on the syntax and semantics of converbs as well as participles, and also to contribute to the typological debate with a detailed investigation of this borderline category.

1.7 The Data

This thesis will consider the syntax and semantics of all tense-aspect stem participles (or possible participles) primarily in RV books II–VII and IX (the so-called ‘family books’ and the Soma hymns, together the oldest books of the *Ṛgveda*), but also taking into account

⁸²However this leaves very little room for participles as a category; in fact it makes the category of participle a mere subcategory of converbs, namely converbs which lack certain syntactic possibilities.

⁸³On English participles/gerunds/converbs, which functionally share many similarities with RV participles, although morphologically they necessarily lack the central adjectival feature of agreement, see Kortmann (1995).

⁸⁴Further on the definition and different uses of the term ‘converb’ see particularly the recent works by Zaugg-Coretti (2008, p.247–249) and Rapold (2008, p.158).

data from the remaining books of the *Ṛgveda* where this provides significant additional information. There are roughly 4,430 present, 900 perfect, 200 aorist, 225 stative and 25 future participles in the *Ṛgveda*; of these 2,480 present, 500 perfect, 110 aorist, 160 stative and 19 future participles occur specifically in books II–VII and IX.⁸⁵

The total number of distinct stems (counting compound stems and negated participles as separate stems, but not distinguishing stems modified by or compounded with different preverbs) is as follows: 792 present, 158 perfect, 52 aorist, 22 stative and 12 future participle stems in the RV; of those 575 present, 121 perfect, 40 aorist, 19 stative and 10 future stems are found in books II–VII and IX. Table (1.1) shows these statistics in tabular form.

Table 1.1: Frequency of participles and participial stems in the *Ṛgveda*

	Number of participles				Number of participial stems			
	II–VII, IX	% total	RV	% total	II–VII, IX	% total	RV	% total
Present	2480	75.8%	4430	76.6%	575	75.2%	792	76.4%
Perfect	500	15.3%	900	15.6%	121	15.8%	158	15.3%
Aorist	110	3.4%	200	3.5%	40	5.2%	52	5%
Stative	160	4.9%	225	3.9%	19	2.5%	22	2.1%
Future	19	0.6%	25	0.4%	10	1.3%	12	1.2%
Total	3269	100%	5780	100%	765	100%	1036	100%

These statistics show the overwhelming preponderance of present participles in comparison to the other tense-aspect stems; perfect participles are fairly frequent but are significantly less common. Given the relative paucity of aorist, stative and future participles, all *Ṛgvedic* examples of participles to these tense-aspect stems have been taken into account, including those in books I, VIII and X.

It is also worth noting the considerable variation in frequency of individual participial stems. Taking the present participles as an example more than half of the 4,430 individual participles in the *Ṛgveda* are formed to only 57 stems, i.e. 7% of the total 792 present participle stems. The four most common present participles (*pāvamāna-*, *sánt-*, *yánt-* and *punāná-*), make up 12.6% (558) of the 4,430 present participles found.⁸⁶ On the other hand, 340 present participle stems are found only once in the *Ṛgveda*. The statistics for the perfect

⁸⁵Numbers are based on my categorization of individual forms, for which see chapter 4.

⁸⁶The figures are greater for books II–VII and IX, because all occurrences of *punāná-* and all but one occurrence of *pāvamāna-* are within these seven books. The four most frequent participles in II–VII and IX then make up 16% of the total, with *pāvamāna-* contributing 6.9% of the total and *punāná-* 4.3%. On these forms see also fn.29, p.57 below.

are similar. More than half the 900 perfect participles in the *Ṛgveda* are formed to only 16 stems, 10% of the 158 stems attested. The single most common perfect participle, *vidváṃs-*, occurs 120 times, i.e. over 13% of the total number of perfect participles in the *Ṛgveda*. On the other hand 49 perfect participle stems, 31%, are attested only once. With the less common tense-aspects the statistics will naturally be more liable to variation, but the same patterns are found: the two most common future participles (*kariṣyánt-* and *saniṣyánt-*) occur seven times each, making a total of 14 (56%) of the total 25 future participles in the *Ṛgveda*, while 7 (58.3%) of the twelve future participle stems are found only once. Table (1.2) shows the five most common present and perfect participles with their number of occurrences and the percentage of the total number of present/perfect participles in the *Ṛgveda* these constitute.⁸⁷

Table 1.2: The five most common present and perfect participles

Present	No.	%	Perfect	No.	%
1. <i>pávamāna-</i>	173	3.9%	1. <i>vidváṃs-</i>	120	13.3%
2. <i>sánt-</i>	153	3.5%	2. <i>cikitváṃs-</i>	56	6.2%
3. <i>yánt-</i>	124	2.8%	3. <i>vāvṛdhāná-</i>	45	5%
4. <i>punāná-</i>	108	2.4%	4. <i>jajñāná-</i>	26	2.9%
5. <i>dádhāna-</i>	79	1.8%	5. <i>śásamāná-</i>	26	2.9%
Total	637	14.4%	Total	273	30.3%

Given these figures, it is clear that the most common participles can significantly skew any statistics relating to the syntax or semantics of the different tense-aspect stem participles. All we can do is keep this in mind and try to base any statistical claims not only on frequency of individual forms, but on a wide range of participle stems, not just the most frequent.

The word forms considered include all words possibly and usually analysed as tense-aspect stem participles from a morphological point of view. A few words have been specifically excluded from the study since there is no reasonable justification for analysing them as participles. The only common word excluded is the extremely frequent *brhánt-* ‘high’ which is synchronically no more than an adjective and is usually listed separately from the (marginal) verbal root \sqrt{brh} (so e.g. Mayrhofer, EWA, v.2, p.232). Upon detailed consider-

⁸⁷The stem *uśánt-*, usually analysed as a present participle, occurs 80 times, one more than *dádhāna-*, but it has been excluded in anticipation of the discussion in §4.6.2, p.211.

ation of the form and function of all the words included in the study some will be reanalysed as synchronically non-participial; these and other questionable forms will be discussed in detail below (chapter 4, p.183f.).

1.8 Conclusion

We have seen that the category of tense-aspect stem participles as defined above is an important but often neglected word category, necessary for a proper understanding of the Ṛgvedic non-finite verbal system and for our understanding of the *Ṛgveda* in general. It is clear that that a detailed study of the syntax and semantics of tense-aspect stem participles in the *Ṛgveda* has the potential to produce results of significant interest for the study of the *Ṛgveda* and more widely for cross-linguistic typological accounts of non-finite verb systems.

In particular, the following questions can be raised, in the expectation that the following detailed investigation will answer them.

1. On tense-aspect stem participles as a category in Ṛgvedic Sanskrit:
 - (a) Are we dealing with a single, unified and coherent category?
 - (b) What is/are the position or positions of this category (or categories) within the verbal and nominal system of the language?
 - (c) What is/are the position or positions of the same within the syntactic and semantic systems of the language?
2. How do tense-aspect stem participles in the *Ṛgveda* relate to and /or provide evidence for participles as a category in PIE?
3. How do tense-aspect stem participles in the *Ṛgveda* contribute and relate to typologies of non-finite verbal systems?

We will revisit and attempt to answer these questions in the conclusion.

Chapter 2

The Syntax of Participles

2.1 Introduction

This chapter will investigate the syntactic employment of participles in the *Ṛgveda*, providing a descriptive account alongside a formalization within the framework of Lexical-Functional Grammar (for which see below).

There would be very little of interest to say about participles in the *Ṛgveda* if they all shared and displayed a single syntactically and semantically regular relationship to the stem or verb from which they are derived, and a common syntactic and semantic function within the clause. The Sanskrit absolutive is an example of a syntactically and semantically monovalent formation (at least relatively): the absolutive in *-tvā* is derived from (largely transitive, telic) verbal roots (or, later, derived stems like the causative) by a single, regular morphological process; it always shares the syntax and semantics of the verb from which it is derived; and it has only one possible function in the clause. It almost universally has relative past time reference, with only a few possible examples of other contextual uses.¹ The following example of the absolutive *hatvā* from the root \sqrt{han} ‘slay’ is representative.²

- (2.1) *yó hatvāhim áriṇāt saptá síndhūn*
who *slay*.ABS=serpent.A release.IMF seven river.A.PL
‘Who, *having slain* the serpent, released the seven rivers.’ (RV 2.12.3a)

¹Tikkanen (1987, p.121f.).

²In this chapter Ṛgvedic passages will be quoted with grammatical glosses, to aid the analysis of the syntactic formalization. In general I have treated the categories of present, indicative, active, nominative, third person, singular and masculine as default and omitted marking them except where necessary.

In contrast such syntactic and semantic regularity is not found in the relationship between participles and the verbal stems (or even roots) from which they are derived; nor do participles have a single syntactic function within the clause.

As will be seen below there is considerable variation in the syntactic employment of participles within clauses. Partly this functional range is shared with adjectives and is explained by the wide functional range of adjectives in the *Ṛgveda*. However the multifunctionality of participles extends beyond that of adjectives on both a syntactic and semantic level.³ The syntactic differences are both overt and non-overt; that is, some are clear at the surface syntax level, while others can only be represented at a more abstract level of syntax. The existence of non-overt syntactic distinctions between different uses of participles means that the syntactic analysis is often dependent on semantic interpretation, which will necessarily be to some extent subjective. Nevertheless syntactically distinct uses of participles can be distinguished in the *Ṛgveda*; where the context is clear, the semantics and hence the syntax of a participle is clear.⁴ In more ambiguous contexts the syntactic analysis may be harder to determine, but in the majority of cases one interpretation is clearly preferable. A formal model of language syntax is therefore beneficial to capture and make clear both overt and non-overt syntactic features of participles in the *Ṛgveda*.

2.2 Lexical-Functional Grammar

Lexical-Functional Grammar (LFG) is a framework for the syntactic analysis of natural languages.⁵ It is within the tradition of generative grammar, but rejects the transformational approach to syntax maintained in the Chomskian generative tradition. This makes LFG particularly appropriate for the syntactic analysis of non-configurational (i.e. free word-order) languages like *Ṛgvedic Sanskrit*.⁶

In LFG, the grammar of a language is modelled by means of multiple structural modules, of which at least two encode syntactic information: the constituent structure (c-structure)

³The semantic level will be dealt with in the following chapter.

⁴For example in a sequence of epithets, epithetic function (§2.6.1) is obvious, or with \sqrt{man} a nominative participle will most naturally be taken as completive (§2.10.2).

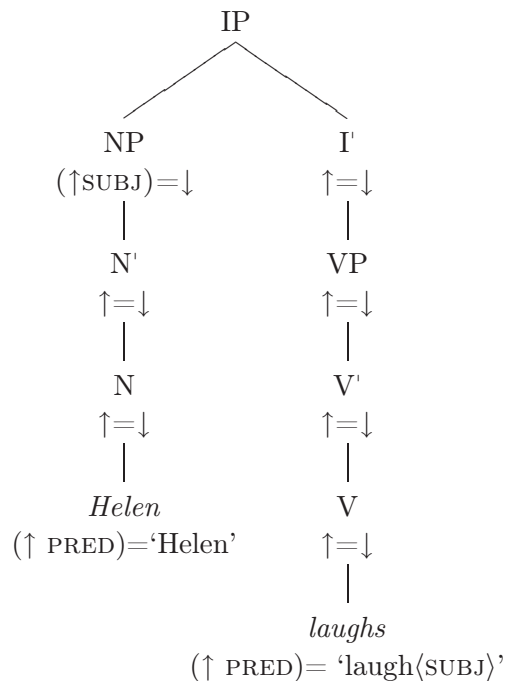
⁵For introductions to LFG see e.g. Bresnan (2001), Falk (2001), Dalrymple (2001). For the early development of LFG see Bresnan (1982), in particular Kaplan and Bresnan (1982).

⁶As argued already in relation to the *Ṛgveda* by Schäufele (1988, 1991a).

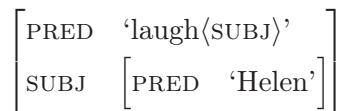
and the functional structure (f-structure). Other structures include, for example, semantic (s-) structure, information (i-) structure, and prosodic (p-) structure. These structures and the functional mappings between them are assumed to be universally valid for all languages.⁷

The c-structure models the structure underlying the actual order of words in the sentence, and is represented by means of ‘tree’ diagrams familiar in most grammatical theories. Annotations on the nodes of the tree represent the mapping to other structures, most commonly to the functional structure, which models the functional content of the sentence, represented as an attribute-value matrix (AVM). So for the English sentence ‘*Helen laughs*’, the c-structure can be represented as in ex. (2.2), and the f-structure as in ex. (2.3).

(2.2) C-structure for ‘*Helen laughs*’



(2.3) F-structure for ‘*Helen laughs*’



The c-structure obeys the principles of X-bar theory (see Dalrymple, 2001, p.56–57 with references), representing the structure of constituents in terms of a closed set of lexical and

⁷For recent analyses of the LFG projection architecture and the interrelations of its various levels, see e.g. Bögel et al. (2009), Mycock (2010, esp. p.291–292), Giorgolo and Asudeh (2011), Dalrymple and Mycock (2011) and Lowe (2011b). More generally on different ways of understanding the relations between syntax and other components of a language’s grammar see Mycock (forthcoming).

functional categories such as N (noun), V (verb), and I (inflectional element).⁸ C-structure nodes are related to f-structures by means of a function ϕ , represented by the annotations on the tree.⁹ The f-structure shows that the predicate of the clause is the verb ‘laugh’, which requires a subject argument in order to be semantically complete. The subject argument is supplied by the subsidiary f-structure [PRED ‘Helen’], of which the main predicate is the noun ‘Helen’.

As we will see, this formalization allows us to model the syntax of Ṛgvedic participles to a level of detail which a purely descriptive account could not achieve.

2.3 Ṛgvedic Syntax in LFG

Before we look at the syntax of participles in particular, it is necessary to provide an overview of Ṛgvedic syntax, so that the context of participial syntax is clear. The rules of f-structure do not vary cross-linguistically and so do not require special consideration from the language specific view-point, but c-structure rules do vary cross-linguistically.

2.3.1 Order of major elements

As discussed in the previous chapter (p.3f.) Ṛgvedic word order is non-configurational. Viti (2008b, 2010) has shown that the order of major constituents is based on information structure, i.e. on the topicality and focus of different elements, rather than on syntactic properties such as whether the element is a subject, verb or object. Table (2.1), from Viti (2010, p.54), shows the possible orderings of S, V and O in the *Ṛgveda* and the differing topicality of these elements in each configuration.¹⁰

Following Gonda (1959) it is commonly assumed that anything following the verb is background information. This and the assumption of topicalization in first position are

⁸According to the principle of Economy of Expression (Bresnan, 2001, p.114f.) not all of the nodes in a tree required by X-bar theory need actually be included, and this principle will be followed in subsequent c-structures in this chapter.

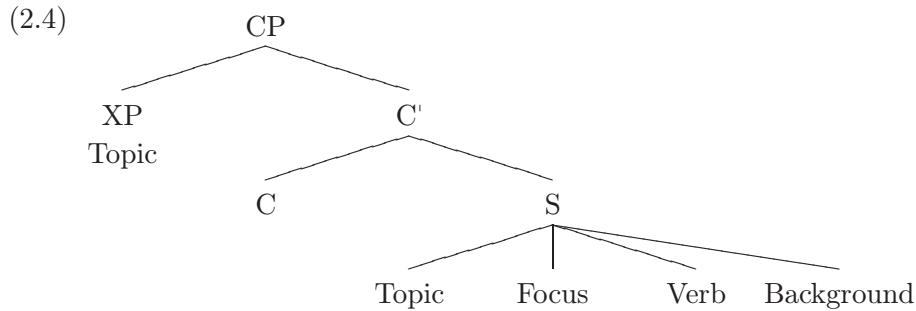
⁹↓ refers to the f-structure projection of the c-structure node, ↑ to the f-structure projection of the immediately dominating (mother) node in the c-structure.

¹⁰In the table +V means the predicate is the “main focus of attention”; -V means it is not; > and >> represent relative ranking of arguments in terms of topicality etc.; >> in particular “signals that the arguments not only have a different prominence in the context, but often belong also to different lexical-semantic classes or to different positions of the Animacy Hierarchy.”

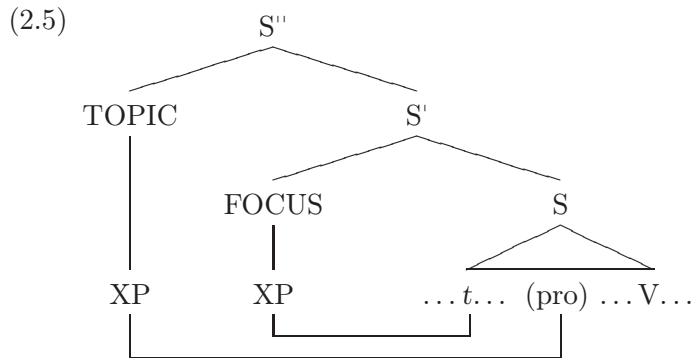
Table 2.1: Word order according to Viti (2010).

ORDER	ARGUMENTS	PREDICATE
SOV	S > O	-V
SVO	S > > O	-V
OSV	O > S	-V
OVS	O > > S	-V
VSO	S > O	+V
VOS	O > S	+V

strongly reminiscent of Dik’s (1995; 2007) analysis of Ancient Greek word order, with four optional ‘slots’ into which the different parts of a sentence are placed: (Topic) (Focus) (Verb) (Background). Commonly a syntacticized topic position and a focus position following the topic are assumed for most ancient Indo-European languages. So, for example, Haug (2008a) provides the following tree for Ancient Greek:



The external topic position allows for double topics; everything else fits Dik’s (1995) analysis of Ancient Greek word order perfectly. Similarly Kiparsky (1995, p.153) provides the following tree for Proto-Indo-European.



The non-configurational syntax of Ṛgvedic Sanskrit is easily formalized within a non-

transformational framework such as LFG, and will be seen to partially resemble the trees for Greek and PIE given here.¹¹ There are some differences, however. There is no evidence for a position C in Ṛgvedic Sanskrit and we will see that besides dislocated topics Ṛgvedic clausal structure is essentially flat, making use of the ‘exocentric’ category S, which can contain a verb together with some or all of its arguments and adjuncts. It is this category which allows the free word order of Ṛgvedic Sanskrit to be appropriately modelled.

2.3.2 Phrasal categories

Although the individual elements of what we would usually analyse as NPs, APs, PPs and VPs can be discontinuous in the *Ṛgveda*, this does not mean that these categories do not exist. Such phrases are, in fact, often continuous; conclusive evidence for their existence is that they can appear at the start of a clause preceding the clitic cluster, which is generated in second syntactic position (see below). For example although non-subject arguments need not form a continuous constituent with their verb, the existence of a VP in finite clauses in Ṛgvedic Sanskrit is suggested by the appearance of enclitic object pronouns adjacent to the finite verb rather than in the initial clitic sequence (exx. 2.6, 2.7), by the apparent topicalization of verbs and their non-subject arguments to the left of otherwise initial (topical) interrogative pronouns (exx. 2.8, 2.9), and by a slight statistical tendency for object arguments to appear adjacent to the verb more frequently than subjects (Schäufele, 1991b).

(2.6) *stenó vā yó dípsati no vṛko vā*
 robber or who desire_harm *us.A* wolf or
 ‘which robber or wolf desires to harm *us.*’ (RV 2.28.10c)

(2.7) *yás ca páśyati no jánaḥ*
 who and sees *us.A* man
 ‘and the man who sees *us.*’ (RV 7.55.6b)

(2.8) *sám ānaṃśa sumatībhiḥ kó asya*
 PRV attain.PF good_will.I.PL who his
 ‘Who attained his good will?’ (RV 4.23.2b)

¹¹For an approach to ‘free’ word-order languages within an Optimality Theoretic LFG framework, see Choi (1999).

- (2.9) *hārī* *índrasya* *ní* *cikāya* *kāḥ* *svit*
horse.A.DU Indra.G PRV perceive.PF who Q
‘Who do you think has perceived Indra’s two horses?’ (RV 10.114.9d)

As argued by Sells (1990) for Japanese, it is perfectly reasonable to assume the existence of a VP even when non-subject arguments can appear separated from their verb, since verbs can occur in a VP of which they can be the only constituent. Other phrasal categories are likewise found in initial, topicalized, position.

2.3.3 The ‘initial string’ and flat structure

Recent descriptive and syntactic approaches to R̥gvedic syntax have focused on the start of the clause, because it is here that patterns and regularities can be found in the otherwise extremely free sentential constituent order. The two most important approaches are those developed by Hale (e.g. 1987a,b, 1996, 2007) and Hock (e.g. 1982, 1989, 1996, 1997).¹²

Hale works in a Government and Binding framework, using a fixed tree model and syntactic movement to account for RV word order. Despite Hale’s comprehensive syntactic analysis of RV word order and thorough command of the data, his transformational framework is incompatible with LFG and his work cannot therefore be of any direct use to us here.

Hock’s “phonological template” approach to Vedic word order is more of a descriptive account than a real syntactic analysis, but as such has some value. According to Hock, the ‘initial string’ of a Vedic sentence consists of a series of positions, or slots, into which certain elements such as particles, conjunctions and pronouns fit. He attempts to rationalize this ‘template’ according to phonological criteria (whether or not a word is accented), but his theory is inadequate since it fails to account for some word orders and has no theoretical basis by which it can be justified.¹³ However it does at least attempt to deal with the initial string of R̥gvedic sentences in a non-transformational way, and its advantage is the (correct) intuition that the initial string is essentially an ordered series of optional elements.

In fact the (descriptive) ‘template’ found at the start of RV clauses can be stated purely in terms of syntactic functionality, as in the following representation.

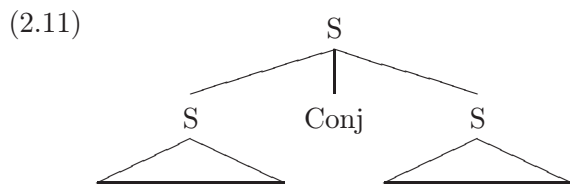
¹²Hock’s approach was also followed by Schäufele (1996).

¹³Hock’s phonological template was comprehensively criticized by Hale (1996).

(2.10) (Conj) (XP) (XP) (Prvb) (Dem./Rel. Prons) (Pcls) (Prons)

All elements in the ‘initial string’ are in principle optional. The first possible element is a clausal conjunction which cannot be preceded by any other element of the clause; if the conjunction is enclitic it will follow the first word (but as discussed below this can still be treated as first position). Then follow two positions which can be filled by any XP from the clause; these are usually considered to be topicalization/focus positions, and will be discussed in more detail below. Following this a preverb can occur, if it is not proclitic or enclitic on its verb; following this we find the regular position of the demonstrative and relative pronouns *sá-*, *syá-* and *yá-*. Then come enclitic sentence particles and finally enclitic pronouns. Since it is rare for more than one of the first five elements of the initial string to be filled, these enclitic words often appear in ‘second position’ in the clause. Following this initial string will be the rest of the sentence.

As I have discussed in more detail elsewhere (Lowe, 2011b) this template can be reduced to leave a simple flat structure for the start of any Ṛgvedic clause. From a syntactic point of view clausal conjunctions are usually analysed within LFG as daughters of the superordinate clausal node (as in ex. 2.11) rather than part of the second conjunct, and so can be ignored.¹⁴



Although commonly assumed to be full phonological words, there is both syntactic and phonological evidence that preverbs and (non-initial) demonstrative/relative pronouns are (or can be) in fact proclitics and enclitics respectively (see Lowe, 2011b). This means that they can be treated along with the sentential particles and the enclitic personal pronouns as part of a single syntactic position hosting clitics. Sequences of these clitics appear near or at the start of the clause forming a single syntactic constituent and positioned not on the basis of their syntactic categorization (noun, adverb etc.) but purely on the basis of their clitic status. Following Bögel et al. (2010) I make use of the node CCL (‘clausally-scoped clitic

¹⁴On conjunctions in this position in early Indo-European languages see also Agbayani and Golston (2010).

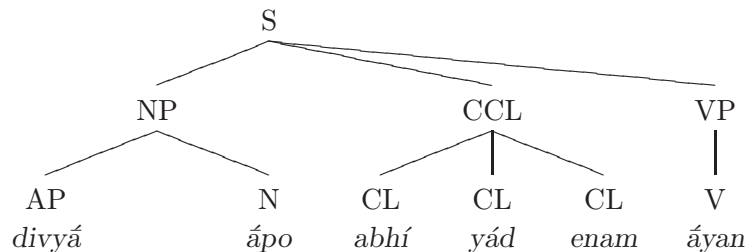
cluster’) dominating one or more CL (‘clitic’) nodes to represent the c-structural positioning of the clitic cluster.¹⁵ I assume that the CCL is inserted into the clause as part of a PS-rule such as the following, where the first optional XP may be specified as a topical or focused element.

(2.12) S → (XP) (CCL) (XP)...

So for the following passage, where the clitic *enam* does not appear to be in ‘second position’ but following the fourth accented word, we can actually analyse it as one of three clitics forming part of the clitic cluster which is generated in second syntactic position in the clause.

(2.13) *divyā́ āpo abhí yád enam áyan*
 divine.PL water.PL to when *him* come.IMF.3PL
 ‘When the divine waters came to *him*...’ (7.103.2a)

(2.14) C-Structure for RV 7.103.2a (ex. 2.13)



If the CCL appears at the left edge of a clause and does not contain a (proclitic) preverb as its first element, i.e. if the first element in the clause is an enclitic, a phenomenon called ‘prosodic inversion’ causes the enclitic to surface in the phonology to the right of the nearest following phonological word. The same phenomenon affects enclitic conjunctions, whether clausal or phrasal, which always appear one word further to the right in the phonological

¹⁵While clitic clusters often function as syntactic units (see e.g. Halpern, 1995, p.191–222 with references), there is no traditional XP category which can adequately dominate the varieties of clitics involved. The syntactic constituency of the CCL can only be based on the fact that the clitic cluster cannot be broken up by any other element of the clause. On the other hand clitic clusters could often be treated as single lexical items but do not seem to be formed in the lexicon according to normal morphological processes. Simpson and Withgott (1986) deal with clitic clusters by a process of ‘template morphology’ in the lexicon; the CCL utilized by Bögel et al. (2010) is an alternative, syntax-based approach. What both approaches share is the recognition that the syntactic constituency of clitic clusters cannot be accounted for by traditional X-bar theoretic rules. I will make use of the CCL here, but this approach could easily be adapted to alternative methods of treating clitic clusters.

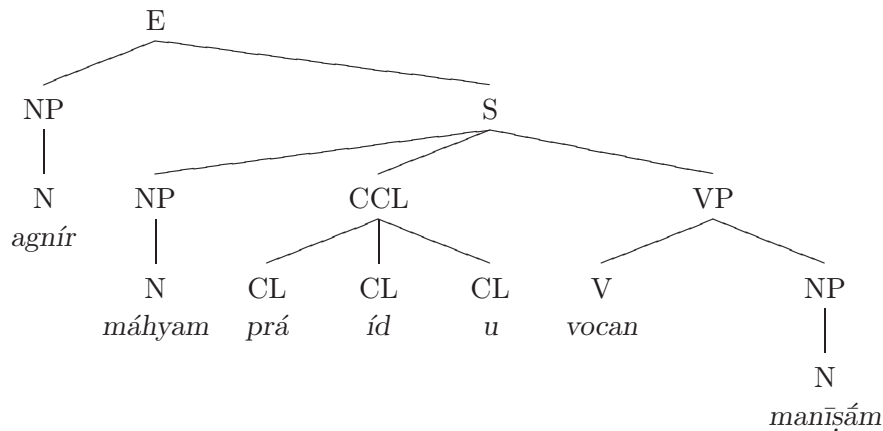
output from their position in the c-structure.¹⁶ This ‘movement’ of clitics can be understood within LFG by reference to the mapping between c-structure and p(honological)-structure and can be carefully constrained within an Optimality-Theoretic approach to the LFG architecture (Lowe, 2011b).¹⁷

As can be seen, the inclusion of preverbs and relative and demonstrative pronouns in the clitic cluster means that Wackernagel’s Law (Wackernagel, 1892) is no longer violated by ‘late’ clitics: clitics in the initial string can be positioned in the c-structure only in first or second syntactic position, and can appear in the output in second prosodic or second syntactic position. However the clitic sequence can also appear in the output in first position, if it begins with a (proclitic) preverb.

It is also occasionally possible for the clitic cluster to appear in third syntactic position, but we can explain this as due to the presence of a left-dislocated topic, which is syntactically separated from the main clause, and is represented in c-structure using the exocentric ‘Expression Node’ (following Aissen, 1992; King, 1995, p.65), as in the following example.

- (2.15) *agnír máhyam prá íd u vocan manīṣám*
 Agni me.D PRV PCL also speak.AOR.INJ intent.A
 ‘Agni has also revealed to me his intention.’ (4.5.3d)

(2.16) C-Structure for RV 4.5.3d (ex. 2.15)



¹⁶The term ‘prosodic inversion’ goes back to Halpern (1995); it is utilized by Hale (2007) for R̥gvedic clitics, and accepted in LFG by Bögel et al. (2010).

¹⁷For Optimality Theory, originally developed as an approach to phonology, see Prince and Smolensky (1993/2004) and McCarthy and Prince (1993). For Optimality-Theoretic LFG (OT-LFG) see among others Bresnan (1996), Sells (2001), Kuhn (1999, 2001). Recent collections on OT approaches to syntax include Sells (2001), Dekkers et al. (2000) and Legendre et al. (2001). OT has been used to deal with clitics in transformational frameworks, e.g. Anderson (1996, 2000), Grimshaw (2001), Legendre (1996, 1999, 2000, 2001), but these approaches are not compatible with LFG.

These are the basic rules governing Ṛgvedic syntax, and all c-structure trees found in the rest of this chapter are constructed according to these principles.

2.4 Morphology

Before discussing the syntax of participles in the *Ṛgveda*, it will be worthwhile reviewing their morphology and how this contributes to our understanding of them. Morphologically, participles are adjectives formed using specific suffixes which are attached to the same verbal tense-aspect stems which are used to build finite verb forms:

(2.17) *kṛ-ṅv-ánti*
 make-PRS-3PL.ACT.IND
 ‘They make’ (finite form)

(2.18) *kṛ-ṅv-ántaḥ*
 make-PRS-PTC.ACT.N.PL.M
 ‘Making’ (participle)

The participial suffix not only conveys adjectival information, such as case, number and gender agreement, but it can also be the only morphological marker of the verbal categories of voice (active vs. mediopassive), as in the above example, and/or tense-aspect, as in the following examples.¹⁸

(2.19) *dīdy-atam*
 shine-PRS.PTC.ACT.A.SG.M
 ‘Shining’ (present participle)

(2.20) *dīdi-vāmsam*
 shine-PF.PTC.ACT.A.SG.M
 ‘Shining’ (perfect participle)

Therefore it cannot be said that Ṛgvedic participles are a combination of verbal stem with a purely adjectival suffix; rather verbal information is conveyed by stem and suffix together. This is significant for the syntactic formalization of participles, since it supports

¹⁸Admittedly the stem forms differ slightly in these participles; but the difference between the *-y-* and *-i-* at the end of the stem is phonologically conditioned and therefore morphologically irrelevant, and the accent is conditioned by the suffix, not the stem, and would be neutralized in the vocative anyway.

the analysis of participles as *inflectional* forms of verbs, rather than as a derived, non-verbal word class.

The morphological evidence supports the syntactic evidence for this analysis; according to Haspelmath (1996, esp. p.58f.) inflectional morphology is usually characterised by preservation of the internal syntax of the base, whereas derivational morphology is usually characterised by the alteration and assimilation of the internal syntax of the base to the “internal syntax of primitive members of the derived word-class.”¹⁹ So participles, which in general preserve the argument structure of corresponding finite forms, are best analysed as *inflectional* forms of verbs.²⁰

Formalization

The formalization will therefore represent participles as inflectional forms of verbs rather than separate lexical items. The f-structure for a participle will be:

(2.21) *kṛṇvánt-* ‘making’

$$\left[\begin{array}{ll} \text{PRED} & \text{‘}\sqrt{kṛ}\langle\text{SUBJ,OBJ}\rangle\text{’} \\ \text{VFORM} & \text{participle} \\ \text{VOICE} & \text{active} \\ \text{TENSE} & \text{present} \end{array} \right]$$

The lexical entry here is the verbal root $\sqrt{kṛ}$ ‘make’ which appears in the present active participle form due to the specifications of VFORM, VOICE and TENSE. This is distinct from the f-structure required for a derivational category, where the word itself would be treated as a separate lexical entry, as in (the incorrect) ex. (2.22).

(2.22) *kṛṇvánt-* ‘making’

$$\left[\text{PRED } \text{‘}kṛṇvánt\text{-}\langle\text{OBJ}\rangle\text{’} \right]$$

¹⁹As examples Haspelmath gives *Indonesia annexing East Timor* (inflectional, preserving the verbal government of *annex*) versus *Indonesia’s annexation of East Timor* (derivational, displaying prepositional government characteristic of nouns).

²⁰For evidence that some participles were treated as *derivational* forms in the *Rgveda*, see §4.7, p.229ff. and §4.3.2, p.196f.

2.5 Syntactic Distinction of Participial Functions

All treatments of participles in Sanskrit (e.g. Speyer, 1886, §358f., p.278f.) and most other Indo-European languages agree on three major functional roles in which participles can be employed. However the designations of these categories vary widely and can often be ambiguous.

The first functional roles we will designate *adnominal*; this is more commonly known as the ‘attributive’ use of participles. All participles are adnominal in terms of agreement, in that they agree in number, gender and case with a particular noun in the clause. However adnominal participles also syntactically and semantically modify the noun with which they agree; syntactically they constitute part of the NP whose head is the noun with which they agree (for instances where the head noun is absent see below). This is identical to the most common function of adjectives, and it can be assumed that in this function the adjectival nature of participles is most apparent.

The second functional role we will designate *adverbial*; where adnominal participles are termed attributive, adverbial participles are generally termed ‘predicative’.²¹ Adverbial participles are syntactically separate from the noun with which they agree, functioning instead as a separate constituent in the clause. Their semantic contribution is not made to the NP headed by the noun with which they agree, but at the clausal level, sometimes specifically modifying or contributing to the primary predication (i.e. the main verb), or else making an additional predication alongside and in interaction with that of the main verb.²² This is effectively the functional range attributed to converbs in typological literature.²³ As Tikkanen (2001) discusses, converb (and therefore adverbial participle) clauses are equivalent to adverbial subordinate clauses, but are further desententialized.

²¹Pinkster (1990, p.276f., n.1) lists various alternative terms which have been used for this sense of ‘predicative’, such as ‘subject/object adjunct’, ‘appositional adjective’, ‘secondary predication’, ‘apposition’, ‘adverbial apposition’. On the ambiguity of ‘predicative’ and ‘attributive’ as designations of participial functionality, see Vester (1977), although her suggested alternatives ‘restrictive’ and ‘non-restrictive’ are equally ambiguous.

²²The range of semantic predication therefore covers both the ‘participant-oriented’ expressions associated with depictive constructions and the ‘event-oriented’ expressions associated with adverbial constructions, as distinguished by Schultze-Berndt and Himmelmann (2004), Himmelmann and Schultze-Berndt (2005).

²³The designation ‘converbal’ might in principle be a more accurate label for this category of participles, for typological reasons and because the term *con*-verbal covers additional predication and contribution to the primary predication, whereas *ad*-verbal implies more specifically contribution to the primary predication. ‘Converbal’ has been avoided, however, since the natural terminological correlate would be ‘participial’ in place of our ‘adnominal’, which would be unnecessarily confusing.

The third major role we will designate *complementary* participles. These are an integral part of the primary predication of the clause, required by the main verb to complete its sense. They are therefore verbal complements, occurring within the VP, syntactically and semantically distinct from adnominal and adverbial participles.

2.6 Adnominal Participles

2.6.1 Restrictive and non-restrictive adnominal use

Participles display adjectival morphology, and this follows over into the syntax in the case of adnominal participles; these participles are found in all of the functions in which other adjectives are found. Most commonly, this involves the syntactic and semantic (restrictive or non-restrictive) modification of a NP.

- (2.23) *yásminn* *índraḥ* ... *óko* *dadhé*
 which.L.NT Indra ... home.A establish.PF.MED
brahmaṇyántaś=ca *náraḥ*
speak_sacred_formulae.PRS.PTC.ACT.PL.M=and man.PL
 ‘In which (place) Indra ... established his home, and (likewise did) men *who speak sacred formulae*.’ (RV 2.19.1cd)

- (2.24) *tá* *ādityāsa* *urávo* *gabhīrā* *ádabdhāso*
 those.PL Āditya.PL wide.PL deep.PL undeceivable.PL
dípsanto *bhūry-akṣāḥ*
deceive.DES.PRS.PTC.ACT.N.PL.M many-eyed.PL
 ‘Those Ādityas, the wide, the deep, the undeceivable, *the keen to deceive*, the many-eyed...’ (RV 2.27.3ab)

In example (2.23) above, the participle restricts the semantic range of the NP: the reference of the NP is not ‘men’ generally, but only ‘men who speak sacred formulae’. This is of course a very common use of adjectives cross-linguistically; it is equivalent to a restrictive relative clause, reducing the set of possible referents of the NP.

In the second example, on the other hand, the participle merely adds a further description to an already fully defined NP; it is an epithet.²⁴ Epithets are extremely common in

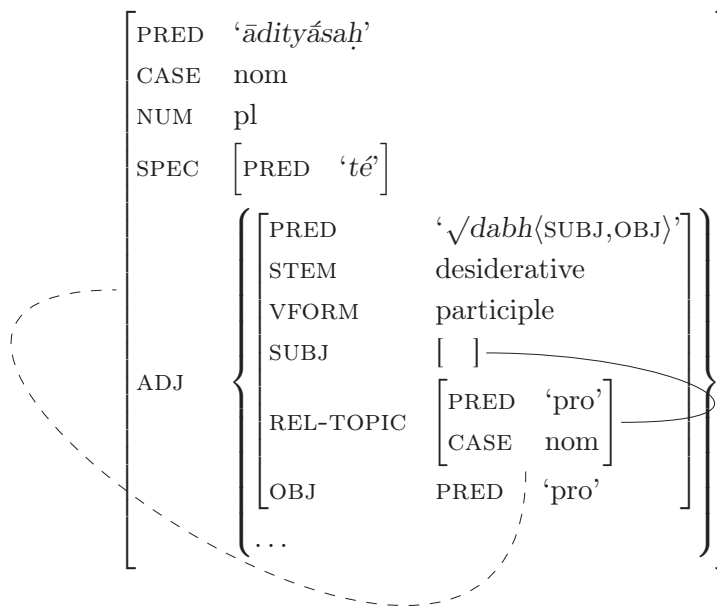
²⁴Cf. the description of participles used as epithets in Latin by Vester (1977, §3.1, p.267–268).

the *Ṛgveda*; they often occur in series as in the above example. Semantically such participles are distinct from the semantically ‘restrictive’ participles exemplified in the previous example; but it is only contextual knowledge, i.e. pragmatics, which can determine whether the NP is already fully identified without the additional definition supplied by the modifier. Syntactically, however, they are identical, the difference being parallel to the difference between restrictive and non-restrictive relative clauses.²⁵

2.6.2 Formalization

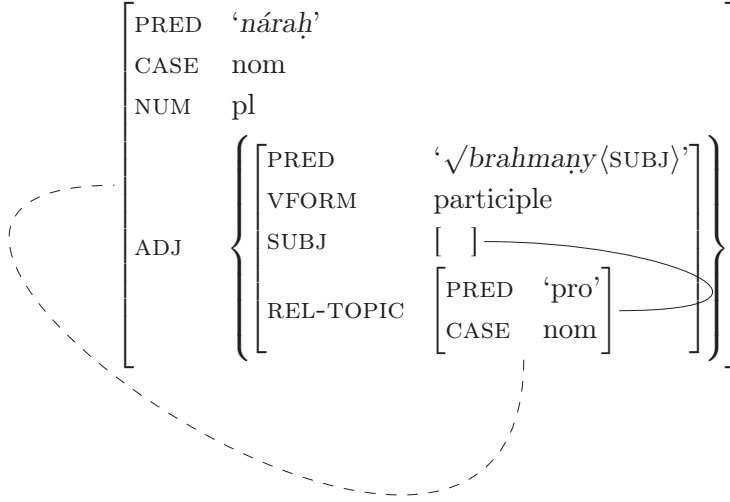
In terms of syntactic formalization, adnominal participles will be treated exactly as adnominal adjectives, i.e. as adjuncts within the NP. The NPs *tá ādityāsa... dīpsantaḥ* and *brahmaṇyāntas... náraḥ* will have the f-structures given in exx. (2.25, 2.26) respectively.

(2.25) From RV 2.27.3ab (ex. 2.24 above)



²⁵It has been argued that non-restrictive relative clauses (presumably extendable to non-restrictive adnominal participles) are syntactically separate from the clause in which they occur (e.g. Peterson, 2004) and hence have to be formalized entirely differently from restrictive clauses; but we will follow e.g. Arnold (2007), Arnold and Sadler (2010) in assuming that both can be formalized in the same way.

(2.26) From RV 2.19.1d (ex. 3.10 above)



In terms of phrase-structure rules, we must allow NPs to dominate adjunct VPs:

$$(2.27) \quad NP \rightarrow \dots \left(\begin{array}{l} VP \\ (\downarrow \text{VFORM}) = \text{participle} \\ \downarrow \in (\uparrow \text{ADJUNCT}) \\ (\downarrow \text{SUBJ CASE}) = (\uparrow \text{CASE}) \\ (\downarrow \text{REL-TOPIC}) = (\downarrow \text{SUBJ}) \\ (\downarrow \text{REL-TOPIC PRED}) = \text{'pro'} \end{array} \right) \dots$$

The parallel between adnominal participles and relative clauses is reflected in the formalization, which treats the participles as reduced relative clauses. The functional parallel between adnominal participles and relative clauses is illustrated neatly in the following example, in which an epithetic participial clause (*sasavāṃsaṃ...devīḥ*) is followed by a syntactically and semantically parallel relative clause (*sasāna...imām*).

(2.28) *satrā-sāhaṃ* *vāreṇyaṃ* *saho-dām* *sasavāṃsaṃ*
 always-conquering.A desirable.A strength-giving.A *win*.PF.PTC.ACT.A.SG.M
svār *apás* *ca* *devīḥ* *sasāna* *yáḥ* *pṛthivīm* *dyām*
 sun.A water.A.PL and divine.A.PL.F win.PF who earth.A heaven.A
utémām *índram* *madanty* *ánu* *dhī-raṇāsaḥ*
 and=this.A.F Indra.A rejoice.3PL in_regard_to poetic_thought-enjoyer.PL
 ‘The poetry enjoyers delight in Indra, the ever-conquering, the desirable, the strength-giving, *who has won* the sun and the divine waters, who has won earth and this heaven.’ (RV 3.34.8)

The f-structure for this clause, showing the parallel between the participial and relative clauses is given in ex. (2.31), p.54, and the c-structure is given in ex. (2.32), p.55.

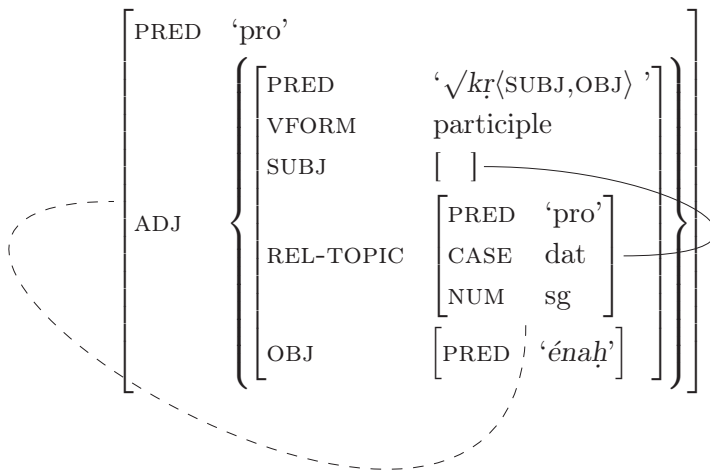
2.6.3 Adnominal participles lacking head noun

Like adjectives, participles can also be used as NPs (or the heads of NPs) by omission of the head noun, as in the following example.

(2.29) *má no vadhaír varuṇa yé ta iṣṭāv énaḥ*
 NEG us weapon.I.PL Varuṇa.V which your will.L sin.A
kṛṇvántam asura bhrīṇánti
 do.PRS.PTC.ACT.A.SG.M asura punish.3PL

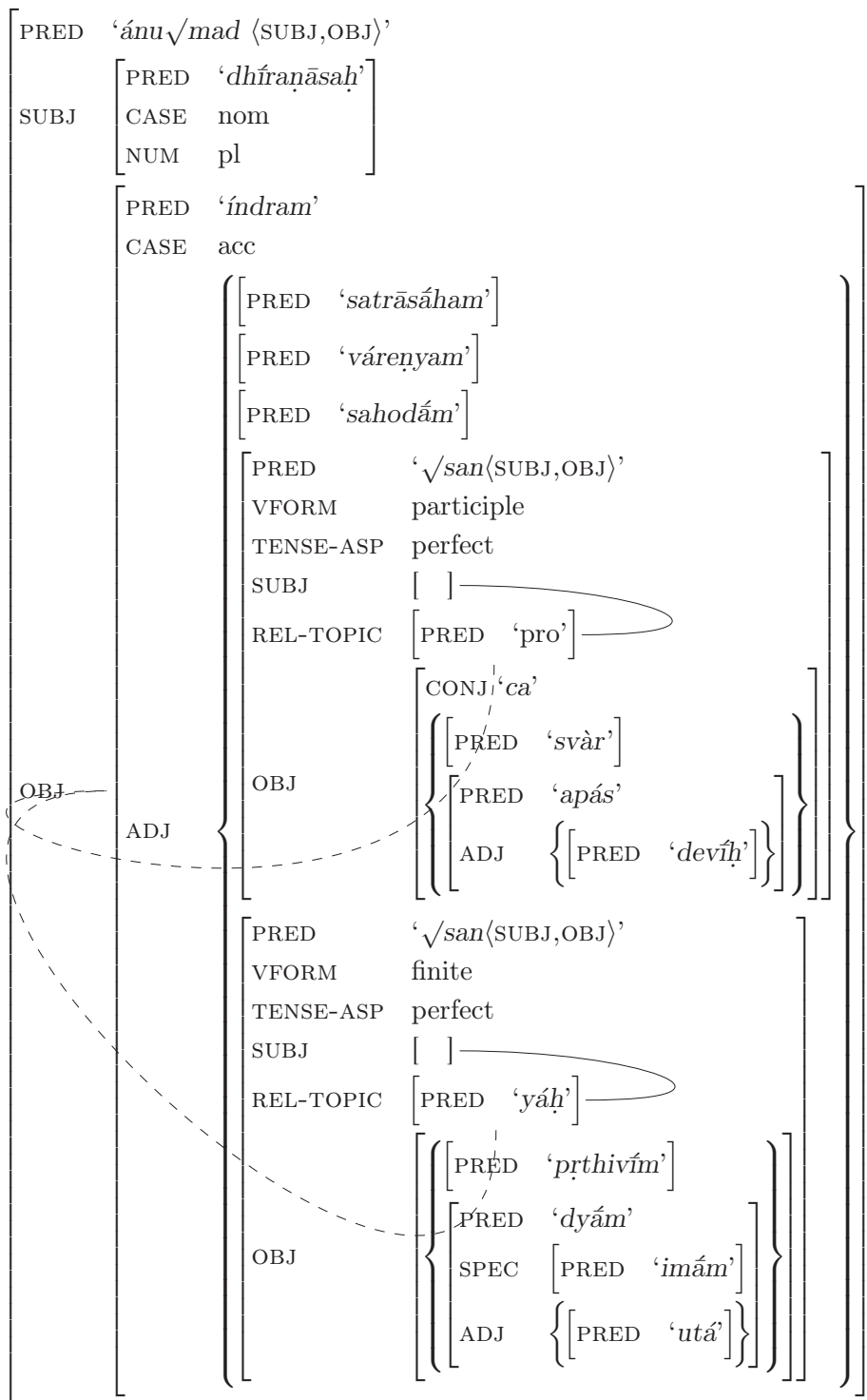
‘Do not (strike) us, Varuṇa, with the weapons which at your will punish *him who commits sin*, O asura.’ (RV 2.28.7ab)

(2.30) From RV 2.28.7ab (ex. 2.29 above)

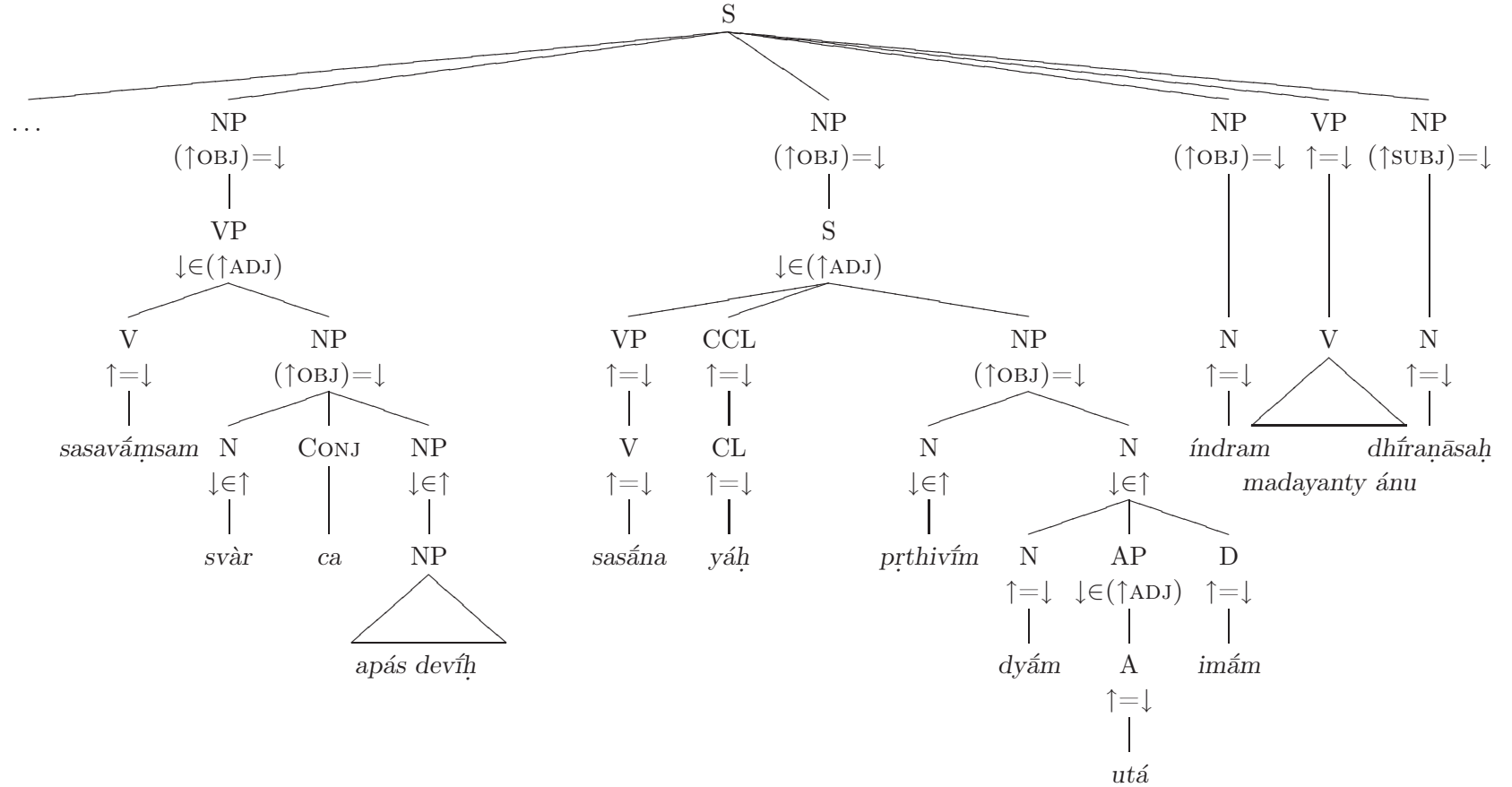


There is a fine and not entirely clear line between participles used as NPs and lexicalized participles which are synchronically adjectives or nouns. Although some participles are frequent in both participial and nominal uses (e.g. *yánt-* both ‘going’ and ‘a traveller’), some very common participles are usually or even exclusively used as NPs, in particular participles referring to a specific role or activity in the context of a rite, e.g. *gṛṇánt-* ‘praise-singer’, *sunvánt-* ‘presser (of Soma)’, *pácant-* ‘baker (of sacrificial cakes?)’, *stuvánt-* ‘praiser’, *yájamāna-* ‘sacrificer’. It is clear that such participles are used with specialized meanings in the context of the ritual beyond the basic meaning of the finite verb (as in *sunvánt-* ‘presser of Soma’ to \sqrt{su} ‘press’). It is less easy to determine whether we are here dealing

(2.31) RV 3.34.8 (ex. 2.28 above)

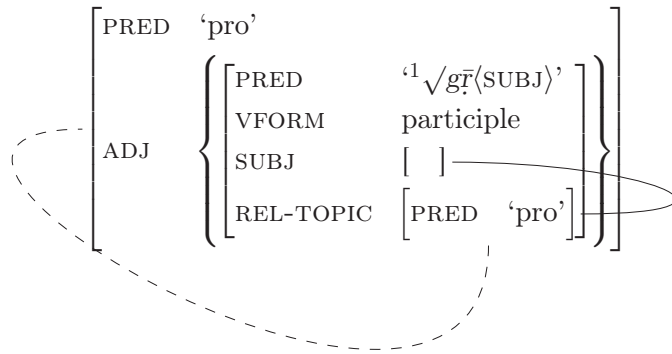


(2.32) Partial C-structure for RV 3.34.8ab (ex. 2.28 above)

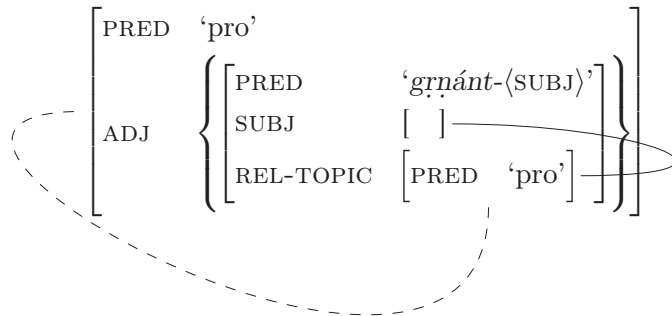


with synchronic participles whose specialized meaning is pragmatically determined by the context, or with participles which have been lexicalized as adjectives or nouns. Although often used as NPs, and often translated as such,²⁶ all can also be used adjectivally, and very few are themselves modified by adjectives, showing that at this stage of the language they should be considered adjectival rather than nouns.²⁷ But if they are adjectival, are they adjectives or participles? From a formal point of view this is not a moot point: there are in principle three possible formalizations for *gṛṇánt-* used as a noun ‘singer’.

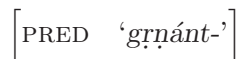
(2.33) *gṛṇánt-* as a participle



(2.34) *gṛṇánt-* as an adjective



(2.35) *gṛṇánt-* as a noun



²⁶E.g. *gṛṇánt-* is glossed as “Sänger” by Delbrück (1888, §211, p.372) and Geldner (RV), as ‘chanteur’ by Renou (EVP).

²⁷There are two examples of *yájamāna-* modified by adjectives at 2.18.3cd and 2.30.6b; this participle is one of the most fully lexicalized participles in the *R̥gveda*, and in later Vedic has clearly become a noun.

These three f-structures represent a possible diachronic development resulting in the lexicalization of a participle.²⁸ The change from participle to synchronic adjective involves the loss of the formal derivation of the form from its verb, ending in the form becoming a separate entry in the lexicon. This may involve a change of meaning, whether slight or great, but most importantly will involve the loss of specifically verbal features such as tense-aspect and voice. The development from adjective to noun entails the reanalysis of the modifier as the head (or in formal terms the reanalysis of ADJ as the PRED on the basis of the semantic equation of the two). It is possible, at least in principle, that what appears to be a single form such as *gr̥ṇánt-* may in fact be two distinct words, one a synchronic participle, the other a distinct lexical item whether noun or adjective. Such an assumption appears to be reflected in, for example, Geldner's (RV) treatment of *pávamāna-*, which he translates sometimes as a PN 'Pavamāna', sometimes as an adverbial participle.²⁹

²⁸Note also that the development participle → adjective → noun represents a movement along the cline of verbality, from verbal to nominal.

²⁹In this Geldner may simply have been influenced by Sāyaṇa, who glossed *pávamāna-* variously as a PN (*sóma-*), or as a participle (*kṣárant-* or *pūyámāna-*). The meaning of the present stem seen in *pávamāna-*, the most common participle in the *Ṛgveda*, has been the subject of some debate. Following e.g. Pischel (1881, p.719), Pischel and Geldner (1892, p.63), Bhawe (1957, v.1, p.4-5), Burrow (1986) and partially Böhlingk-Roth (PW) and Grassmann (1873, p.838-840), but contra e.g. Geldner (RV), Renou (EVP), Gotō (1987, p.207-208), Mayrhofer (EWA, v.2, p.105-107) and Witzel and Gotō (2007, p.377), I see no reason why most if not all occurrences of the verbal stem *páva-* in the *Ṛgveda* cannot be translated as 'flow, move, run' vel sim., rather than the more commonly assumed 'purify oneself'. The Indian tradition recognized a verb *pávate* expressing motion (*gatikarmāṇaḥ* in the *Nighaṇṭu* 2.14; *pava gatau* cited by Sāyaṇa ad RV 2.16.5). The expression of movement is absolutely clear in contexts where the verb is used of the wind; even Gotō (1987, p.207-208), while refusing to countenance any sense of movement found it impossible not to use the verb *wehen* when translating TS 5.4.9.4 and JB 3.310.21. There is no clear etymology for such a stem or verb; Burrow's (1986) attempt to connect the verb to ³√*pā* 'move' (on which Burrow, 1973) is clearly unacceptable. Nevertheless etymological considerations must be subordinate to the evidence of the texts, which clearly support the sense 'flow, move'. One possible connection may be to ¹√*vā* 'blow' (PIE *√*h₂ueh₁*, cf. Greek *ἄησι*), with a preverbal element *pá-* which could correspond to Balto-Slavic *po*, cf. Iranian *pa-ti* (Gr. *πότι*) and possibly Skt. *paścā(t)* (Mayrhofer KEWA, v.2, p.240), or which could reflect the later tendency for aphaeresis in such forms, cf. e.g. Classical Sanskrit *pihita-* from **apihita*, or BHS and Pāli *pavana-* 'forest' from *upavana-*. Whatever its explanation, RV *pavásta-* 'cover', related to OP *pavastā-* (Mayrhofer EWA, v.2, p.105), provides support for a preverbal element *pá-* in the *Ṛgveda*, since *pavásta-* is evidently related to ²√*vas* (so Mayrhofer, KEWA, v.2, p.238, but contrast e.g. Harmatta, 1966, p.275-277). Morphological and semantic support comes from the probable Hittite reflex of PIE *√*h₂ueh₁*, √*huuṇai-* which does not specifically mean 'blow' but more generally 'run, hurry, spread, escape', and which shows both *-mi* and *-hi* conjugations, thus going some way to explaining the otherwise problematic medial voice of *pávate* (on the etymology of this verb see Kloekhorst, 2008, p.366-368, contra e.g. LIV, p.287-288). Beside verbal forms, the two occurrences of *pavā-* at 9.97.52a,3a, glossed for example by Mayrhofer (EWA, v.2, p.106) as 'Läuterung', should rather be connected to ²√*pū* 'flow' and should be translated as such: both occur next to *pavasva* and parallel verbs of movement in the three previous verses; morphologically they most closely resemble AV+ *upavā-* and *pravā-*, derivatives from ¹√*vā*. The Classical Sanskrit noun *pavana-* 'wind' should also be related to this root, meaning that it is unrelated to Vedic *pavana-* 'purifying, sieve' (the regular derivative from a verb of movement should have suffixal accent by Aṣṭ. 3.2.148, as in *javaná-*, *calaná-*, *gamaná-* etc.).

From a semantic point of view the only overt effects of lexicalization are the inability of such a participle to occur in adverbial function (§3.4, p.124), which cannot easily be proven since adverbial functionality is not obligatory for participles anyway, and more clearly the loss of an object argument. The loss of an object argument is not necessarily the result of adjectivization or nominalization, since some adjectives and even nouns can have object arguments in the *Ṛgveda*. What it does represent, however, is a semantic development vis-à-vis the finite verb, which necessitates a synchronic recategorization of the original participle as either adjective or noun.

In the case of *pávamāna-* there is little syntactic evidence for the existence of two distinct words, one participle and one noun, but there is, for example, with *sunvánt-*. Finite present active forms of \sqrt{su} almost always have an expressed object argument, usually *sómam* ‘Soma’; the apparent present active participle *sunvánt-* on the other hand is used, as described above, essentially as a noun ‘presser (of Soma)’, with no object.

- (2.36) *yáh sunvántam ávati yáh pácantam*
 who *press*.PRS.PTC.ACT.A.SG.M aids who *cook*.PRS.PTC.ACT.A.SG.M
 ‘He who aids *the presser (of Soma)*, who (aids) the baker (of sacrificial cakes).’ (RV 2.12.14a)

The lack of object correlates with the lack of adverbial functionality for this participle. Once, however, *sunvánt-* does appear with an object *sómam*; this is also the only instance where the participle has an adverbial function (‘chaining’, §3.4.9, p.140).

- (2.37) *sómam ín mā sunvánto yācatā vāsu*
 Soma.A PCL me *press*.PRS.PTC.ACT.N.PL.M implore.IMP.2PL wealth.A
 ‘*Press Soma and implore me for wealth.*’ (RV 10.48.5c)

So while the vast majority of *Ṛgvedic* occurrences of *sunvánt-* do not correspond syntactically to the finite verbal stem from which they are derived and hence appear to represent not a synchronic participle but a lexicalized noun or adjective, the form in ex. (2.37) represents the syntactically and semantically regular participial form of the finite verbal stem. It is possible that the synchronic participle was recreated on the basis of the finite verbal forms after the original participle had become dissociated from the verbal stem, but whether this ‘recreated’ participle was a part of the *Ṛgvedic* language as a whole or was the specific

invention of the composer of RV 10.48.5 cannot be determined.

The synchronic analysis of other individual participles (or apparent participles) as lexicalized or not lexicalized, and the value of syntactic and semantic evidence in this analysis, will be dealt with below (§4.7, p.229f.).

2.7 Adverbial Participles

As discussed above, adverbial participles are indistinguishable from adnominal participles in terms of morphology and agreement, but syntactically and semantically they modify the clause (or more specifically the predication of the clause) rather than the NP with which they agree.

- (2.38) *vīṣūco* *áśvān* *yuyujāná* *īyata* *ékaḥ*
 separated.A.PL horse.A.PL *yoke*.PF.PTC.MED.N.SG.M speeds alone
 ‘*Having yoked* the separated horses, he speeds (off) alone.’ (RV 6.59.5cd)

In this example the participial clause, *vīṣuco áśvān yuyujānáḥ*, predicates something about the subject of the main clause (with which it agrees in number, person and gender), distinct from the predication of the main verb. These two predications naturally interact; an alternative analysis would be that the participial clause adds to the predication of the main verb and thereby modifies it. In this example the participial clause expresses an eventuality³⁰ which occurred before that expressed by the main verb; we could therefore treat the predications made by the participle and main verb as two distinct predications, one following the other. With the present participle on the other hand, the predication made by the participle is, in most cases at least, approximately concomitant with that of the main verb; this means that in principle there is more scope for mutual interaction between the two predications.

- (2.39) *áthód* *asthāt* *svayám* *átkaṃ* *vāsānaḥ*
 and=up stand.AOR own garment.A *wear*.PRS.PTC.N.SG.M
 ‘And he has stood up, *wearing* his own garment.’ (RV 4.18.5c)

³⁰This is a generic term introduced by Bach (1981, p.69) for anything that can be predicated, whether states, activities, accomplishments, achievements, or semelfactives. It is equivalent to the term ‘situation’, used for example by Klein (2009) and introduced by Comrie (1976).

(2.40) āvívāsanto *dasayanta* *bhúma*
 win.DES.PRS.PTC.N.PL.M *tire.INJ.3PL* *earth.A*

‘Desiring to win the earth, they exhaust themselves (with words).’ (RV 5.45.3d)

In ex. (2.39) the eventuality expressed by the participle, ‘wearing’, temporally overlaps with the eventuality expressed by the main verb (on the precise temporal-aspectual relationship implied by the different tense-aspect stem participles see §3.5, p.147f.); there does not appear to be any further semantic or pragmatic connection between the two eventualities. In ex. (2.40) the desiring likewise temporally overlaps with the exhausting, but here we can in addition infer a causal relationship: it is *because* they desire to win the earth that they end up exhausting themselves.³¹

The varieties of relationship between main verb and participial predication will be discussed in detail in the following chapter. They are a semantic (even pragmatic) matter and do not affect the syntax; whatever the semantic interaction between participle and verb, syntactically they all reflect the same adverbial function.

Participles in adverbial function are usually found in the nominative; the accusative is less common, and other case forms are rarer. In part this distribution has a pragmatic explanation; a participial predication (or indeed any predication) will more commonly be made about the subject of the sentence since this is usually the main topic of the clause. Beside this of course, nominatives are in general more common than other cases, since every clause will have a subject but not every clause will have an object or oblique argument or adjunct. Even so, there is still a statistical skew towards adverbial participles occurring in the nominative. Approximately 70% of the participles in the *R̥gveda* are nominative, 15% accusative, 5% genitive, 5% dative, with other case forms relatively rare. But of the 1636 nominative present participles in books II–VII and IX only around 335, i.e. 20%, are adnominal, whereas 63% (210 of 333) of the accusative present participles in the same corpus are adnominal and around 90% of the genitive and dative participles are adnominal. Therefore the considerable preponderance of nominative participles in the *R̥gveda* appears to be largely attributable to the use of nominative participles in adverbial functions. Statistics

³¹On this verse, the interpretation of which has been the subject of some dispute, see Jamison (1983a, p.59).

for books II–VII and IX are given in the following table.³²

Table 2.2: Present participles in books II–VII & IX by case and function

	Adnominal		Adverbial		Total
Nominative	335	20.5%	1301	79.5%	1636
Accusative	210	63.1%	123	36.9%	333
Instrumental	36	97.3%	1	2.7%	37
Dative	98	92.5%	8	7.5%	106
Ablative	9	90%	1	10%	10
Genitive	91	87.5%	13	12.5%	104
Locative	7	50%	7	50%	14
Vocative	5	100%	0	0%	5
Total	791	35.2%	1454	64.8%	2245

However from a syntactic point of view there is little restriction on which elements of a clause can have adverbial participial clauses agreeing with them. Any argument of the clause can be so modified: example (2.41) shows an accusative argument modified by an adverbial participle, ex. (2.42) shows an oblique dative, and in ex. (2.43) the adverbial participle modifies a possessive genitive.

- (2.41) *yám átyam iva vājínam mrjánti yóṣaṇo dáśa váne*
 whom horse.A like prize_winning.A grooms women.PL ten wood.L
krīlantam átyavim
play.PRS.PTC.ACT.A.SG.M through_sieve.A
 ‘(Soma) whom, like a prize-winning horse, the ten young women groom, *as he plays*
 in the wooden vessel through the sieve.’ (RV 9.6.5)

- (2.42) *avasyaté stuvaté kṛṣṇiyáya. . .*
seek_help.PRS.ACT.PTC.D.SG.M praise.PRS.ACT.PTC.D.SG.M Kṛṣṇiya.D
viṣṇāpvàm dadathuḥ
Viṣṇāpva.A give.PF.2DU
 ‘You two gave Viṣṇāpva to Kṛṣṇiya_i *as he_i was seeking help and praising.*’ (RV 1.116.23)

- (2.43) *pávamānasya te vayám pavítram abhyundatáḥ sakhitvám*
Pavamāna.G you.G we.PL sieve.A drench.PRS.PTC.G.SG.M friendship.A
āvṛṇīmahe
choose.MED.1PL

³²Participial stems in compounds have naturally been excluded, which is why the total number of present participles in this table is lower than in the table at the end of chapter 1. The high proportion of adverbial locative participles is due to the absolute locative construction, which I have here included in the adverbial category, but on this see further below.

‘We choose the friendship of you, the Pavamāna, *as you drench* the sieve.’ (RV 9.61.4)

It is less clear whether we would expect adverbial participles to modify nouns which are syntactically adjuncts rather than arguments; there are possible examples but in most cases the participle could be interpreted as adnominal, or else the apparent adjunct could be taken to be an argument. Example (2.44) shows a participle agreeing with what is most likely a dative of advantage; but here the dative could perhaps be interpreted as the subject of a possessive construction. Example (2.45) shows an apparently adverbial participle (functionally parallel to the adverbially used adjective *jīvā-*) agreeing with an ablative adjunct, which again could marginally be treated as an argument of the verb.³³

(2.44) *pravátvatīyám* *pr̥thivī marúdbhyaḥ pravátvatī* *dyaúr*
of_swift_crossing.F=this.F earth.F Marut.D.PL of_swift_crossing.F heaven.F
bhavati prayádbhyaḥ
becomes *forth_go*.PRS.PTC.ACT.D.PL.M
‘This earth (becomes) of swift crossing for the Maruts, heaven becomes of swift crossing for them *as they come forth*.’ (RV 5.54.9ab)

(2.45) *dáśa māsāñ chaśayānáḥ kumāró ádhi mātári niraítu*
ten month.A.PL lie.PF.PTC.N.SG.M child in mother.L.F come_out.IMP
jīvó ákṣato jīvó jīvantyā ádhi
alive unharmed alive *live*.PRS.PTC.ACT.AB.SG.F from
‘Let the child, having lain ten months in the mother_i, come forth alive, unharmed, alive from (her)_i *alive*.’³⁴ (RV 5.78.9)

2.7.1 Formalization

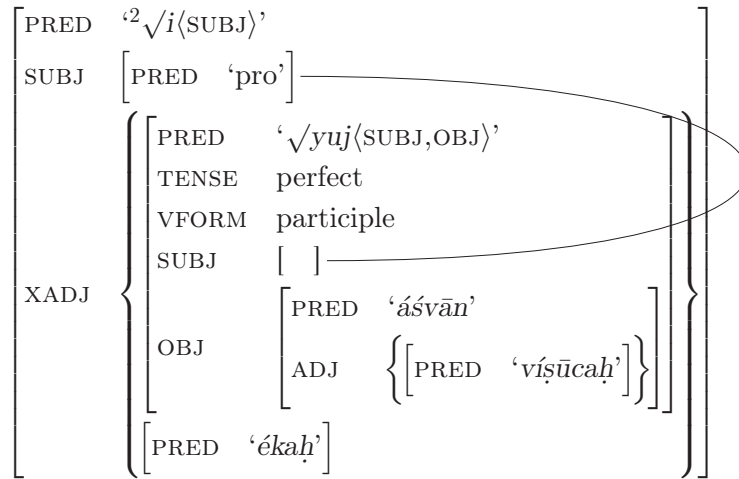
Syntactically, the relation between an adverbial participial clause and the main clause in which it occurs involves functional control: the subject argument of the participial clause is functionally controlled by an argument (or adjunct) of the matrix clause. In functional structure, participles in adverbial function are examples of the open adjunct function XADJ.

³³The question mark over the use of adverbial participial clauses modifying adjuncts is due to the cross-linguistic rarity of such constructions. However Mohanan (1983, p.651–652, fn.7) discusses some parallel participial clauses in English, such as ‘Having left Boston, it is now clear to me what I should do’. It may then be wrong to assume a general prohibition against the modification of adjuncts by adverbial participial clauses; nevertheless the existence of such a possibility in the *R̥gveda* demonstrates the freedom of the construction in comparison to many other languages where parallel constructions are limited to clausal arguments.

³⁴I.e. the mother alive, as well as the child; this is hard to render into English.

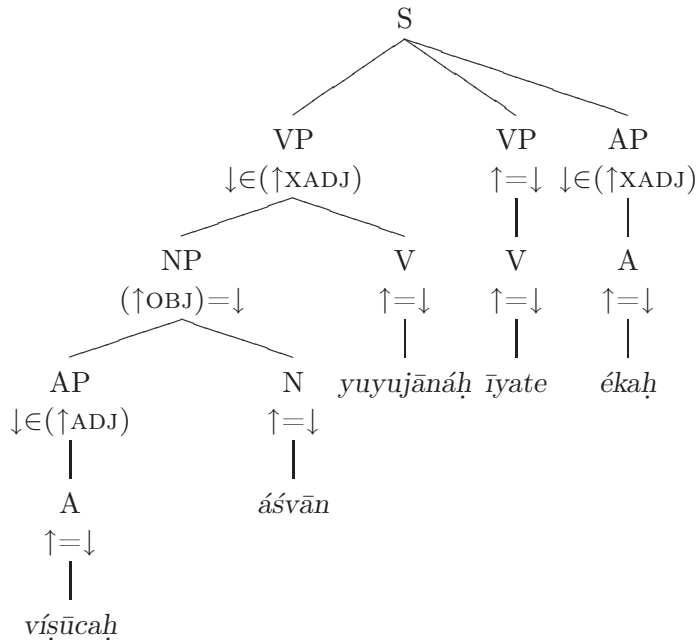
The functional structure for ex. (2.38) is given below; the curved line represents the control of the XADJ by the subject of the main clause.

(2.46) RV 6.59.5cd (ex. 2.38)



In phrase-structure, we simply permit an optional VP to appear as the daughter of the clausal node S, specified for inclusion in the XADJ set of the mother node. The c-structure for ex. (2.38) will be as in ex. (2.47); the relevant PS-rule is given in ex. (2.48).³⁵

(2.47) C-structure for RV 6.59.5cd (ex. 2.38 above)



³⁵GF will be defined to include adjuncts.

$$(2.48) \quad S \rightarrow \dots \left(\begin{array}{l} \text{VP} \\ \downarrow \in (\uparrow \text{XADJ}) \\ (\downarrow \text{VFORM}) = \text{participle} \\ (\downarrow \text{SUBJ}) = (\uparrow \text{GF}) \end{array} \right) \dots$$

2.8 Absolute Constructions

Absolute constructions consist (usually) of a nominal element and a participle, occurring in a particular case (usually locative in the RV) and forming together an adjunct to the rest of the clause.³⁶ The absolute construction is distinguished from the ordinary use of an adverbial participle by the fact that the noun has no grammatical role in the sentence apart from its role as part of the adjunct. So in exx. (2.39, 2.41, 2.42) above, where an adverbial participle agrees with a nominative, accusative and dative noun respectively, the nouns with which the participles agree have a grammatical role in the clause accordant with their case: the nominative noun is the matrix subject in (2.39), the accusative is the matrix object in (2.41), and the dative is an indirect object in (2.42). In the following sentence, however, the locative noun ‘cow’ has no grammatical role in the sentence: it cannot be interpreted as expressing location, for example.³⁷

$$(2.49) \quad \begin{array}{llllll} \text{goṣu} & \text{duhyamānāsu} & \text{gataḥ.} & \text{dugdhāsv} & \text{āgataḥ} & \\ \text{cow.L.PL} & \text{milk.PRS.PS.PTC.L.PL.F} & \text{went} & \text{milked.L.PL.F} & \text{returned} & \\ \text{‘When the cows were being milked he left. When they had been milked he returned.’} & & & & & \\ \text{(Kāś. ad Aṣṭ. 2.3.37)} & & & & & \end{array}$$

Absolute constructions are found in many Indo-European languages, although they are often rarer in the older stages of a language.³⁸ In Classical Sanskrit both locative and

³⁶Besides its use in this context, the term ‘absolute’ is also used to refer to a participle (or even verb) to a transitive stem used intransitively (cf. §2.11, p.85). To avoid confusion I will use the term ‘absolute’ only to refer to absolute constructions as discussed in this section.

³⁷This is one of the examples quoted by the grammatical tradition ad Aṣṭ. 2.3.37 (*yasya ca bhāvena bhāvalakṣaṇam*), which licenses the locative absolute in Classical Sanskrit. It appears in the *Kāśikā*, the most widely used commentary on the *Aṣṭādhyāyī*, dating from around the 7th century A.D. and attributed to Vāmana-Jayāditya; for this example see the edition by Dwarikadas Shastri and Shukla (1965–1967, v.2, p.१३५) and further von Böhtlingk (1887, p.60).

³⁸For an introduction to absolute constructions found in ancient Indo-European languages see Maiocco (2005, p.1–7; also p.160–166 for a comparison of Sanskrit absolute constructions with Greek and Latin ones). Whether an absolute construction can be reconstructed for PIE has been the subject of considerable debate; from the Indo-Iranian point of view it is notable that there are no absolute constructions in the *Gāthās*, although an impersonal locative absolute construction is found in Younger Avestan.

genitive absolutes are found, but in the *R̥gveda* only the locative absolute occurs, and that rarely and apparently in an early stage of development. Tense-aspect stem participles are relatively common as the modifying element in Sanskrit, but they are not as common as the (somewhat verbal) *-tá-* adjective, at least in the Classical language.³⁹ The association of absolute constructions with tense-aspect stem participles is clear in the earliest stages of all I-E languages which have them; moreover typological evidence suggests the absolute use of participles is widespread.⁴⁰

The development of absolute constructions has been the subject of much debate, and here the evidence of the *R̥gveda* is highly important since, as stated above, the Sanskrit locative absolute is thought to be in the process of development at this stage. In terms of its origin there are two possibilities: either it developed from an adnominal participial construction, or it developed from an adverbial participial construction. It is clear enough that fully developed absolute constructions pattern with adverbial participles: their semantic range is equivalent, the only difference is the status of the noun in the main clause.⁴¹ It might seem logical, therefore, to assume that absolute constructions began life as an ordinary adverbial participle modifying a noun which had a definite grammatical function in the clause, possibly for example an adjunct in the locative case expressing temporal or physical location. Nevertheless it is frequently argued that the absolute construction began life as an adnominal participial modification of a nominal adjunct. This is assumed for example by Keydana (1997, p.69f.), who in his thorough treatment of absolute constructions in old Indo-European languages treats it entirely as a “Nominalsyntagma”, i.e. adnominal construction. Similarly Ziegler (2002) suggests a three-stage development for the locative absolute in old Indo-Aryan: in stage 1, the participle is basically “attributiv” (i.e. adnominal); at stage 2 the force of the participle becomes “prädikatives, dominantes” and “nicht weglaßbar”; at the third stage the participle has the same force as in stage 2 but the force

³⁹According to Maiocco (2005, p.160–166) roughly 21% of locative absolutes in his Classical Sanskrit sample contain a present participle as modifier, 1.2% an adjective and the rest the *-ta-* adjective.

⁴⁰On the typology of absolute participial constructions see Haspelmath (1995, §4.3, p.27–28); also Nedjalkov (1995, §6, p.102) who suggests that absolute constructions with participles may occupy an intermediate position between converb constructions and constructions involving conjunctions, saying also that “they are probably closer to converbs, but at present their exact typological position is hard to determine.”

⁴¹Tikkanen (2001, p.1116–1117) considers that “in many cases coreferential converbs and conjunct [i.e. adverbial] participles are... suppletive forms of participles in absolute constructions”; similarly Luraghi (2001).

of the locative case is weakened so that it no longer has a semantically locative function. According to Ziegler the RV is at stage 2 with the beginnings of stage 3.

One argument in favour of an adnominal origin for the absolute construction is the cross-linguistically common restriction on adverbial participial modification, that it is possible only with certain types of element in a clause. In English, adverbial participles overwhelmingly modify only subjects; in many other languages, however, direct and indirect object arguments can also have adverbial participles modifying them. As we move from core arguments to more peripheral elements of the clause, so it becomes rarer for such elements to be capable of supporting adverbial modification. A locative adjunct, therefore, does not appear typologically very likely to have adverbial participles modifying it. However we have seen above that adverbial participles are capable of modifying nouns with a wide range of grammatical and non-grammatical functions in R̥gvedic Sanskrit, such that no ‘cut-off point’ can be definitely established. There may then be no theoretical problem with assuming an adverbial origin for the locative absolute.⁴² Moreover the fact that absolute constructions are found almost exclusively with tense-aspect stem participles and the somewhat verbal *-tá-* adjective suggests an originally adverbial, rather than adnominal, construction, since otherwise we might expect any sort of adjective to appear as frequently as a participle.

It may then be reasonable to assume, contra Keydana (1997) and Ziegler (2002), that an adverbial construction underlies the locative absolute. However in the formalization below we will consider both possibilities, since the usual uncertainties of R̥gvedic interpretation mean that it is easy to read any particular locative absolute (or proto-absolute) in such a way as to fit one’s own particular opinion of their origin.

So in example (2.50), the locative noun and participle could be analysed as a locative noun with adnominal adjunct, or as a locative noun controlling an adverbial adjunct, or alternatively as a fully developed locative absolute.

(2.50)	<i>yád</i>	<i>adyá</i>	<i>tvā</i>	<i>prayatí</i>		<i>yajñé</i>	<i>asmín</i>
	because	today	you.A	<i>go_forth</i> .PRS.PTC.ACT.L.SG.NT		<i>sacrifice</i> .L.NT	<i>this</i> .L.NT
	<i>hótaś</i>	<i>cikítvó</i>				<i>’vṛ̥ṇīmahīhá</i>	
	priest.V	perceive.PF.PTC.ACT.V.SG.M				choose.IMF.MED.1PL=here	

⁴²As Sluiter (2000) notes, analyses of absolute constructions are often subjective and determined by one’s theoretical starting point, which perhaps suggests that the actual evidence does not point strongly one way or the other.

‘Because we chose you, O perceptive priest, here today *at this sacrifice as it was beginning.*’ (RV 3.29.16ab)

The translation given above attempts to express the adverbial adjunct analysis. An adnominal analysis would work best with the alternative durative meaning of the participle *prayánt-*, giving something like ‘... at this ongoing sacrifice’. A full locative absolute interpretation would mean dropping the locational reference of the locative case and translating ‘...as/when this sacrifice was beginning’ vel sim. There is very little difference between the adverbial adjunct analysis and the locative absolute analysis here. In this particular example the loss of reference to the physical location is the only real difference, and means we could speak of a ‘semantic weakening’ of the locative case in the (perhaps later) full development of the locative absolute. However the locative can express not only physical location, but also temporal location. In the following example it is clear that the locative could not possibly be taken with a physically locational sense.

(2.51) *tá* *vām* *adyá* *táv* *aparám*
 DCT.A.DU you.DU today DCT.A.DU now
 huvemochántyām *uṣási*
 call.OPT.1PL=*light_up*.PRS.PTC.L.SG.F *dawn.L*
 ‘You two indeed, you two we would call upon now today *at the dawn as it breaks.*’
 (RV 1.184.1ab)

Again the translation attempts to convey the adverbial adjunct interpretation. Since one cannot be physically in the same place as the dawn, the locative must be interpreted temporally. But this means there is very little difference between the adverbial adjunct interpretation and a full locative absolute, which would be e.g. ‘... as the dawn breaks’. An adnominal interpretation is very hard to force onto this passage, but not impossible: ‘... at the time of the breaking dawn’.⁴³

Once we realise that the locative can express both physical and temporal location, it becomes very difficult to speak of ‘semantic weakening’ of the locative case, since essentially every possible locative absolute (or proto-absolute) can be interpreted with a temporally locational sense, the only difference being whether the noun itself is capable of being given a

⁴³As with ex. (2.50) above the difficulty is partly attributable to the fact that the verb involved is an achievement verb. A participle meaning e.g. ‘shining’ would be entirely unproblematic.

temporal interpretation. The nouns ‘sacrifice’ and ‘dawn’ in the above examples can, while in the Classical Sanskrit example above (ex. 2.49) the noun ‘cows’ alone cannot support a temporal locational reference; nevertheless both locative absolutes in that passage clearly express temporal location. Even when a non-temporal sense can be inferred, e.g. a causal or conditional sense, the idea of temporal location is not entirely absent.⁴⁴

It is, then, very difficult to demonstrate any supposed development of the locative absolute from an adverbial or adnominal participial construction on the basis of the Ṛgvedic evidence, without necessarily imposing one’s own views on the interpretation of the data. Ex. (2.52) is one of the best examples of a genuine locative absolute in the *Ṛgveda*, with physical and temporal location being inappropriate for the PN Daurgaha itself.⁴⁵

(2.52) *asmākam átra pitáras tá āsan saptá iṣayo daurgahé*
 our here father.N.PL they be.IMF.3PL seven seer.N.PL *Daurgaha*.L.SG
badhyámāne
 bind.PS.PRS.PTC.L.SG.M
 ‘Our fathers were here, the seven seers, *when Daurgaha was bound* (for the sacrifice).’ (RV 4.42.8ab)

On the basis of this example it would seem hard to prove that other Ṛgvedic examples, such as those discussed above, are somehow different simply because the nouns involved happen to support a physically or temporally locational sense. It may be, then, that the locative absolute is more fully developed in the *Ṛgveda* than previously acknowledged.

2.8.1 Formalization

Locative absolutes are formalized in f-structure terms as adjuncts (ADJ) of which the PRED is the participle. So the first sentence of ex. (2.49) above will have the following f-structure.

⁴⁴For examples of locative absolutes with non-temporal senses such as cause, see Bhatt (2000).

⁴⁵Another is RV 1.17.8 *nú vāṃ siśāsantīṣu dhīsv ā* ‘while the thoughts are now trying to win you’, discussed by Ziegler (2002, p.83).

(2.53) ad Aṣṭādhyāyī 2.3.37 (ex. 2.49 above)

$$\left[\begin{array}{l} \text{PRED} \quad \text{'gata-}\langle\text{SUBJ}\rangle\text{' } \\ \text{SUBJ} \quad \left[\text{PRED} \quad \text{'pro'} \right] \\ \text{ADJ} \quad \left\{ \begin{array}{l} \left[\text{PRED} \quad \text{'}\sqrt{\text{duh}}\langle\text{SUBJ}\rangle\text{' } \right] \\ \text{VFORM} \quad \text{participle} \\ \text{STEM} \quad \text{passive} \\ \text{SUBJ} \quad \left[\text{PRED} \quad \text{'goṣu'} \right] \end{array} \right\} \end{array} \right]$$

Likewise, if we were to interpret ex. (2.50) above as a fully developed locative absolute, it would have the f-structure given in ex. (2.54). How we would actually formalize this construction in the *R̥gveda* depends of course on the extent to which we think it has evolved, and what exactly it has evolved from. An originally adnominal participle would have the f-structure given in ex. (2.55), identical to other adnominal participles discussed above. Functionally, the locative absolute could evolve from this by reanalysis of the participial adjunct as the PRED of the superordinate adjunct, and concomitant reanalysis of the original PRED noun as merely the SUBJ of the participle.

If, on the other hand, we assume an original adverbial participle construction, we would need the f-structure given in ex. (2.56), parallel to other adverbial participial clauses discussed above. A similar reanalysis would be required here to explain the development to the locative absolute proper. In this case the participle does not need to be reanalysed or to change its function in any way, but the noun must be reanalysed as merely the SUBJ of the participle and not as an independent adjunct (thereby automatically converting the XADJ to an ADJ).

Considering the diachronic development from the point of view of f-structure adds force to the argument that the adverbial origin is the most likely. Starting with an adnominal participial construction, a complete transformation to a locative absolute without some kind of half-way stage would be a little hard to accept, since it involves multiple simultaneous changes, and the most obvious candidate for a half-way stage is the adverbial construction. Therefore even under the theory of adnominal origin the adverbial participial stage would provide the most realistic immediate predecessor to the locative absolute proper; there is then little left to support the supposition of adnominal origin at all.

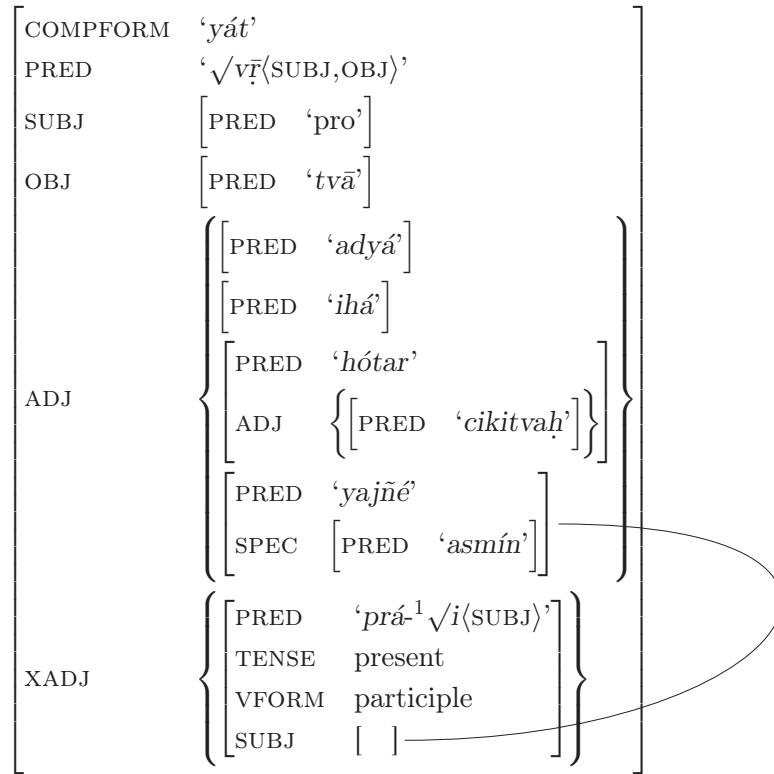
(2.54) RV 3.29.16ab (ex. 2.50 above)

PRED	‘√vṛ{SUBJ,OBJ}’																		
SUBJ	[PRED ‘pro’]																		
OBJ	[PRED ‘tvā’]																		
ADJ	<table style="border-collapse: collapse; margin-left: 20px;"> <tr> <td style="border-right: 1px solid black; padding-right: 10px;">[PRED ‘adyā’]</td> <td></td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 10px;">[PRED ‘ihā’]</td> <td></td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 10px;">[PRED ‘hótar’]</td> <td></td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 10px;">ADJ</td> <td style="padding-left: 10px;">{ [PRED ‘cikitvah’] }</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 10px;">PRED</td> <td style="padding-left: 10px;">‘prá⁻¹√i{SUBJ}’</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 10px;">TENSE</td> <td style="padding-left: 10px;">present</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 10px;">VFORM</td> <td style="padding-left: 10px;">participle</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 10px;">SUBJ</td> <td style="padding-left: 10px;">[PRED ‘yajñé’]</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 10px;"></td> <td style="padding-left: 10px;">[SPEC [PRED ‘asmín’]]</td> </tr> </table>	[PRED ‘adyā’]		[PRED ‘ihā’]		[PRED ‘hótar’]		ADJ	{ [PRED ‘cikitvah’] }	PRED	‘prá ⁻¹ √i{SUBJ}’	TENSE	present	VFORM	participle	SUBJ	[PRED ‘yajñé’]		[SPEC [PRED ‘asmín’]]
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VFORM	participle																		
SUBJ	[PRED ‘yajñé’]																		
	[SPEC [PRED ‘asmín’]]																		

(2.55) RV 3.29.16ab (ex. 2.50 above)

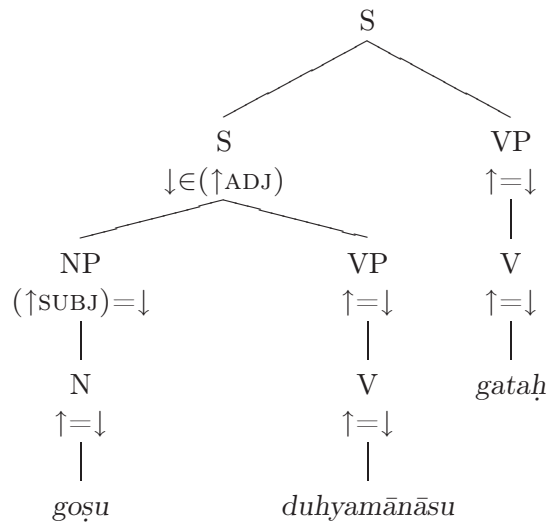
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PRED	‘√vṛ{SUBJ,OBJ}’																										
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OBJ	[PRED ‘tvā’]																										
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	[CASE loc]																										

(2.56) RV 3.29.16ab (ex. 2.50 above)



In terms of c-structure, adnominal and adverbial participles will of course be formalized in parallel manner to those discussed above; the locative absolute itself will be an S daughter of the main clausal node.

(2.57) C-structure for ‘goṣu duhyamānāsu gataḥ’ (ex. 2.49 above)



$$(2.58) \quad S \rightarrow \dots \left(\begin{array}{l} S \\ \downarrow \in (\uparrow \text{ADJ}) \\ (\downarrow \text{SUBJ CASE}) = \text{locative} \\ (\downarrow \text{VFORM}) = \text{participle} \end{array} \right) \dots$$

2.9 Nominativi Pendentes

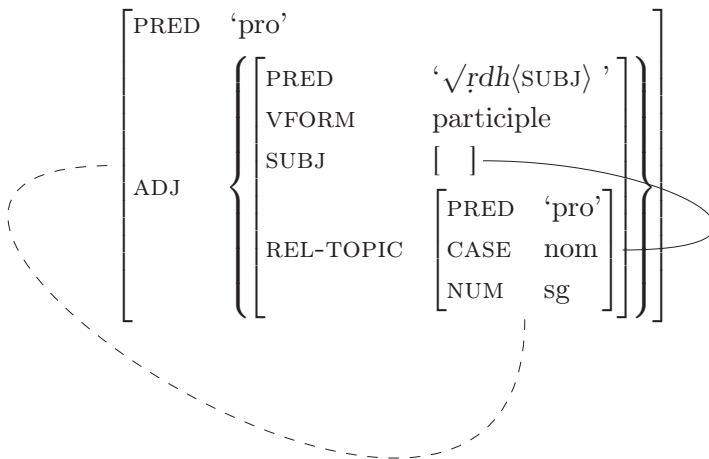
Unlike finite verb forms, participles cannot function as the primary verbal predication of a clause. In many instances where a verb is lacking in a clause which contains a participle the verb has been ellipsed and can be inferred. Another clear exception is where adnominal participles function as nouns in a nominal predication with a null copula; in this they are no different from any adjective so used.

(2.59) *anyáḥ kartá su-kṛtor anyá ṛndhán*
 other maker well-doer.G.DU other *accomplish*.PRS.PTC.ACT.N.SG.M
 ‘One of the two good-doers is the maker, the other *the one who brings to accomplishment.*’ (RV 3.31.2d)

In this example it is the NP constituted by *ṛndhán*, with f-structure as in ex. (2.60) below (parallel to ex. 2.30 above), which is the predicate of the second clause, and not the participle itself.

Excluding ellipsed verbs and nominal predications, there remains a small number of participles which appear to be the only element of their clause capable of predication. One such example is in the first pāda of RV 3.58.1 (ex. 2.61).

(2.60) From RV 3.31.2d (ex. 2.59 above)



- (2.61) *dhenúḥ pratnásya kámyaṃ dúhānāntáḥ*
 milk_cow ancient.G desirable.A.NT produce_milk.PRS.PTC.N.SG.F=between
putrás carati dáksīṇāyāḥ á dyotanīm vahati śubhráyāmośása
 son goes Dakṣiṇā.G to light.A conveys of_shining_way.N.F=dawn.G
stómo aśvínāv ajgah
 praise_song Aśvin.A.DU awake.AOR
 ‘The milk-cow of the ancient one *yielding* desirable (*milk*); the son of Dakṣiṇā goes between (heaven and earth); she whose way is shining (Uṣas) conveys forth the light; the praise hymn of Uṣas has awoken the Aśvins.’ (RV 3.58.1)

Here the first four words of the line cannot be integrated into the rest of the sentence, since all the following finite verbs already have subjects. If the noun *dhenú-* and the participle *dúhāna-* were in the locative, we would simply analyse this as a locative absolute (or locative absolute precursor); for this reason such constructions have been analysed as *nominative* absolutes by some authors, parallel to the nominative absolutes found in Gothic (e.g. Mk. 6:21) alongside oblique-case absolute constructions.⁴⁶ Others, such as Keith (1909) and Renou (1936b, §60–65, p.38–45) have treated them simply as a result of anacoluthon.

In the above example the nominative clause at the beginning of the sentence had no connection to the main part of the clause. More commonly, the nominative noun and participle refer to someone or something which occurs in the main clause in an oblique case form.

- (2.62) *sūra upāké tanvāṃ dádhāno ví yát te céty*
 sun.G near self place.PRS.MED.PTC out which you.G shine.AOR.INJ
amṛtasya vārpaḥ
 immortal.G form
 ‘Placing yourself near the sun, that form of you, immortal, shines widely.’ (RV 4.16.14ab)

- (2.63) *dhruvāsu tvāsú kṣitīṣu kṣiyānto vy*
 secure.L.PL.F this.L.PL.F dwelling_place.L.PL dwell.PRS.PTC.N.PL.M from
àsmát páśaṃ vāruṇo mumocat ávo vanvānā áditer
 us.AB bond.A Varuṇa release.PF.SBJ aid.A win.PRS.MED.PTC.N.PL.M Aditi.G
upásthād yūyám pāta svastíbhīḥ sádā naḥ
 lap.AB you.PL protect.IMP.2PL prosperity.I.PL always us.A
 ‘Dwelling in these secure dwelling places, Varuṇa will release the bond from us;

⁴⁶Cf. e.g. Oertel (1926, p.39–45); Holland (1986, p.181) accepts several of Oertel’s examples from Vedic prose and uses them to support his reconstruction of “nominative absolute participial constructions as the oldest type of absolute construction, in fact, as the only type of absolute construction actually reconstructible to Proto-Indo-European...”

winning aid from the lap of Aditi, protect ye us always with your prosperity.’ (RV 7.88.7)

In ex. (2.62) the nominative clause at the start of the line has the same referent as the genitive *te* in the main part of the clause. In ex. (2.63) there are two such nominative clauses (filling *pādas a* and *c*) which have the same referents as the pronouns *asmát* and *naḥ* ‘us’ in the two main clauses; if we assume some connection between the nominatives and the main clauses, it is in principle unclear whether the second nominative clause (*ávo...upásthād*) is going with the preceding or the following clause.

Keydana (1997) discusses examples like these in Vedic, rejecting the nominative absolute analysis favoured by Oertel and Holland in an attempt to rule out the existence of nominative absolutes in ancient Indo-European languages generally. He explains such constructions as ‘nominativi pendentes’ on syntactic bases. While absolute constructions can have ellipsed subjects and regularly do not refer to an element in the main clause, a *nominativus pendens* cannot usually have an ellipsed subject and generally does refer to some oblique element of the main clause. Moreover these nominatives almost always occur at the start of a clause, whereas normal absolutes are not restricted as to their position within the clause. Keydana treats these *nominativi pendentes* as topicalized phrases which are “soweit aus dem Satz herausgehoben, daß sie prinzipiell ihre Kasusmarkierung verliert und im Nullkasus, dem Nominativ steht” (p.320).⁴⁷ But how we would understand this in more formal terms is unclear; it sounds similar to ‘hanging topic left-dislocation’ (as defined for the *R̥gveda* above, p.46), but even when extracted from the main clause in that way we would still expect regular case marking. If we treat this as a syntactically genuine construction, it must be specially accounted for in the PS-rules, perhaps in dislocated topic position, but in any case with nominative case marking specified and overriding the case demanded by the noun’s role in the matrix clause.⁴⁸

⁴⁷Where there is no referent in the main clause such topicalization is impossible, so we must still assume anacoluthon in these instances.

⁴⁸This construction is also reminiscent of the Biblical (and occasionally Classical) Greek construction involving a genitive absolute whose subject then becomes an argument (usually subject or object) of the main clause. A similar but distinct construction (discussed by Hock, 1987) found in Vedic prose (and occasionally in Latin and Greek) sees a resumptive pronoun following an absolute or participial construction at the start of a clause, which makes the non-finite verbal clause appear syntactically separated; there we have merely to do with pleonastic use of conjunctions.

2.10 Complementary Participles

The third distinct syntactic employment of participles, beside adnominal and adverbial uses discussed above, is as complements of verbs, which we have labeled the *complementary* use of participles. There are two distinct ways in which a participle can be the complement of a verb, and these must be discussed in turn.

2.10.1 Periphrasis

In Classical Sanskrit present participles can occur with certain finite verbs to form a periphrastic present progressive tense.⁴⁹

- (2.64) *sa ca paśūnāṃ vadhaṃ vidadhāna*
he and animal.G.PL slaughter.A *distribute*.PRS.PTC.MED.N.SG.M
evāste
indeed=*aux*.PRS.3SG
'And he [the lion Durdānta] is (continually) *meting out* slaughter to the animals.'
(Hitopadeśa 2, 13.19)

It is unclear to what extent this had developed in the *Ṛgveda*: several passages such as the following could be interpreted in this way, but it would be equally possible to read the full semantic force of the finite verb.⁵⁰

- (2.65) *pāvamānaḥ saṃtanīm eṣi kṛṇvānn indrāya*
Pavamāna melody.A *go*/AUX.PRS.2SG *make*.PRS.PTC.ACT.N.SG.M Indra.D
soma pari-ṣicyāmānaḥ
Soma.V around-be_poured.PRS.PTC.N.SG.M
'As Pavamāna you *go* (*on?*) *making* melody, when you are poured around, O Soma, for Indra.' (RV 9.97.14cd)

This verse could be interpreted to mean that Soma moves and makes melody when he is poured around, or it could mean that he goes on making melody as he is poured around.

⁴⁹On the periphrastic constructions found in Classical Sanskrit, see Whitney (1896, §1074–1075, p.394–395). The most frequent type is a (usually) present participle with ¹ \sqrt{i} . Also common is \sqrt{car} "signifying still more distinctly than the preceding a continued or habitual action." At a later stage $\sqrt{sthā}$ becomes the most common auxiliary. Present/future/perfect participles occur also with \sqrt{as} or $\sqrt{bhū}$, usually a future participle, and \sqrt{as} only in the optative.

⁵⁰Delbrück (1888, §218, p.390–393) discussed various possible examples in the *Ṛgveda* and later Vedic, accepting a few, mainly late, examples for the RV but generally playing down the frequency of this formation in the early language. Knobl (2005, p.83–86) briefly discusses the varying views of Geldner and Renou on the extent of this construction in the *Ṛgveda* but does not reveal his own opinion. The construction is accepted and briefly discussed by Dahl (forthcoming b, §3.3.1), quoting 3.30.4, 3.48.3, 5.30.2 and an example of a perfect participle with present meaning at 10.71.11.

Unlike the Classical Sanskrit example (2.64), although we can interpret the finite verb in an auxiliary-like manner, with weakened semantics, it is equally possible to read the full semantic force of the finite verb. This is the pattern for all possible Ṛgvedic examples of the periphrastic progressive: it is possible but not necessary to take the finite verb as semantically weakened.

- (2.66) *yáśyā anantó áhruṭas tveṣás cariṣṇúr arṇaváh ámaś cárati*
 whose endless unbroken mighty moving wavy force goes/AUX.3SG
róruvat
roar.PRS.PTC.N.SG.M
 ‘(Sarasvatī) whose endless unbroken mighty moving wavy force goes (on?) roaring.’
 (RV 6.61.8)

- (2.67) *sá devātā vasuvániṃ dadhāti yám sūrī*
 he among_the_gods wealth_winner.A makes whom patron
arthī pṛchámāna éti
 request_having ask.PRS.PTC.N.SG.M goes/AUX.3SG
 ‘He makes (him) a winner of riches among the gods, he whom the patron with his request goes (to/on?) asking.’ (RV 7.1.23cd)

- (2.68) *vísṁvāny anyó bhúvanā jajāna víśvam anyó*
 all.A.PL.NT other being.A.PL produce.PF all.A other
abhicákṣāṇa eti
observe.PRS.PTC.N.SG.M goes/AUX.3SG
 ‘One has produced all beings, the other goes (about/on) observing everything.’ (RV 2.40.5ab)

In all these examples the sense of movement is not excluded, though it is not absolutely necessary in any. Since it is these two verbs of movement, $^1\sqrt{i}$ and \sqrt{car} , that are the most frequent auxiliaries, at least in earlier Classical Sanskrit, it is here we would expect to see most evidence of burgeoning auxiliary status in the *Ṛgveda*, and it certainly cannot be ruled out in examples like (2.68) above. There are far fewer possible examples with the other roots which later develop auxiliary status ($\sqrt{ās}$, $\sqrt{sthā}$, \sqrt{as} , $\sqrt{bhū}$); the best example known to me is the following.

- (2.69) *prajābhyah puṣṭīm vibhájanta āsate*
 child.D.PL prosperity.A distribute.PRS.PTS.N.PL.M sit/AUX.3PL
 ‘They (the priests) sit/keep on distributing provisions to the children.’ (RV 2.13.4a)

Although here *āsate* could be interpreted as an auxiliary, the subject of the verb is significantly the priests, who are not infrequently characterized as sitting (cf. e.g. 9.10.7c). There are therefore no clear examples in the *R̥gveda* where the finite verb *cannot* be given its full semantics and must be interpreted as an auxiliary. Nevertheless the frequent use of present participles with the verbs of motion ${}^1\sqrt{i}$ and \sqrt{car} in contexts where the expression of movement is perhaps less central than the action expressed by the participle may suggest the very beginnings of the periphrastic present progressive in Sanskrit.

Formalization

Periphrastic verbal constructions can be formalized in two possible ways in LFG, with either a monoclausal or multiclausal f-structure. Rather than assume that either one or the other method of formalizing periphrastic verbal constructions is universally correct, it is perhaps better to work on the basis that syntactic evidence should be employed on a construction by construction basis to determine whether a monoclausal or multiclausal f-structure best captures the facts.⁵¹

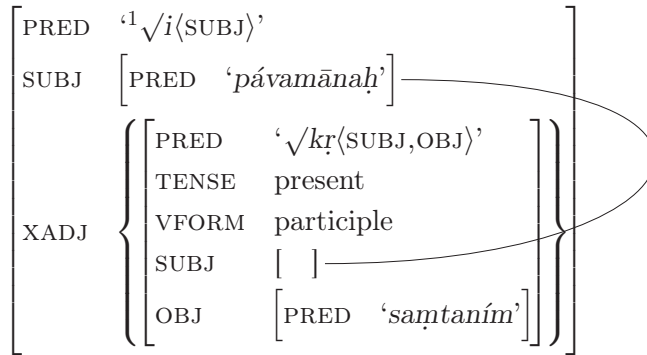
From the *R̥gvedic* point of view, although there may be the slightest evidence for the beginnings of the semantic bleaching of certain roots which must have preceded the development of the periphrastic progressive, there is no evidence that functionally these passages contain anything different from a normal adverbial participle at this stage of the language. So ex. (2.65) above will naturally have the partial f-structure given in ex. (2.70). It is only in the Classical language that we can speak of a fully developed periphrastic progressive. A multiclausal f-structure of ex. (2.64) above would be as in ex. (2.71).

Comparing ex. (2.71) with ex. (2.70), it is apparent that from a diachronic perspective multiclausal periphrasis could develop from a simple adverbial use of a participle by reanalysis of the participial XADJ as an open complement XCOMP of the predicate. So were we to (anachronistically) treat ex. (2.65) above as an example of the progressive, the changes

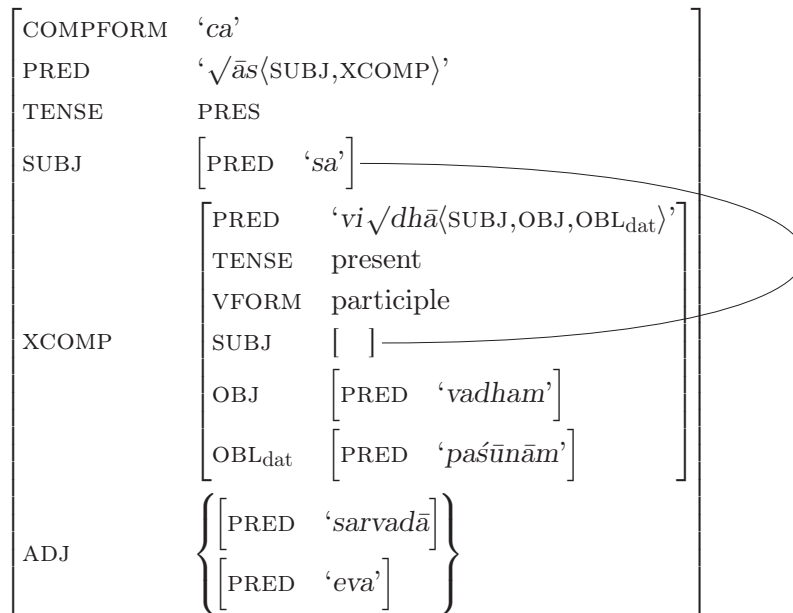
⁵¹For a foundational multiclausal treatment of English periphrasis see Falk (1984). In contrast e.g. Butt et al. (1996) argued strongly for a monoclausal analysis of periphrasis; for a partly theoretically-based criticism of monoclausal analyses see Dyvik (1999). Despite Dyvik's (1999) criticisms of monoclausal analyses of periphrastic constructions (necessarily) consisting of more than one word, this would only be the natural correlate of syntactically necessary multiclausal analyses of single-word verb forms such as the Japanese causative (Matsumoto, 1996, 1998, with references).

required to the f-structure would be few (ex. 2.72).

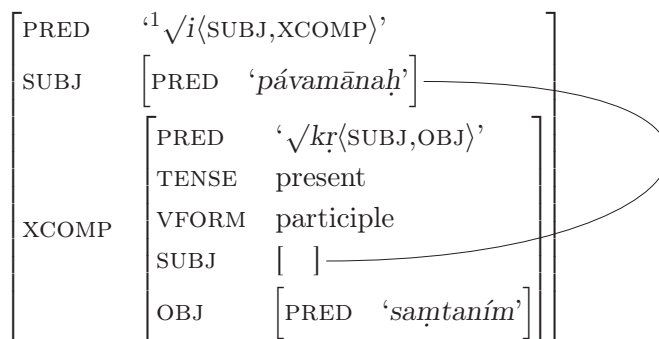
(2.70) RV 9.97.14c (from ex. 2.65 above)



(2.71) Hitopadeśa 2, 13.19 (ex. 2.64 above)



(2.72) RV 9.97.14c (from ex. 2.65 above)



If we were to assume a monoclausal analysis of the Sanskrit progressive, the f-structure of ex. (2.64) would rather be the following.

(2.73) Hitopadeśa 2, 13.19 (ex. 2.64 above)

COMPFORM	‘ca’				
PRED	‘vi√dhā⟨SUBJ,OBJ,OBL _{dat} ⟩’				
TENSE	PRES				
ASPECT	<table style="border-collapse: collapse; border-left: none; border-right: none;"> <tr> <td style="padding-right: 10px;">IMPERFECTIVE</td> <td style="padding-left: 10px;">+</td> </tr> <tr> <td style="padding-right: 10px;">PROGRESSIVE</td> <td style="padding-left: 10px;">+</td> </tr> </table>	IMPERFECTIVE	+	PROGRESSIVE	+
IMPERFECTIVE	+				
PROGRESSIVE	+				
SUBJ	[PRED ‘sa’]				
OBJ	[PRED ‘vadham’]				
OBL _θ	[PRED ‘paśūnām’]				
ADJ	<table style="border-collapse: collapse; border-left: none; border-right: none;"> <tr> <td style="padding-right: 10px;">[PRED ‘sarvadā’]</td> </tr> <tr> <td style="padding-right: 10px;">[PRED ‘eva’]</td> </tr> </table>	[PRED ‘sarvadā’]	[PRED ‘eva’]		
[PRED ‘sarvadā’]					
[PRED ‘eva’]					

However I know of no syntactic evidence which would specifically support a monoclausal treatment of this construction, and in the absence of such evidence it is best to take the multiclausal analysis as the default. For the *R̥gveda*, as discussed above, we need not assume the existence of the periphrastic progressive as a distinct syntactic possibility.

2.10.2 Completive participles

The term *completive* is used here for participles which function as complements to verbs, syntactically parallel to the use of participles in periphrastic constructions but differing in so far as the finite verbs concerned have not undergone semantic weakening but retain their full semantic force.

For example a participle can be the complement of a verb of perception. As with the absolute construction and periphrasis, this is a feature which is further developed in the Classical language; but unlike those constructions it is uncontroversially possible in the RV. It is most clear with the verb √man ‘think’ in the nominative ‘I think myself +PTC’.⁵²

(2.74) yéna tokásya tánayasya sātaú mamsīmáhi
 who.I offspring.G familial.G obtaining.L think.AOR.OPT.1PL

⁵²The following three examples are those given by Delbrück (1888, p.395); he adds 8.45.19 as uncertain.

jigīvāṁsas tvótāḥ
conquer.PF.PTC.N.PL *your_help_having.PL*
 ‘With whom, having your help, we would consider ourselves *to have conquered* in the
 obtaining of our own offspring.’ (RV 6.19.7cd)

(2.75) *sómam manyate papivān*
Soma.A thinks drink.PF.PTC.ACT.N.SG.M
 ‘He thinks (that) *he has drunk* Soma.’ (RV 10.85.3a)

(2.76) *páśyan manye mánasā cákṣasā tán yá imám*
see.PRS.PTC.N.SG.M think.1SG mind.I eye.I those.A who this.A
yajñám áyajanta pūrve
sacrifice.A sacrifice.IMF.3PL ancient.PL
 ‘I think *that I see* with mind and eye those ancient ones who made this sacrifice.’
 (RV 10.130.6cd)

The same verb ‘think’ occurs in a very similar but syntactically distinct construction,
 taking an accusative object and participial complement:

(2.77) *sád id dhí te... manye sáhaḥ*
exist.PRS.PTC.A.SG.NT indeed for you.G... think.1SG power.A
 ‘For I consider your power (to be) truly *existent*.’ (RV 6.18.4a)

Here the finite verb introduces a subordinate participial clause whose subject is in the
 accusative. Both this and the preceding construction are notably reminiscent of the use
 of the participle with verbs of perception in Ancient Greek. Besides \sqrt{man} ‘think’, the
 evidence for other verbs taking clausal complements in the *R̥gveda* is less certain, though
 there are a couple which look promising.⁵³

(2.78) *aruṇó mā sakṛd víkaḥ pathá yántam dadárśa hí*
tawny me.A suddenly wolf path.I go.PRS.PTC.A.SG.M see.PF for
 ‘For a tawny wolf suddenly saw me *going* along the path.’ (RV 1.105.18ab)

(2.79) *parāyatím mātáram ánv acaṣṭa*
go_past.PRS.PTC.A.SG.F mother.A at see.IMF
 ‘He saw the mother *going past*.’ (RV 4.18.3a)

Although these passages are best taken as examples of completive participles, it would
 not be impossible to interpret them as examples of adverbial participles, e.g. the last could

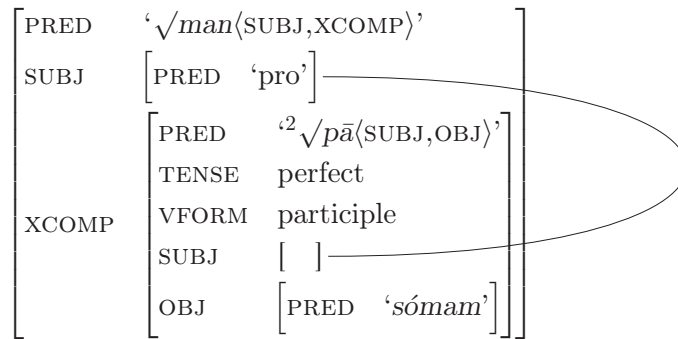
⁵³Delbrück (1888, p.395–396).

be translated ‘he saw the mother *as she was going past*’. However that seems unnecessary given the unambiguous existence of nominative completive participles in the *Ṛgveda*.

Formalization

The nominative participial complement of \sqrt{man} as seen in exx. (2.74, 2.75, 2.76) can be formalized in f-structure terms as an open complement (XCOMP).

(2.80) ṚV 10.85.3a (ex. 2.75 above)



It is notable that the participial complement clause is discontinuous in all these three examples, while the intervening word is the finite form of \sqrt{man} such that the participle and finite verb are adjacent. It might be possible therefore to argue for a monoclausal treatment of the \sqrt{man} plus participle sequence as some sort of modal construction. But given the paucity of the evidence it is quite probable that alternative word orders were possible which would contradict such a supposition; the discontinuity of the participial clauses must simply be attributed to the freedom of the *Ṛgvedic* language in this regard.

The accusative participial complement can likewise be formalized in f-structure as an open complement (XCOMP) (ex. 2.82), but see further below.

We therefore have two distinct syntactic structures for \sqrt{man} (involving participial complementation at least).⁵⁴ Besides participles the accusative complement construction is found also with adjectival complements, as in the following example.

(2.81) *ádihā manye bṛhád asuryàm asya*
therefore think.1SG *great*.A *divine_power*.A *him*.G
‘I therefore consider his divine power (to be) *great*.’ (RV 6.30.2a)

⁵⁴This pattern is found with many verbs cross-linguistically, e.g. English *want*, in ‘*he wants to go*’ vs. ‘*he wants her to go*’.

(2.82) ṚV 6.18.4a (ex. 2.77 above)

COMPFORM	‘ <i>hī</i> ’
PRED	‘ \sqrt{man} (SUBJ,XCOMP)OBJ’
SUBJ	[PRED ‘pro’]
OBJ	[PRED ‘ <i>sāhaḥ</i> ’ ADJ { [PRED ‘ <i>te</i> ’] }]
XCOMP	[PRED ‘ \sqrt{as} (SUBJ)’ VFORM participle SUBJ [] ADJ { [PRED ‘ <i>ī</i> ’] }]

Lühr (2008) argues that ‘accusativus-cum-participio’ is reconstructable for PIE due to its appearance in many old Indo-European languages, such as Hittite, Vedic Sanskrit, Avestan, Greek, Latin, Old Saxon. She treats adjectival complements in such constructions as equivalent to the participial complements, arguing that the participle of the verb ‘to be’ must be implied. This would require us to analyse example (2.81) in the following way.

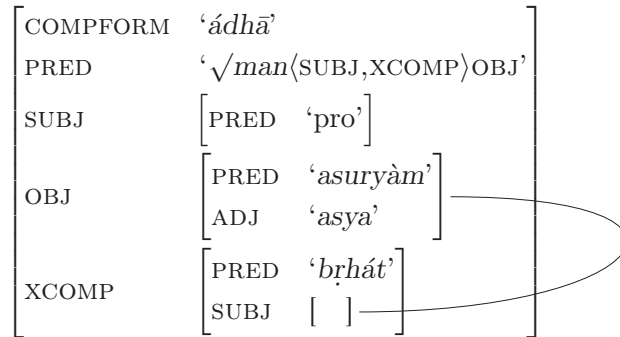
(2.83) ṚV 6.30.2a (ex. 2.81 above)

COMPFORM	‘ <i>ādḥā</i> ’
PRED	‘ \sqrt{man} (SUBJ,XCOMP)OBJ’
SUBJ	[PRED ‘pro’]
OBJ	[PRED ‘ <i>asuryān</i> ’ ADJ ‘ <i>asya</i> ’]
XCOMP	[PRED ‘NULL- \sqrt{as} (XCOMP)SUBJ’ SUBJ [] XCOMP [PRED ‘ <i>brhāt</i> ’ SUBJ [PRED []]]]

However the omission of copula verb forms, while not uncommon in Sanskrit, is usually restricted to the present indicative (as the ‘unmarked’ form of the verb). It is also somewhat circular to assume that the ‘accusativus-cum-participio’ is the only possible construction here, e.g. that accusative-infinitive, or a simple double accusative, was impossible; there is no evidence either for or against this assumption. Such an analysis results in a syntactically complex treatment of what is, in fact, a relatively simple sentence; a preferable analysis

might be the following, simply taking the adjective as the main predicate of the complement clause.⁵⁵

(2.84) ṚV 6.30.2a (ex. 2.81 above)



If we take the first analysis of adjectival complements (i.e. ex. 2.83), then participles are formally and functionally distinct from adjectives in this construction, whereas on the second analysis, participles in this construction are simply displaying a normal adjectival function. Either way, as the PRED of open complements participles here parallel the use of participles as the PRED of other subordinate structures, XADJ (in adverbial use), XCOMP (in periphrasis), and ADJ.⁵⁶

It may be possible to propose a diachronic account of the development of the accusative complement clauses seen above. Taking example (2.79), three possible formalizations could be proposed, which may also represent a process of historical development:

- (2.85) Stage 1: ‘ánv acaṣṭa(SUBJ,OBJ)’ with participial XADJ
 Stage 2: ‘ánv acaṣṭa(SUBJ,XCOMP)OBJ’
 Stage 3: ‘ánv acaṣṭa(SUBJ,COMP)’

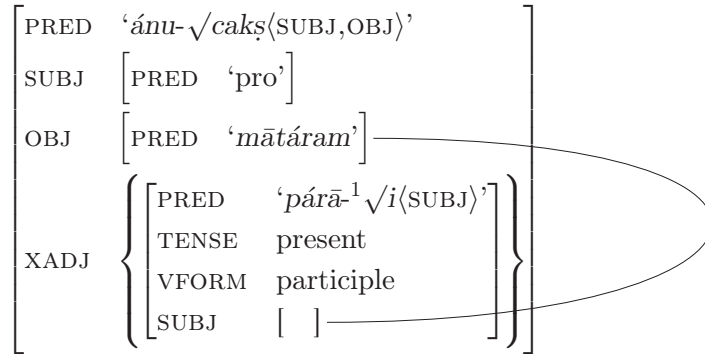
Stage one would represent the translation ‘he saw the mother as she was going past’; stage two and three are two different ways of representing the translation ‘he saw the mother going past’, i.e. ‘what he saw was the mother going past’. From a semantic viewpoint there is no real difference between stages 2 and 3, but from a formal point of view stage three could

⁵⁵For a discussion of the problems involved in formalizing null-copula clauses see Dalrymple et al. (2004a); here I follow the position taken by Nordlinger and Sadler (2007), who conclude that there is evidence for both single (as in ex. 2.84) and double (as in ex. 2.83) tiered treatments in different languages. They argue that the single tier analysis, being the most economical, is to be preferred where possible, but that a double tier analysis should be accepted where there is syntactic evidence for it. In the absence of such evidence I will follow the single tier analysis for Ṛgvedic Sanskrit. For an alternative method of formalizing such clauses in LFG see Attia (2008).

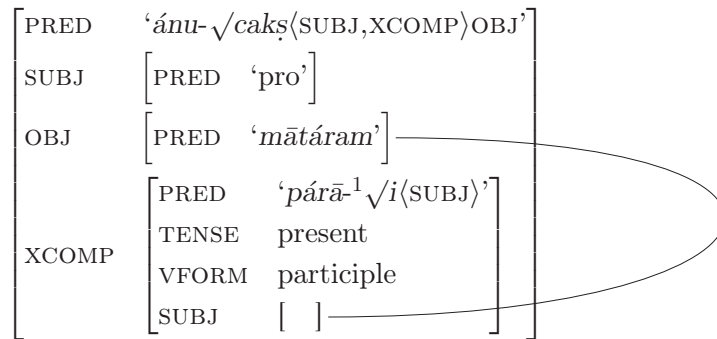
⁵⁶Non-participial adjectives can be found as the PRED of all these structures, but usually to a more restricted degree: for adjectives as XADJ see §3.4.2, p.127 below; adjectives can only function as the XCOMP of copular verbs like √as ‘be’.

represent a further development from stage two in which the subject of the complement clause is reanalysed as lacking any independent role in the main clause, parallel to the development of locative absolutes discussed above. The f-structures for the three stages would respectively be the following.

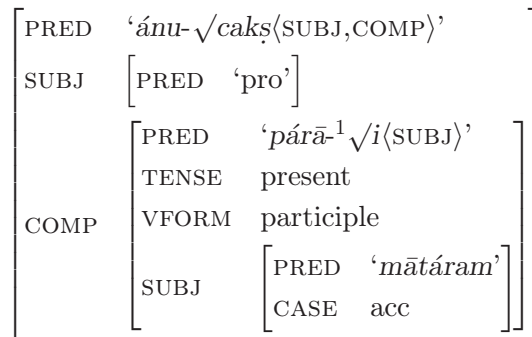
(2.86) RV 4.18.3a (ex. 2.79 above) - Stage 1



(2.87) RV 4.18.3a (ex. 2.79 above) - Stage 2



(2.88) RV 4.18.3a (ex. 2.79 above) - Stage 3



Diachronically we see here an independent element of the main clause being reanalysed as simply the subject of the participle and no longer part of the main clause (as with locative absolutes); on the other hand the participial clause becomes more fully integrated with the

verb, becoming an obligatory function of the predicate rather than a non-obligatory XADJ (as with periphrasis).

Although it is often assumed that this construction is, like the absolute and periphrastic constructions, in the process of development in the *Ṛgveda*, as stated above there is no syntactic or semantic evidence to assume that accusative participial complements were not already fully developed open complement clauses at the time of our texts; there is however no clear evidence that participial closed complements had developed.

2.11 Participial (In)transitivity

Participles ordinarily display the same argument structure as the corresponding finite verbal stem (including sensitivity to voice where this is marked on the participial suffix and not overtly on the verbal stem). This is in line with the principle of inflectional derivation, and should be expected for non-finite verb forms.⁵⁷ So a participle to a transitive verbal stem ordinarily has an object in the same case and of the same thematic role as the object of the corresponding finite verbal form.

However participles to transitive stems much more frequently lack objects than their finite counterparts. Traditional interpretations of such instances sometimes infer objects from the context, but in the majority of cases such participles are interpreted in an intransitive sense.⁵⁸

(2.89) *sámiddho viśvátas pátiḥ pávamāno ví rājati*
 kindled from_all_sides lord Pavamāna apart shines
prīṇán vṛṣā kánikradat
please.PRS.ACT.PTC.N.SG.M bull roar.PRS.ACT.PTC.N.SG.M
 ‘Kindled on all sides the lord Pavamāna shines widely, the *pleasing*, roaring bull.’
 (RV 9.5.1)

The participle *prīṇánt-* occurs only once in the *Ṛgveda*, in the above passage. By comparison with finite active present forms we would expect the participle to have an object, with the transitive sense ‘pleasing OBJ’. Renou (EVP, v.8, p.4) followed Sāyaṇa in inferring an object (“les dieux” = “*devān*”); Geldner (RV, v.3, p.13) on the other hand interpreted

⁵⁷Ylikoski (2003, p.189).

⁵⁸I will avoid the term ‘absolute’ due to its vagueness and the potential confusion with absolute constructions.

the participle reflexively (“sich beliebt machend”), for which we would expect rather the intransitive middle. The participle in the following passage is similarly problematic.

- (2.90) *utá me rapad yuvatír mamandúṣī práti śyāvāya*
 and me.D indicate.IMF girl *exhilarate*.PF.ACT.PTC.N.SG.F PRV Śyāva.D
vartaním
 road.A
 ‘and the girl, *having exhilarated* (me), indicated it to me, Śyāva, on the road.’ (RV 5.61.9ab)

Geldner (RV, v.2, p.69) and Renou (1925, p.136) both interpreted the participle *mamand-váms-* here intransitively (Geldner: “die erfreute junge Frau”), although we would expect this participle to be transitive given the use of other forms of this stem. Following Kümmel (2000a, p.366), however, we can easily supply an object for the participle here from the context, as in the gloss given.

Although we expect an inflectional verb form to share the argument structure of other inflectional forms in the majority of instances, at the same time it is not unreasonable to expect a non-finite verb form to be relatively less transitive (i.e. less verbal) than corresponding finite verbal forms. Whether this applies more to some participles than others, more to some categories of participle than others, whether there are patterns in the ‘intransitive’ use of transitive participles, has not previously been adequately ascertained. As the examples above show, there is no absolute consensus even in the interpretation of individual participles. The matter is considerably complicated by the fact that verbal transitivity itself is a somewhat problematic feature in Ṛgvedic Sanskrit. Although the question of transitivity in the Ṛgvedic verb system is a complex one which cannot be fully dealt with here, a brief examination of the problems will enlighten our subsequent discussion of participial transitivity.

2.11.1 Transitivity in the *Ṛgveda*

Transitivity in Ṛgvedic Sanskrit is not restricted to verbs which take one or more accusative case objects; some verbs take genitive objects, and objects in other oblique cases may be possible. Indirect objects (e.g. with verbs of ‘giving’) are usually in the dative or locative. Some verbs take objects in more than one case: e.g. *pībati* ‘drinks’ sometimes takes

an accusative object, sometimes a genitive, with synchronically no distinction of meaning (Jamison, 1983a, chapter 2).⁵⁹ Whether it takes a genitive or accusative object, *pībati* is transitive; i.e. argument structure is not dependent on case assignment. In some cases there may be a clear interaction between syntactic and semantic criteria for case assignment. Take *sīdati* ‘sits’ (cf. Jamison, 1983a, p.31–32): the original accusative of goal (synchronically a direct object?) alternates with the locative, which is semantically more explicit.

So we should expect that not only will a participle preserve the argument structure of the finite verbal stem from which it is derived, but also that the assignment of case will follow the same patterns seen in the finite verb; so since finite *pībati* can have accusative or genitive objects, the participle *pībant-* should potentially have the same.

In R̥gvedic Sanskrit, however, even finite verbs do not always express all their arguments; this has at least three reasons. Firstly Sanskrit is a language which permits ‘null’ pronominal objects in specific syntactic contexts such as coordination of verbs; here we are essentially dealing with a kind of zero anaphora.⁶⁰ Secondly one of the poetic features of the text is the widespread ellipsis of any element of the clause which can be recovered from the context (primarily extra-linguistic, in contrast to zero anaphora), including but not limited to verbal arguments. Thirdly it appears that many verbs had both transitive and intransitive variants, parallel to English verbs like *eat*.⁶¹ The consequence of this is that it is often in principle unclear whether we are dealing with an object (direct or indirect) argument of the verb or with a non-obligatory adjunct. For example the medium tantum present stem of \sqrt{bhand} ‘delight, rejoice’ occurs four times in the RV, three times in the participle and once in the 3sg. indicative; no other verbal stems are found in the *R̥gveda*.⁶² Of these four forms, two (including the single finite form) occur with an instrumental in the sense ‘delighting in X’, but the other two forms lack an instrumental (or any other kind of non-

⁵⁹Dahl (2009) argues there is a difference between genitive and accusative verbs of consumption, like *pībati*, in terms of definiteness, the genitive indicating an indefinite quantity of the substance consumed and the accusative the total consumption of a specific quantity. However the details are far from certain and for our purposes varying case objects can be treated as interchangeable.

⁶⁰For the same phenomenon in Latin and Ancient Greek see Luraghi (1997, 2004), for Old Icelandic Sigurðsson (1993).

⁶¹Although such variants are clearly related diachronically, synchronically they are best treated as two distinct lexical items. For divergent analyses of this kind of variation compare Luraghi (1997) and van der Wurff (1997).

⁶²The finite form *bhandate* occurs at 3.3.4d, the participle with the instrumental argument/adjunct at 3.2.12b; the other participles are found at 1.142.7a and 3.4.6a.

subject argument/adjunct). Is the instrumental then an object argument of the verb, for whatever reason expressed in only two of the verb's four occurrences, or is it an optional adjunct to a basically intransitive verb?⁶³

Examples can be multiplied, and not only with poorly attested roots. The root \sqrt{yuj} 'yoke' can occur with an accusative object argument, but can also occur with an instrumental noun, usually 'horses'. The instrumental can be assumed to have originally been an adjunct used with the accusative argument, e.g. 'yoke chariot (acc.) with horses (instr.)', but its frequent use with the verb in the absence of an accusative suggests that synchronically it might be an instrumental object argument. This is also suggested by the fact that horses (and other like animals) can also occur in the accusative as unambiguous object arguments.⁶⁴ Nevertheless it is impossible to prove one way or the other.

It is not only in Ṛgvedic Sanskrit, where our interpretation is hampered by our imperfect knowledge of the language and by its poetic context, that the distinction between arguments and adjuncts is unclear.⁶⁵ This is in fact true, to a greater or lesser extent, cross-linguistically. Arka (2009), focusing on Austronesian languages of Indonesia, provides evidence for a cline of argumenthood, running from syntactically core to non-core (oblique), and proposing a 'core index' (a rating from 1.00 to 0.00), based on different syntactic properties, as to how 'core' or 'non-core' an argument is. He also proposes a possible category of 'semi-objects' or 'semi-core' arguments. Such problems are beyond the scope of this thesis, but we must acknowledge the problem and seek to deal with it on a case by case basis. Each verb is different, and we cannot make any sweeping generalizations. Where syntactic evidence is present a firm decision can be made, but this is often not the case. Semantic evidence is also significant in some instances: where the semantic content of the case ending is not in itself enough to account for the role of the noun in a clause it is most likely that we are dealing with an argument. For example the genitive case argument of a verb of ruling is an object argument, because the genitive case itself is not enough to express the

⁶³Gotō (1987, p.223–224) assumes the former and a second, intransitive, use of the stem to explain the object-less participles. The governing compound *bhandād-iṣṭi-* at 5.87.1d may suggest a basically transitive verb, but this does not prove anything about the mediopassive stem.

⁶⁴This unfortunately undermines the use of syntactic tests such as passivization as a means of proving argumenthood in this case.

⁶⁵For some discussion of this question in respect of the *Ṛgveda* see Schäufele (1991b), although I do not share the assumptions about word order which he uses as syntactic evidence to distinguish arguments and adjuncts.

relation of ruler—ruled; but this can only be used as an argument for argumenthood, not against, since we cannot, for example, say that the ablative noun often found with a verb of fearing is not an argument only because the semantic content of the ablative case is itself sufficient to express the relation of the person feared to the act of fearing (i.e. ‘(shrink in) fear *from...*’).

It is not only in the oblique cases that such problems arise. There is often difficulty distinguishing accusative object arguments from accusatives of goal and ‘internal accusatives’.⁶⁶ Again a decision can only be made on syntactic and semantic grounds, where such grounds exist.

For the purposes of this thesis and our current discussion of participial transitivity, the treatment of a particular verb stem as transitive or intransitive has been made largely following the traditional analysis, where this is not contradicted by syntactic or semantic evidence, and in cases of uncertainty having ‘argument’ as the default analysis, to avoid excluding potentially problematic evidence.

2.11.2 Participles sharing an object with the predicate

Apparently ‘intransitive’ participles to ordinarily transitive stems are often, in fact, sharing the object of the main verb of the clause.⁶⁷ That this construction often occurs is not controversial, but it is perhaps somewhat more common than traditionally assumed.

(2.91) *bráhmā tūtod índro gātúm iṣṇán*
 prayer.A.PL strengthen.AOR Indra way.A send.PTC.PRS.ACT.N.SG.M
 ‘Indra made strong the prayers, *sending* (the prayers) on their way.’ (RV 2.20.5b)

In this example the participle *iṣṇán* has no object of its own, but it can clearly be inferred from the main clause. Since constituents can be split and scrambled, it is in principle uncertain whether the object should be interpreted primarily as a constituent of

⁶⁶This was such a problem for Jamison (1983a) that she treated them all as objects; there is some evidence that such an approach is valid for the *Rgveda*, e.g. the existence of the compound *sādád-yoni-*, on which see p.191 fn.18.

⁶⁷Luraghi (2003), on Ancient Greek, treats this as an example of zero anaphora and argues that there is a connection between “grammaticalization of the linkage between two verb forms” and how obligatory such null objects are in Greek; e.g. they are more obligatory in coordination than in yes-no question pairs, and obligatory with adverbial participles where the linkage between the two clauses is so strong it is reflected in subordinate morphology. There are no counter-examples that could suggest it is not likewise obligatory with adverbial participles in the *Rgveda*.

the main verb or of the participial clause; in the above example the position of *bráhmā* next to the main verb makes the preferred interpretation clear, but in the following example the object *tát* could in principle be taken primarily with either verbal phrase (syntactically it is positioned in the CCL).⁶⁸

- (2.92) *dhírās cit tát samínakṣanta āśata*
 wise.PL PCL it obtain.DES.PRS.ACT.PTC.N.PL.M obtain.PF.3PL
 ‘Only the wise *who desire to obtain* it have obtained (it).’ (RV 9.73.9c)

Geldner (RV, v.2, p.93) interpreted the participle *citáyant-* in the following passage intransitively; however it makes more sense to assume that the participle shares the object of the main verb (here an accusative of goal).⁶⁹

- (2.93) *tám tvā nárah prathamám devayánto mahó rāyé*
 that you.A men.PL first god_worshipping.PL great.G giving.D
citáyanto ánu gman
 perceive.PRS.PTC.ACT.N.PL.M PRV go.AOR.INJ.3PL
 ‘Perceiving (*you*) indeed, god-worshipping men first went to you for the giving of great (wealth).’ (RV 6.1.2cd)

Again, Geldner (RV, v.2, p.216) interprets the participle in the following passage as an intransitive epithet, despite the fact that finite forms of the stem almost obligatorily occur with an expressed accusative object. By inferring ‘us’ from the main clause a more appropriate syntax for the participle is obtained.

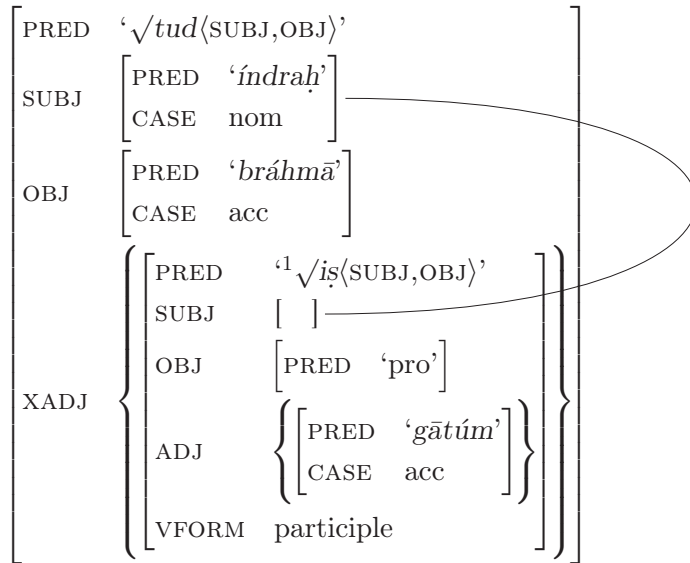
- (2.94) *śám no deváh savitā tráyamāṇah*
 propitious us.D god Savitr protect.PRS.PTC.N.SG.M
 ‘Propitious for us be the god Savitr, *who protects (us)*.’ (RV 7.35.10a)

This involves reading the pronoun *naḥ* ‘us’ as a dative adjunct in the main clause, but as an accusative object in the participial clause; there appears to be no restriction on which element the participle can adopt from the main clause as its object. In terms of LFG formalization, the missing argument in the participial clause (or, if necessary, the main clause) is filled by the null pronoun (‘pro’) in f-structure, which will simply refer to the most semantically appropriate element of the main clause.

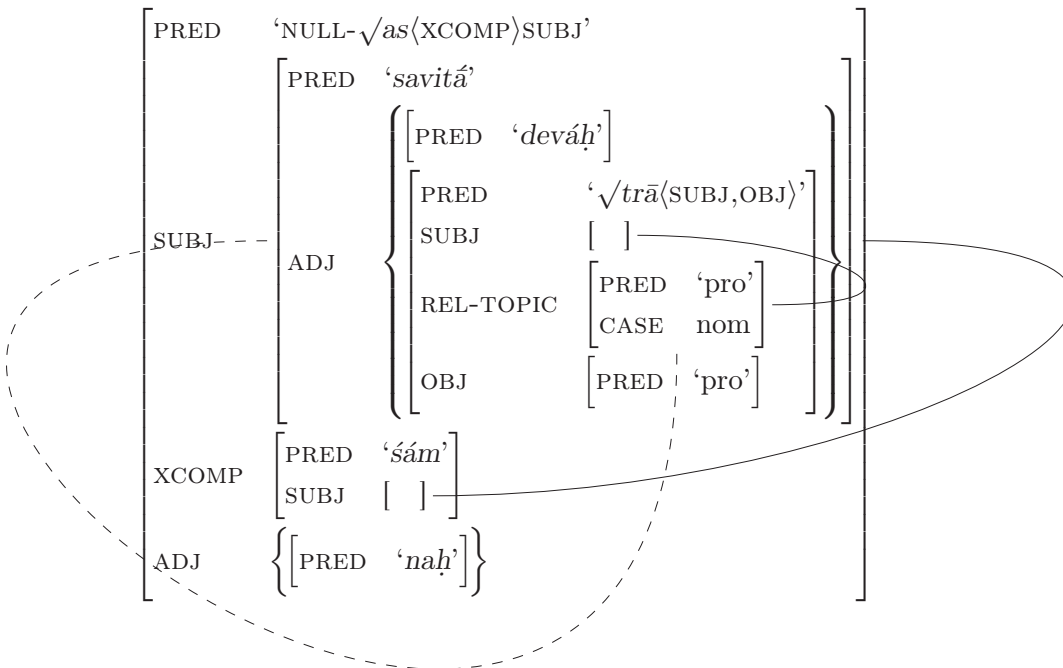
⁶⁸For the CCL see §2.3.

⁶⁹On the various uses of this stem see Jamison (1983a, p.57–58, 74).

(2.95) RV 2.20.5b (ex. 2.91 above)



(2.96) RV 7.35.10a (ex. 2.94 above)



Roughly a quarter of the RV occurrences of ‘intransitive’ participles to transitive roots can be explained in this way. Of 1136 transitive/ditransitive present participles in books II–VII and IX, 437 (38.5%) lack objects of their own, but of these 80 (7% of the total) are (or are probably) sharing the object of the predicate. Similarly of the 197 transitive/ditransitive perfect participles in books II–VII and IX, 77 (39%) lack objects, of which 17 (8.6% of the

total) are (or are probably) sharing the object of the predicate, leaving 30.4%.⁷⁰ Therefore the frequency of ‘intransitive’ participles to transitive stems is reduced from about 40% to about 30% by recognizing the full extent of this construction.

2.11.3 Contextually salient null objects

Although participles regularly share the object of the main verb of the clause within which they occur, it is rare if not impossible for participles to share the object of a verb from a previous clause, with which the participle has no direct relation. Possible instances of this may simply be examples of arguments inferred from the wider, usually extra-linguistic context. In the following passage the object of the participle *vādamāna-* could be inferred from the previous verse (‘*te*’), but this does not seem strictly necessary since in the context of the hymn it is obvious that it is the addressee being praised.

- (2.97) *ví te tiṣṭhantām ajārā ayāsaḥ idhménāgna*
 apart your stand.IMP.3PL ageless.PL nimble.PL kindling.I=Agni.V
ichāmāno ghr̥téna juhómi havyaṃ tárase bálāya
 desire.PRS.PTC.N.SG.M ghee.I offer.1SG oblation.A overcoming.D power.D
yāvad íse bráhmaṇā vādamāna imāṃ
 as_far_as have_power.1SG prayer.I praise.PRS.PTS.N.SG.M this.A.F
dhíyaṃ śataséyāya devīm
 poetic_thought.A hundred_winning.D divine.A.F

‘Let your nimble, ageless (flames) spread apart. With kindling, O Agni, and ghee I desirously offer oblation for overcoming and for strength. As far as I am able, *praising (you)* with a prayer, (I bring) this divine poetic thought to win a hundred.’ (RV 3.18.2d–3)

Contextually salient personal pronouns such as ‘you’, ‘me’, ‘us’, can easily be inferred where these are lacking, but more specific omitted arguments can also be supplied where the usual context of a particular word makes this obvious. In ex. (2.98) the object of the participle can be inferred easily since mother cows are often depicted licking their calves; in ex. (2.99) the transgression or non-transgression of some sort of law is clear from the usual use of this verb stem.⁷¹

⁷⁰Statistics for the stative, aorist and future participles are less reliable due to the smaller quantity of data. For example there are 21 future participles in the *R̥gveda* to transitive stems, of which 10 (48%) lack objects, but of which 4 (19%) are sharing the object of the predicate. The significantly greater proportion of cases accounted for here is merely a result of the small figures involved.

⁷¹Geldner (RV, v.1, p.424) supplies “die Satzungen” here; cf. Lowe (2011a, p.27–28).

- (2.98) *gāveva śubhré mātārā rihāṇé vipāṭ chutudrī*
 cow.DU=like bright.DU mother.DU lick.PRS.PTC.N.DU.F Vipās Śutudrī
pāyasā javete
 water.I rush.3DU
 ‘Like two bright cows, mothers *licking* (*their calves*), Vipās and Śutudrī rush with their water.’ (RV 3.33.1cd)

- (2.99) *idám me agne kiyate pāvakāminate gurúm*
 this.A me.D Agni.V how_great.D Pavāka=*not_infringing*.D heavy.A.NT
bhārām ná mánma bṛhád dadhātha dhṛṣatā gabhīrām
 burden.A.NT like composition.A high.A.NT give.PF.2SG daringly deep.A.NT
 ‘What sort of person am I, Agni Pavāka, I *who do not infringe* (*the divine laws*), that you have given me this composition like a heavy burden, high and daringly deep.’ (RV 4.5.6)

‘Null’ objects of this sort are found also with finite verb forms, and do not necessarily contribute to an explanation of why participles to transitive verbal stems more often lack objects than their finite counterparts. In fact the observed lack of objects with participles is not purely attributable to syntactic or even derivational factors affecting the category of participles as a whole; rather a few common participles constitute a persistent exception to the more generally valid rule that a participle should share the argument structure of corresponding finite forms.

2.11.4 Lexicalized participles

Beside the vast majority of participles formed to transitive verbal stems which do usually have objects, but which may or may not occur with any great frequency, there is a small group of very common participles which never or almost never have objects, contrasting with finite forms which do. This small group of participles can be subdivided into two or three groups.

Firstly, there are participles which are used almost exclusively as nouns, most of which have in fact been lexicalized as nouns. Such are *pācant-* ‘baker (of sacrificial cakes)’, *sunvánt-* ‘presser (of Soma)’, *yājamāna-* ‘sacrificer’, *sāmsant-* ‘praiser’, *śśāna-* ‘ruler’, *grṇánt-* ‘praise-singer’, *stuvánt-* ‘praiser’.⁷²

⁷²Cf. §2.6.3, p.53 above.

Secondly, participles which can be argued to be synchronic adjectives, perhaps originally participles which had undergone adjectivization.⁷³ Such are *uśánt-* ‘willing’ (beside finite *váṣṭi* ‘he desires OBJ’), *árhant-* ‘worthy’ (beside finite *árhati* ‘deserves OBJ’), *prajānánt-* ‘knowing’, *sáhant-* ‘victorious’, *cikitváms-* ‘knowing, wise’, *sasaváms-* (and variants) ‘victorious’, *cakāná-* ‘eager’. Negated participles, synchronically mostly adjectives, can be added to this group.⁷⁴

Among present participles, these relatively few stems account for over 100 of the participles lacking objects, around 23% of the unexpectedly intransitive present participles. The perfect participle *cikitváms-* alone accounts for around 32% of the unexpectedly intransitive perfect participles. It appears, then, that the supposed frequency of participles to transitive stems lacking objects is based on the high frequency of a few lexicalized forms, while the majority of participles pattern more closely with their corresponding finite verb forms (which, it should be remembered, can also lack objects).

I have stated above that it would not in principle be surprising for participles to display lower transitivity than corresponding finite stems, since although participles can be considered inflected verb forms they are nonetheless further along the cline from verbality to nominality than finite verbs. We could also consider the possible relation between backgrounding and lower transitivity discussed by Hopper and Thompson (1980, p.280f.): since the predication expressed by a participle is relatively backgrounded in comparison with the finite verb, we might expect participles to display intransitivity more commonly than finite verbal forms. But taking into account the explicable causes of apparent ‘intransitivity’ discussed above, there is no clearly discernable tendency for synchronically regular participles to display lower transitivity than the finite stems from which they are derived.

I have dwelt on this at some length partly to defend the argument that participles are synchronically *inflected* verbal forms which pattern closely with their finite counterparts, and also because of the widely held assumption that participles in PIE were intransitive (or at least largely intransitive) and that any tendency toward intransitivity is evidence of this inherited restriction (on which see further §4.1.1, p.184f.).

⁷³As will be argued in chapter 4, some of these may in fact be adjectives historically as well as synchronically.

⁷⁴Cf. §4.4, p.197f.

2.12 The Participial VP

Given the existence of a VP containing finite verbs in Ṛgvedic Sanskrit (cf. §2.3 above), it follows naturally that participles too should head a VP. Since participles are in some sense subordinate, embedded verb forms, adjacency between participles and their non-subject arguments (and adjuncts) may not only represent constituency of a contiguous VP, but also constituency of the embedded clause. Where this occurs the two may be assumed to be equivalent. The existence of a participial VP parallel to VPs containing finite verbs is clear from passages such as ex. (2.100) below where the participial VP appears in topic position before the ‘second position’ clitic.

- (2.100) *amṛtatvām* *rākṣamāṇāsa* *enam devā* *agnim dhārayan*
immortality.A *protect*.PRS.PTC.N.PL.M him god.PL Agni.A support.3PL
draviṇodām
wealth_giving.A
‘*Protecting* their immortality, the gods supported him as Agni, giver of wealth.’ (RV 1.96.6cd)

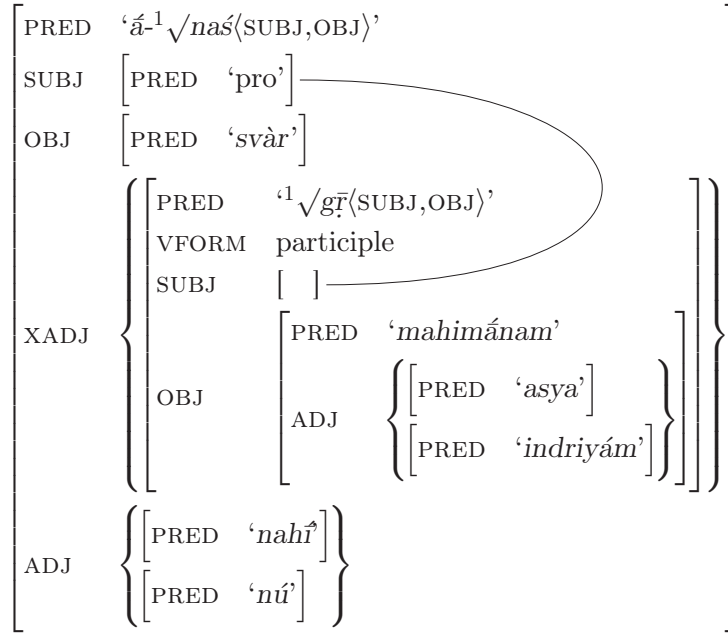
The elements of a participial clause, consisting of the participle itself and any non-subject arguments, are most often contiguous (cf. most of the above examples), but there is no requirement for this; the participial clause can be broken up by any element of the main clause.⁷⁵ In example (2.101) the (intransitive) main verb intervenes between the participle and its object; in example (2.102) the object of the main verb intervenes between the participle and its object, and at the same time the participle itself intervenes between the main verb and its object (the decision as to which object goes with which action can only be determined contextually). The f-structure and c-structure for ex. (2.102) are given as exx. (2.103, 2.105) respectively.

- (2.101) *pracetáyann* *arṣati vācam émām*
make_perceived.PRS.PTC.ACT.N.SG.M runs voice.A forward=this.A.F
‘*Making* this (his) voice *perceived*, he runs forward.’ (RV 9.97.13d)

⁷⁵There seem to be no examples of locative absolutes with discontinuous constituents, but this may simply be due to their rarity. Maiocco (2005, p.160–166) states that in his sample of Classical Sanskrit locative absolutes, only 1.4% were discontinuous due to interruption by a matrix clause element, and a further 3.1% by particles, but I have no statistics regarding other types of participial clause in Classical Sanskrit against which to compare this data.

- (2.102) *nahí* *nv* *àsya mahimánam indriyám svàr*
 for_not now his greatness.A Indric.A sun.A
grṇánta *ānaśúḥ*
praise_sing.PRS.PTC.ACT.N.SG.M *obtain.PF.3PL*
 ‘For they have not now, (by) *praise-singing* his Indric greatness, obtained the sun.’
 (RV 8.3.13cd)

(2.103) RV 8.3.13cd (ex. 2.102)



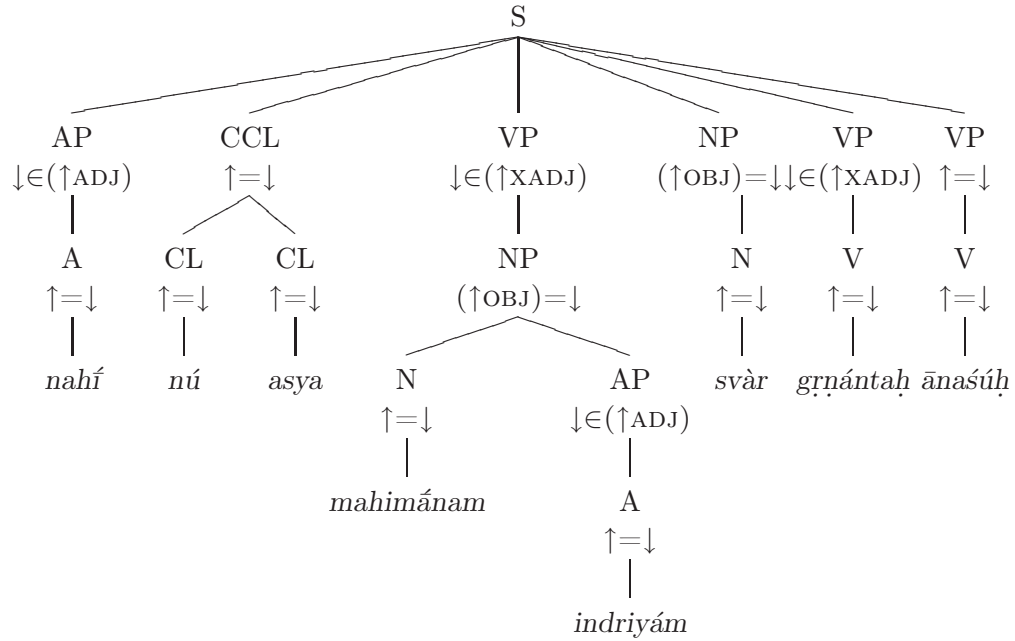
Discontinuous participial VPs are found with participles in both adnominal and adverbial function; most commonly the latter (as in examples 2.101 and 2.102 above), but there are a few clear examples with the former, for example with the epithetic participle *rājantam* at 6.1.8d (ex. 2.104).⁷⁶

- (2.104) *rājantam* *agním yajatám* *rayīnām*
rule.PRS.PTC.ACT.A.SG.M *Agni.A* *worship_worthy.A.SG* *riches.G.PL*
 ‘(We praise)... Agni, the worship-worthy, *who rules* over riches.’ (RV 6.1.8d)

Such discontinuity demonstrates the extremely free word order of RV Sanskrit. Discontinuous participial constituents are licensed by the PS-rule below (ex. 2.106).

⁷⁶There is no finite verb in the verse, which consists entirely of accusative case epithets of the god, nor can any be inferred from adjacent verses; hence any verb which makes sense can be supplied in the context, such as ‘praise’ in the gloss given.

(2.105) C-structure for RV 8.3.13cd (ex. 2.102 above)



(2.106)
$$\text{VP} \rightarrow \left(\begin{array}{c} \text{NP} \\ (\uparrow\text{OBJ})=\downarrow \end{array} \right), \left(\begin{array}{c} \text{V} \\ \uparrow=\downarrow \\ (\downarrow\text{VFORM})=\text{participle} \end{array} \right)$$

From a less formal point of view, we can say that a participial clause consists of a VP headed by the participial verb form, plus any adjuncts, and that this clause preferably occurs as a continuous unit within the superordinate clause, but that this is not a strict rule, merely a tendency.

2.12.1 Preverbs and tmesis

As preverbs modifying the main verb of a clause can appear either directly before the verb or in ‘tmesis’ (cf. §2.3 above), so they can also with participles. When preverbs are positioned directly before participles, they usually but not always lose their accent and are written as one word with the participle. Participles with tmetic preverbs are not particularly

common.⁷⁷ Of 308 present participles in books II–VII and IX which have preverbs, only 50 (16%) are in tmesis. 45 perfect participles in II–VII and IX have preverbs, 11 of which (24%) are in tmesis. Only three of 26 aorist participles with preverbs in the *R̥gveda* show tmesis. None of the 25 future participles in the *R̥gveda* have preverbs in tmesis; only one has a preverb in compound.

Syntactically, the preverb can appear in any position within the participial constituent: it can appear directly preceding the participle (ex. 2.107), directly following the participle (ex. 2.108), at the start of the participial constituent (ex. 2.109), at the end of the participial constituent (ex. 2.110) or within the participial constituent, adjacent neither to the verb nor either edge of the constituent (ex. 2.111).

(2.107) *ná tvā gabhīráḥ puruhūta síndhur nádrayaḥ pári*
 not you.A deep much_involed.V river not=mountain.PL around
śanto varanta
 be.PRS.PTC.N.PL.M cover.AOR.INJ.3PL
 ‘Neither the deep river, O much invoked one, nor the mountains *surrounding* (you) covered you.’ (RV 3.32.16ab)

(2.108) *eṣá kavír abhīṣṭutaḥ pavítre ádhi tośate punānó*
 this poet praised sieve.L upon drips purify.PRS.MED.PTC.N.SG.M
ghnānn ápa sṛídhaḥ
 strike.PRS.PTC.N.SG.M away foe.A.PL
 ‘This praised poet drips upon the sieve as he is purified, *striking away foes*.’ (RV 9.27.1)

(2.109) *prá sūñtā diśámāna ṛténa dúraś ca*
 forth gladness.A.PL distribute.PRS.PTC.N.SG.M order.I door.A.PL and
vísṁvā avṛṇod ápa sváḥ
 all.A.PL.F open.IMF away own.A.PL.F
 ‘*Distributing gladness* according to order, he opened wide all his doors.’ (RV 3.31.21cd)

(2.110) *uṣá yāti jyótiṣā bádhamānā vísvā támāṁsi*
 dawn comes light.I ward.PRS.PTC.N.SG.F all.A.PL.NT darkness.A.PL
duritāpa deví
 difficulty.A.PL=away goddess

⁷⁷It is occasionally ambiguous whether we are dealing with a preverb in tmesis or a preposition, and perhaps this was also true at the time, as prepositions were still evolving.

‘Dawn comes with the light, the goddess *warding off* all darkness and difficulties.’
(RV 7.78.2cd)

(2.111) *sá pávasva sáhamānaḥ pṛtanyún*
PCL flow.IMP.2SG conquer.PRS.PTC.N.SG.M war_lover.A.PL
sédhan rákṣāmsy ápa durgáhāni
drive_off.PRS.PTC.N.S.M evil_spirit.A.PL away danger.A.PL
‘You, flow - conquering the lovers of war, *driving away* the evil spirits and dangers.’
(RV 9.110.12ab)

It is sometimes stated that tmetic preverbs occur only with participles in adverbial function. However this is not necessarily the case: there are several examples among the relatively small contingent of such preverbs in the *R̥gveda* where the participle clearly has an adnominal function; this is seen in ex. (2.107) above.⁷⁸

Table 2.3: Position of preverbs relative to present participles

Position	No.	%
Start of participial constituent	21	42%
Directly Preceding Participle	11	22%
Directly Following participle	4	8%
Final position in participial const.	7	14%
Within participial const.	5	10%
Discontinuous ptc. const.	2?	4%

Table (2.3) shows the relative position of preverbs in tmesis with present participles in books II–VII and IX. The table shows that by far the most common position for preverbs in tmesis is initial within the participial constituent.⁷⁹ The second most frequent position is directly preceding the participle but accented, rather than unaccented and compounded with the participle as is the rule. Nine of the eleven examples of this involve the participle *sánt-* ‘being’: perhaps here we are dealing with a convention of the transmission, which for some reason avoided compounding \sqrt{as} with preverbs. That we are dealing with a single phonological word is clear in ex. (2.107) above from the internal sandhi between the preverb and participle, resulting in the retroflex sibilant of *ṣántaḥ*.⁸⁰ This may, then, not be such a

⁷⁸Also e.g. 3.2.11d, 3.34.1b, 3.61.4a, 5.41.12d, 5.44.7c, 7.10.2c, 7.20.4c, 7.36.6d, 7.56.13d, 9.9.5a.

⁷⁹Six (55%) of the eleven perfect participles with preverbs in tmesis have the preverbs in this position. Four of the others directly follow the participle.

⁸⁰The only example of a form of \sqrt{as} compounded with a preverb is the participle *prasántā* at 6.62.1a, which given the frequency of the root with various preverbs is somewhat surprising.

genuine position for separated preverbs as it appears.⁸¹ Other positions for the preverb are rarer.

In all but possibly two passages the preverb and the participle occur in the same continuous constituent. In ex. (2.112) the preverb and the object of the participle are separated from the participle itself by the noun with which the participle agrees; we seem to have a simple example of a discontinuous constituent.⁸²

- (2.112) *átāriṣma* *támasas* *pārám* *asyá* *práti* *stómaṃ*
 cross.AOR.1PL darkness.G beyond this.G forward praise_song.A
devayánto *dádhanāḥ*
 god_worship.PRS.PTC.N.PL.M place.PRS.PTC.N.PL.M
 ‘We have crossed beyond this darkness, god-worshippers *setting forth* a praise song.’
 (RV 7.73.1ab)

The fact that this so rarely occurs shows a relatively high level of cohesion between participle and preverb. Any significant separation of participle and preverb could lead to ambiguity as to whether the preverb is modifying the participle or main verb; in this instance the adjacency of the preverb and the object of the participle make the syntactic connection of the preverb clear. More questionable is the preverb at 2.4.4c which appears to be separated from the participle by the relative pronoun; in fact the preverb appears to be positioned not within the participial clause but in the regular position for preverbs modifying main verbs, i.e. at the start of the clause initial CCL.

- (2.113) *ví* *yó* *bháribhrad* *óṣadhīṣu* *jihvám* *átyo* *ná*
apart who carry.INT.PRS.PTC.N.SG.M plant.L.PL tongue.A horse like
ráthyo *dodhavīti* *vārān*
 of_a_chariot shakes tail_hair.A.PL
 ‘Who, *darting* his tongue among the plants, like a chariot horse he shakes his tail.’
 (RV 2.4.4cd)

The gloss of this passage given above broadly follows the existing interpretations.⁸³ If

⁸¹Only one of the perfect participles with preverbs in tmesis shows the preverb in this position. It occurs twice with aorist participles, but in the later books I and X (cf. ex. 3.40, p.132).

⁸²When it is the governing noun which interrupts the participial constituent, as here, it is possible that we are not dealing with a discontinuous participial constituent but rather with backward control, where the subject of the participial clause controls an element of the main clause rather than the more usual converse. Backward control has been shown to occur with New Testament Greek participles by Haug (2011); since it is not just the subject of the participle which can interrupt participial constituents in the *R̥gveda* we cannot prove one way or another whether backward control is possible, and so the best approach is for discontinuity to be our default analysis.

⁸³Geldner (RV, v.1, p.281) “...der in den Pflanzen züngelnd — wie ein Wagenroß schüttelt er den Schweif”;

genuine this would be the only example of a participial preverb entirely detached from any other part of the participial constituent. However there is another problem with this clause: the finite verb *dodhavīti* in pāda *d* is unaccented, which is irregular for a relative clause. Geldner’s explanation (RV, v.1, p.281 ad loc.) is that “der Nebensatz geht in einen Hauptsatz über”, i.e. anacoluthon as indicated in his translation. However both problems with this clause would be resolved if *bhāribhṛat* here could be taken not as a participle but as a finite verb: the main verb of the relative clause would be accented, and the preverb would be in an entirely regular position for a preverb separated from a finite verb. Pāda *d* would then form a separate clause, the passage meaning ‘who darts his tongue among the plants; like a chariot horse he shakes his tail’. Morphologically the form *bhāribhṛat* could regularly be only a third person *plural* injunctive, so we are forced to conclude that here the form represents an irregular thematized or nonce stem. In any event, the lack of accent on the supposed main verb of the relative clause casts doubt on the interpretation of the relative clause as a whole and means that the apparently unique position of the preverb cannot be assumed to be a regular, valid position for preverbs in tmesis from participles.

The syntactic evidence of preverbs, then, supports the claim made above that the participial constituent preferably but not necessarily occurs as a continuous unit within the superordinate clause; and in particular the preverbal modifier of a participle appears to be less free than other adjuncts and arguments, being almost never discontinuous from the participial clause.

2.13 Conclusion

In this chapter we have investigated the syntactic properties and tendencies of tense-aspect stem participles in the *Ṛgveda*, and have developed a formalization of these facts within the framework of Lexical-Functional Grammar. This entailed constructing an LFG-based account of *Ṛgvedic* syntax, in particular word order (§2.3).

We proposed that participles should be seen as inflectional rather than derivational forms of verbs (§2.4), and this has been supported by detailed consideration of participial

similarly Renou (EVP, v.12, p.44); Schaefer (1994, p.163); Witzel and Gotō (2007, p.358).

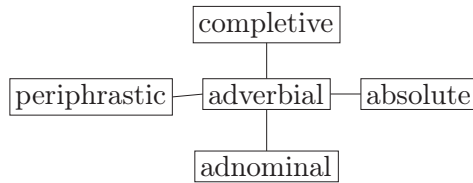
syntax, in particular participial transitivity (§2.11), where we have seen that, apart from a very common but small group of largely lexicalized forms, participles share the argument structure and transitivity of corresponding finite verbal forms. We then examined in detail the syntactically distinct functions of participles (§2.5f.), namely the various adnominal functions (§2.6), the adverbial function (§2.7) with which we also categorized the locative absolute (§2.8), and the complementary functions (§2.10). We also examined the syntactically irregular use of participles in so-called *nominativi pendentes* (§2.9).

To a large extent the functional domain of participles discussed in this chapter is shared with non-participial adjectives, and can be considered ‘adjectival’ syntax. The adnominal functions of participles are entirely shared with other adjectives, and is usually considered the most basic adjectival function. As we will see in the following chapter, non-participial adjectives can also occur in adverbial function, but to a considerably more restricted degree than can participles, to the extent that we can see in the adverbial use of participles the beginnings of a syntactic distinction between adjectives and participles. The use of participles in periphrasis (§2.10.1), which does not seem to have developed in the *R̥gveda* but clearly does so from the adverbial use, is a further development of participial syntax beyond the possibilities licensed by their adjectival nature. The locative absolute, which also seems to be in the process of developing from the adverbial function, is another example of the extension of participial syntax beyond that of adjectives. The completive use of participles (§2.10.2) has sometimes been treated as a specifically participial, rather than generally adjectival, function, but we have seen that there is no clear reason to distinguish participles and adjectives in this function. Syntactically, then, *R̥gvedic* tense-aspect stem participles are still largely adjectival, while at the same time being fundamentally verbal.

In attempting to understand the interrelations of the different functions of participles and similar word-types, König and van der Auwera (1990, p.346–348) propose a diagram of relations which, adapting their labels to fit our terminology, is given as fig. (2.1).

They propose therefore that the adverbial function (their “adverbial SS” = “adverbial same subject”) is the central function for this kind of word, from which the adnominal (their “attributive/apposition”), periphrastic (their “predicative”), completive (their “object nexus”) and absolute functions can each be derived by a change of one of four features of

Figure 2.1: Participial functionality relations (from König and van der Auwera, 1990)



the central type.⁸⁴ By adapting their feature set slightly to fit our analysis developed here, we can make the following claims about adverbial participles:

Adverbial participles are (1.) involved in a non-primary predication which (2.) cannot be applied to an element which is not an argument or adjunct of the main clause; the adverbial participle is (3.) not subcategorized for by the primary predication element and (4.) the participial construction and the constituent it applies to do not make up a NP together.⁸⁵

The other participial functions therefore derive from the adverbial function by the loss of constraints in the above definition: periphrasis is derived by removing ‘non-’ under (1.); the absolute construction is derived by the loss of ‘not’ under (2.); removing ‘not’ under (3.) derives the completive function; and removing ‘not’ from (4.) derives the adnominal function.

This may be a useful way to schematize the different syntactic functions of participles, but it does not necessarily indicate any diachronic or hierarchical relation between them. Were we to add arrows to the diagram to attempt to indicate either of these, we could not in principle prove which of figg. (2.2, 2.3), for example, is preferable.

It is usually assumed that the adnominal function is diachronically prior, being the supposed original function of adjectives and hence of participles also. But on the basis of the synchronic data from the *R̥gveda* discussed here, we can only note that all three of the functions in the central column of the diagrams, i.e. the completive, adverbial and adnominal

⁸⁴Note that this supports the derivation of the locative absolute from an adverbial participial use, rather than from an adnominal use as has often been claimed. Cf. §2.8 above.

⁸⁵This differs slightly from König and van der Auwera’s (1990) features, q.v.

Figure 2.2: Directional relations of participial functionality 1

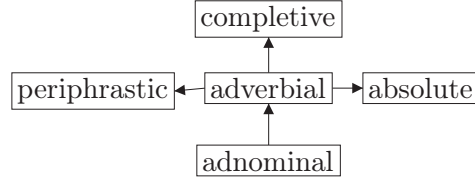
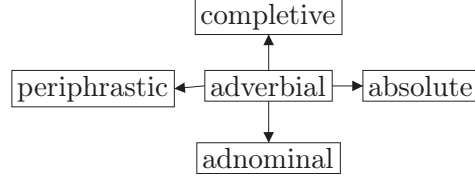
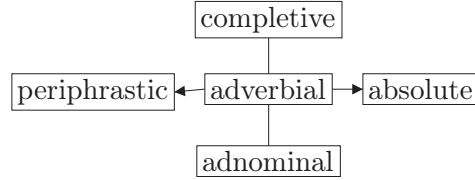


Figure 2.3: Directional relations of participial functionality 2



functions, are adjectival and not specifically participial functions, and that the only diachronic developments discernable within Sanskrit are the developments of the periphrastic and absolute constructions from the adverbial use. Figure (2.4) illustrates this.

Figure 2.4: Directional relations of participial functionality 3



In terms of the functional differentiation of participles from adjectives this may represent the centering of participial functionality on the adverbial function and functional extension from this, whereas non-participial adjectives probably always retained the adnominal use at their functional centre. Furthermore it is natural to suppose that the functional centering of participles on the adverbial function is closely related to their specifically verbal nature in contrast to adjectives. We therefore see again that participles are syntactically very close to adjectives in the *R̥gveda*, but show certain syntactic possibilities which are not found with other adjectives, deriving from their verbal status.

In terms of the syntax of the participial VP both in relation to the clause and internally, we have seen a high degree of cohesion between the elements of the participial VP resulting in a strong tendency towards the participial VP occurring as a single continuous constituent within the main clause. This is close to the syntactic cohesion of most types of subordinate clause in Vedic, such as relative or causal clauses, which cannot be interrupted and made discontinuous by elements of the superordinate clause; continuity was probably favoured due to the potential for ambiguity. However this cohesion is not as absolute as that of full subordinate clauses, since discontinuity can occur: this demonstrates the greater degree of desententialization of participial clauses in comparison to finite subordinate clauses, and the associated greater degree of integration between participial clause and main clause, which permits the interspersing of elements of each clause. Moreover the incipient development of periphrasis could be seen to demonstrate a further desententialization of participial clauses and increasing integration into the main clause. Participial clauses can therefore be thought of as reduced subordinate clauses, less fully clausal and at the same time more fully integrated into the main clause.

In this chapter we have considered in detail the syntax of tense-aspect stem participles in the *R̥gveda*. In the following chapter we turn to the question of their semantic properties.

Chapter 3

The Semantics of Participles

This chapter investigates the semantics of R̥gvedic participles. The overall semantic contribution of a participle to its clause depends on various factors: the syntactic function of the participle in the clause, the semantic properties of the other elements of the clause, in particular that of the main verb, and the semantic properties of the participle itself. It would be possible to make assumptions regarding the semantic properties of participles on the basis of finite forms and the particular morphological make-up of participles, but it is preferable rather to investigate the semantic contribution of participles in the context of their clauses first, and work back from this to uncover the specific semantics of the participles themselves, without making any assumptions based on potentially deceptive morphology. We might assume, for example, that the semantic information a participle contributes to the clause is essentially the same information provided by the tense-aspect stem, the participial suffix merely specifying the referent of the eventuality expressed by the participle. This would amount simply to saying that participles share and accurately reflect the semantics of the verbal stems from which they are derived, which is commonly assumed in most treatments of RV participles. However there is no necessary reason why this should hold true. We have argued in the previous chapters that participles are inflectional forms of verbs and should therefore pattern semantically with corresponding finite verbal forms; but at the same time we have seen that to a certain extent, and in particular with certain groups of words, participles are less ‘verbal’ than finite verbs, and hence it is possible that in some or all cases their semantics will differ correspondingly. In this chapter we will therefore investigate how

the semantics of participles contributes to our understanding of their status as adjectival forms of verbs in the *Ṛgveda*.

Although the Indian grammatical tradition had little to say on the subject of syntax as we would understand it, their treatment of semantics was very advanced, and provides an important insight into the semantics of verb forms, including participles, in a stage of the language not too far removed from the language of the *Ṛgveda* under discussion and which is centuries closer to it than we are. Since the semantic interpretation of the *Ṛgveda* is by no means fully established and the subject of considerable ongoing debate, an initial consideration of the relatively contemporary views of the Indian grammatical tradition will help to set our semantic analysis on a firm foundation. We will therefore investigate this in §3.1.

When we move on to our analysis of participial semantics there is a natural danger of our discussion becoming imprecise and ambiguous. We will therefore make use of semantic formalizations developed in semantic and syntactic theories, by which verbose and imprecise descriptions of semantics can be represented in a logical and precise manner. To this end we will review the language of semantic formalization in §3.2. In §3.3 we will begin the main part of this chapter, examining the semantics of participles in the wider context of their clauses. We will then move on in §3.5 to a detailed consideration of the semantic properties of participles as word forms in relation to the finite verbal stems from which they are derived.

3.1 Participial Semantics in the Indian Grammatical Tradition

The treatment of participles per se in the grammatical tradition is limited by the fact that in Pāṇinian Sanskrit the aorist participle no longer existed and the perfect participle survived only in a few lexicalized forms. However the treatment of the remaining productive participles, present and future, is relatively detailed, and the treatment of the tense-aspect stems in general, including the past tenses, can be extended or at least related to the semantics of participles, including perfect and aorist participles, in the earlier language.

3.1.1 Participial functions

As stated above, in Pāṇini's language the aorist and perfect participles had largely dropped out of use. *Aṣṭādhyāyī* 3.2.106–109 specifies the use of the medial and active perfect participles as equivalents of finite perfect forms in Vedic, and then specifies six perfect participles which still existed in the spoken language and could be used in the same way.¹ All these perfect participles have simple past tense reference (3.2.84, *bhūte*), and nothing more specific is said of them. However the rules teaching the present participle specifically treat its semantic employment.²

The functions of the present participle are defined by rules 3.2.124–126. The present participle is described as the primary means of expressing an action in the present tense when its grammatical subject is not in the nominative case in the sentence.³ In other words any action which is taking place in 'present time' in relation to the time of the main verb can be expressed by the present participle, as long as the participle and main verb do not share the same grammatical subject. Therefore present participles outside the nominative case should be able to express simultaneity, i.e. that the eventuality expressed by the participle is taking place at the same time as the eventuality expressed by the finite verb. This is excluded in the nominative, although this may be an unintended consequence of prohibiting the use of the present or future participle as a main verb. By extension the future participle can be used outside the nominative to express an eventuality which is in the future relative to the time of the main verb. *Ceteris paribus* we would expect that at a time when the aorist and perfect participles were still a productive part of the language, they could be used in equivalent contexts when the eventuality which they expressed stood in a temporal or aspectual relation relative to that of the main verb parallel to the temporal or aspectual reference of the aorist or perfect tense-aspects respectively. However that is an extrapolation not necessarily implied by Pāṇini's rules.

According to *Aṣṭ.* 3.2.126 (*lakṣaṇahetvoḥ kriyāyāḥ*), the present participle, in any grammatical case, can be used to express a *lakṣaṇa* or *hetu* of another action (normally that

¹The six participles are *sedivāms-*, *uṣivāms-*, *śusruvāms-* (by 3.2.108, *bhāṣāyām sadavasaśruvaḥ*) and *upeyivāms-*, *anāśvāms-* and *anūcānā-* (by 3.2.109, *upeyivānanāśvānanūcānaśca*).

²This employment is extended to the future participle by rule 3.3.14 (*lṛtaḥ sadvā*).

³According to rules 3.2.124 (*lṛtaḥ śatṛśānacāv aprathamāsamānādhikaraṇe*) and 3.2.125 (*saṃbodhane ca*).

referred to by the main verb). The meanings of both *lakṣaṇa* and *hetu* are potentially ambiguous. The latter will be discussed further below (§3.4.4, p.133), but can be assumed to mean ‘cause’ or ‘purpose’ here. The meaning of *lakṣaṇa* is less specific; it is often translated ‘characteristic’. What this means in practice can be determined from Patañjali’s comment on Pāṇini’s rule, given below.⁴

(3.1) *gacchan bhakṣayatīti gacchatikriyā bhakṣayatikriyāyā lakṣaṇam. . . ya āste cādhīte ca sa caitraḥ. . . naitad kriyāyā lakṣaṇam. kiṃ tarhi. kartṛlakṣaṇam etat.* (MBh ad 3.2.126)

‘In the sentence ‘going along he eats’ the action of going is a characteristic of the action of eating. . . however in the sentence ‘he who is sitting and studying is Caitra’ . . . this is not a characteristic of the action. What is it then? It is a characteristic of the agent.’

This means that a main verb (in some contexts at least) can describe a *lakṣaṇa* (‘characteristic’) of the agent; by corollary therefore when a participle is used as a *lakṣaṇa* of a verb, it semantically modifies the main verb rather than the noun with which it agrees, i.e. it is semantically adverbial. This is therefore the semantic equivalent of the syntactically adverbial use of participles defined in the previous chapter, and indeed it can be assumed that both *lakṣaṇa* and *hetu* refer specifically to a range of contextual semantics displayed by syntactically adverbial participles. The semantic range of adverbial participles found in the *R̥gveda* is roughly the same as that found in Classical Sanskrit (where their use is strictly governed by Pāṇini’s rules), and these will be explored in detail below.

3.1.2 Tense and aspect

The Present

Present time, which is so important for the meaning of the present tense-aspect and hence the present participles, is called *vartamāna* by Pāṇini (3.2.123 *vartamāne laṭ*), itself a present participle of the verb $\sqrt{vṛt}$ ‘happen, occur’.⁵

⁴Patañjali’s *Mahābhāṣya* (c. 150 B.C.) is the earliest surviving commentary on Pāṇini’s *Aṣṭādhyāyī*; more accurately it is a commentary on an earlier set of comments, called *vārtikas*, by Kātyāyana on the *Aṣṭādhyāyī*. It was fundamentally important in the development of the later grammatical tradition. It has been edited e.g. by Kielhorn (1880–1885).

⁵Forms of the present tense (*laṭ*) are also specified for past time (*bhūta*) in certain contexts by rules 3.2.118–122, and in the near past or future by 3.3.131 (*vartamānasāmīpye vartamānavad vā*). In principle this ‘loose’

This term is not further explained by Pāṇini himself, but the later grammatical tradition discusses its definition in detail. All definitions express the fundamentally imperfective nature of ‘present time’: it refers first and foremost to an action which has begun but has not completed. Kātyāyana, the earliest surviving commentator on the *Aṣṭādhyāyī* (c. 3rd century B.C., see fn.4 above), states that the present tense is used *pravṛttasyāvīrāme* ‘in the case of the non-cessation of something which has begun’ (Vārttika 1 on 3.2.123).

One of the most detailed treatments of the concept of time is found in the *Kālasamuddeśa*, section 3.9 of Bhartṛhari’s *Vākyapadīya* (c. 7th century A.D.), and in the detailed commentary on this, the *Prakīrṇakaprakāśa* of Helārāja (c. 11th century A.D.).⁶ Helārāja’s definition of present time (commenting on *Vākyapadīya* 3.9.89) is given below.

(3.2) *na hi sattvaṃ vartamānatālakṣaṇaṃ*
kiṃ tu prārabdhāparisamāptatvam (Pra. ad V.3.9.89)

‘For the state of existence is not the definition of the concept of present time, rather the state of having begun and not having completed (is the definition of present time).’

‘Begun’ here may apply to anything which necessarily precedes the accomplishment of an activity; ‘completed’ refers to any achievement, termination or change of state.⁷ According to the tradition, every action is composed of a sequence of smaller constituent actions which can be conceived as a whole. The present tense therefore applies not specifically to something actively taking place at the ‘present’ moment, but to an action of which at least the first constituent action has begun and of which the final, terminating or achieving constituent action has not finished, regardless of whether any constituent action is itself ongoing at the ‘present’ moment or not. In modern terminology Helārāja is describing imperfectivity, and asserting that this is the primary semantic feature of the present tense-aspect. This is not unexpected for the present tense-aspect, and suggests that the present participle should likewise specifically express imperfectivity.⁸

present time is not excluded for the present participle but in practice it is hard to see how a participle could occur independently in these contexts.

⁶The text of the *Kālasamuddeśa* and the *Prakīrṇakaprakāśa* can be found in Subramania-Iyer (1973). An English translation of both was made by Sharma (1972).

⁷An exception was made in the tradition for states which could be conceived of as being eternal (such as the standing of mountains or the flowing of rivers) and hence would have no possible beginning or end.

⁸It should be noted that the ‘present time’ expressed by *vartamāna-* is not limited to the finite present tense and the present participles. According to the commentators, *vartamāne* is understood from Aṣṭ. 3.2.124 up to

Past Tenses

The distinctions between the past tenses (imperfect, aorist and perfect) are treated by Pāṇini and the subsequent tradition in terms of temporal remoteness. As most recently noted by Dahl (2010, p.7–8) the system described by Pāṇini may have been an accurate description of the facts in the language of his time, but they do not adequately account for the situation in the earlier Vedic language. Nevertheless there are elements of the Pāṇinian account of the Sanskrit past tenses which do appear to be reflected in the language of the *Ṛgveda*, and even those features which have changed should have done so according to plausible, reconstructable developments.

The basic distinctions made by Pāṇini are the following. The aorist tense is specified for general past time (*bhūta*).⁹ In the ‘remote’ past, however, the imperfect is used; remote past is defined as *anadyatane* ‘not on the current day’ (i.e. nonhodiernal in the terminology of Dahl, 1984).¹⁰ More specific again is the range of the perfect: this is used for an eventuality in the past which is *parokṣe* ‘beyond the perception (of the speaker)’, i.e. something which has not been witnessed by the speaker (contrasting with the aorist and imperfect therefore in terms of evidentiality).¹¹ The distinct ranges of the three tenses can be understood in terms of blocking: the aorist is the general past tense, which is however blocked from the remote past by the imperfect and from the expression of something not witnessed by the perfect.¹² Although this system cannot be projected back to the language of the *Ṛgveda*, there are certain similarities, such as the use of the aorist for an eventuality of the recent or near past.

There are several very specific addenda to these more general rules governing the assignment of the past tenses, but most do not concern us. One that does is an exception to the assignment of the imperfect made by rule 3.3.135 (*nānadyatanavat kriyāprabandhasāmīpyayoḥ*).

3.3.1, thus including various nominal suffixes such as the root-accented agent noun *-tr-* and the desiderative adjective in *-iṣṇu-*. What distinguishes e.g. the present participle *kurvánt-* ‘making’ from the agent noun *kártr-* ‘maker’ is not specifically ‘present’ time or imperfectivity, which both formations share, but the participle’s association with the verbal present tense-aspect stem.

⁹By rule 3.2.110 (*luñ*).

¹⁰Rule 3.2.111 (*anadyatane lan*).

¹¹Rule 3.2.115 (*parokṣe lit*).

¹²This contrasts with the system of blocking proposed for Vedic by Kiparsky (1998) in which it is the specific readings of the aorist which block the use of the more general imperfect and perfect.

This rule states that the imperfect should not be used for the remote past when ‘continuity of action’ or ‘proximity’ are expressed.¹³ By virtue of the more general rule specifying the aorist for past time, it is the aorist which should be used in these contexts in place of the imperfect. The use of the aorist in the context of temporal proximity (*sāmīpya*) is entirely comprehensible given the default use of the aorist for the near past (*adyatana*), which is attested even in the *Ṛgveda*. What is meant by ‘continuity of action’, on the other hand, is slightly more difficult.¹⁴ The Sanskrit is *kriyā-prabandha*, literally meaning ‘a connection/collection of actions’; the *Kāśīkā* commentary on this rule glosses *kriyā-prabandha* as *sātatyenānuṣṭhānam* ‘continual performance’. This would appear to refer either to an imperfective or (perhaps more likely) iterative reading (or both), which is somewhat surprising since from a historical point of view at least we would hardly expect the imperfect to be blocked in these contexts, nor necessarily the aorist to be the default choice. However Dahl (2010, p.299–301, 307–308, 341) provides some evidence that the *Ṛgvedic* aorist can have an ‘iterative-habitual’ reading, which could suggest this unexpected development at least has its beginnings in the *Ṛgvedic* period. Given the close semantic relation between the perfect and aorist in early Vedic, it may be that something of the stative sense of the perfect was adopted by the aorist.¹⁵ Overall this suggests that in Pāṇinian Sanskrit at least the aorist was the default past tense, with no necessary perfective aspectual properties, while the imperfect and perfect had specific readings which blocked the aorist, but interestingly those specific readings did not include imperfectivity or iteration.

Pāṇini himself recognized that the uses of the different past tenses he specifies do not precisely match the Vedic situation. In rule 3.2.105 (*chandasi lit*) he states that the perfect can be used for general past time in the Vedas, not just the specific context of *parokṣe*; moreover this is extended to the otherwise moribund perfect participles by 3.2.106 and 3.2.107. As we have seen there are points of contact between Pāṇini’s treatment of the past tenses and their use in the *Ṛgveda*, but there are also significant differences which limit but do not eliminate the value of Pāṇini’s analysis for our understanding of the *Ṛgvedic* verbal

¹³This rule also applies to the future tenses, on which see below.

¹⁴A common example of this use of the aorist in the commentaries is *yāvaj jīvaṃ bhṛśam annam adāt* ‘throughout his life he has continually given food’.

¹⁵Perhaps the use of the perfect for ‘persistent situations’ (Comrie, 1976, p.60).

system.

The Future

As with the past tenses, there was clearly considerable development between Ṛgvedic Sanskrit and Pāṇinian Sanskrit in the expression of future time. In the *Ṛgveda* the subjunctive mood is traditionally thought to be the regular means of forming a finite verb with future reference. The ‘future’ tense itself is rare and may preserve some evidence of a modal or desiderative sense. In Pāṇinian Sanskrit however, the subjunctive is lost and there are two competing future tense forms, the synthetic future in *-sya-* and the periphrastic future tense formed with the *-tṛ-* agent noun. It is therefore unclear whether anything Pāṇini says about the future tense in *-sya-* is necessarily valid for its precursor in the *Ṛgveda*. By rule 3.3.13 (*lṛṭ śeṣe ca*) the *-sya-* future is specified for general use in future time. As with the present tense, there is a degree of circularity in the fact that the technical name used to define general future time, *bhaviṣyat*, is itself a participle to the synthetic future stem of $\sqrt{bhū}$ ‘become, be’.

What is notable about the Pāṇinian treatment of the synthetic future is its functional parallelism with the aorist tense. In the same way that the aorist is specified as the general past tense but is then blocked from remote past contexts by the imperfect, so the synthetic future is specified as the general future tense but then blocked from the remote future by the periphrastic future.¹⁶ Moreover rule 3.3.135 discussed above not only prohibits the use of the imperfect in the remote past in the context of imperfectivity/iteration or proximity, but also prohibits the periphrastic future in the same contexts in remote future time, leaving the synthetic future, like the aorist, to take its place. It is not necessarily the case that this implies any historical connection between the synthetic future and the aorist, nor any synchronic temporal or aspectual relation beyond the fact that the aorist and the synthetic future are the *default* past and future tense markers respectively. But as with the aorist, this rule shows that the synthetic future has a specifically immediate future reference and is compatible with a specifically imperfective/iterative reading.

¹⁶Rule 3.3.15 (*anadyatane luṭ*). Note that again the distinction is between hodiernal and nonhodiernal time.

Conclusion

In this section we have reviewed the analysis of participial functionality and verbal tense-aspect in the Indian grammatical tradition. Although this tradition reflects a stage of the language somewhat later than that of the *Ṛgveda*, there are clear points of contact between the two which demonstrates the value of the Indian grammatical tradition even for Ṛgvedic studies and suggests a continuity of linguistic development between the two periods. The ways in which Pāṇini's analysis of participial and verbal semantics do and do not correlate to the situation found in the *Ṛgveda* will become clear as we explore the Ṛgvedic data in the rest of this chapter. Before we do that, however, we will introduce a formal model for compositional semantics.

3.2 Semantic Formalization

When discussing semantics, i.e. the study of meaning, our ability to make precise statements is limited by the semantics of our own language, which naturally includes areas of ambiguity and controversy. The only way to avoid circularity is to qualify every statement in as many ways as possible, making every statement as unambiguous as we can. This is possible but would involve considerable verbosity and repetition. It is therefore advantageous if we can make use of a formal language which is abstracted from language-specific ambiguities and idiosyncrasies and which can therefore represent meaning clearly and concisely. This section introduces firstly the 'Reichenbachian' method of modelling tense and aspect and secondly glue semantics which is widely used in Lexical Functional Grammar to represent the semantic component of grammar.

3.2.1 Tense and aspect

As verb forms participles will always express an eventuality with tense and/or aspectual features (whether those features are derived from the form itself or from its immediate context). These features will interact with the equivalent features expressed by the primary verb and any other verbal element in the clause. An accurate understanding and representation of tense and aspect and of the interaction of different tense and aspect information

in the same clause is therefore vitally important for the semantic analysis of participles.

The theory of tense and aspect developed by Reichenbach (1947) was utilized by Kiparsky (1998) to model the different temporal and aspectual properties of the Vedic verbal stems.¹⁷ This formalization has been further developed by Eystein Dahl (2008, 2010) who has also extended its application to Indo-Iranian (Dahl, 2011a,b). The formalization itself is unproblematic, but the precise temporal and aspectual properties assigned to the R̥gvedic tense-aspects are relatively controversial. We will survey the situation here but adopt as far as possible an agnostic view on the precise temporal and aspectual features of the R̥gvedic verbal system, thereby not to prejudice our analysis of the participles. Tense and aspect can be represented by reference to four temporal intervals or points:¹⁸

- (3.3)
- E - event time, i.e. the time during which or at which an eventuality occurs.
 - R - reference time, i.e. the time referred to by the utterance.
 - P - perspective time, i.e. the ‘now’ point of temporal deixis.
 - S - speech time, i.e. the moment of utterance.

In most simple sentences S and P are equivalent, and even in complex sentences the relation to S can be determined purely by reference to E, R and P; hence S is generally omitted from the formalization of tense and aspect. Temporal and aspectual relations are indicated using logical symbols indicating precedence, inclusion and overlap. Tense is formalized as the relation between R and P, while aspect is formalized as the relation between E and R.¹⁹ Table (3.1) illustrates the major temporal and aspectual relations and their logical representation.²⁰

¹⁷Technically utilizing a more recent development of Reichenbach’s theory, as presented for example by Kamp and Reyle (1993), and very similar to the formal approach of Klein (1994, 1995). For a slightly different approach to the formalization of tense and aspect see Demirdache and Uribe-Etxebarria (2000, 2004), which is largely based on Klein’s (1994; 1995) formalization.

¹⁸For the following cf. in particular Kamp and Reyle (1993, p.593–611); Kiparsky (1998).

¹⁹For the use of Reichenbach’s system to distinguish and define tense and aspect in this way, see Klein (1992), and further below.

²⁰The formalization of tense and aspect presented here may in fact be too simplistic to adequately account for the wide range of temporal and aspectual features expressed in different ways cross-linguistically. The variety found in the English perfect, for example, cannot be accounted for under this system without assuming that it has two recursively applied aspect properties (as in fact assumed by Demirdache and Uribe-Etxebarria, 2000; there is a wealth of literature on the problematic English present perfect, cf. e.g. Bauer, 1970, McCawley, 1981, Mittwoch, 1988, 2008, Klein, 1992, Michaelis, 1994, Kiparsky, 2002, Katz, 2003, Larsson, 2009, von Stutterheim et al., 2009, Nishiyama and Koenig, 2010, McFadden and Alexiadou, 2010). Moreover the system presented here has departed some way from Reichenbach’s original intentions in treating the relation between E and R as aspectual; for Reichenbach this relation was temporal, and the contrast between imperfective and perfective aspect was a separate property of E. Treating ‘anterior’ as an aspect on the same level as imperfective and

Table 3.1: Temporal and aspectual relations

	Tense			Aspect			
Name	Present	Past	Future	Neutral	Imperfective	Perfective	Anterior
Repr.	$P \subseteq R$	$R \prec P$	$P \prec R$	$R \otimes E$	$R \subseteq E$	$E \subseteq R$	$E \prec R$

The symbols \prec and \succ indicate a precedence relation; so e.g. $R \prec P$ or $P \succ R$ indicates that the time referred to by the utterance entirely precedes the perspective time of the utterance, which is the basic meaning of relative past time.²¹ The symbols \subseteq and \supseteq indicate an inclusion relation; so e.g. $E \subseteq R$ or $R \supseteq E$ indicates that the time during which the eventuality referred to occurs is included within or coextensive with the time referred to by the utterance. This is the definition of perfective aspect within this framework.²² The final relation, overlap, is utilized by Dahl (2010) to represent the ‘neutral’ aspect; he represents this with the symbol \otimes ; so $R \otimes E$ indicates that the time during which the eventuality occurs and the time referred to by the utterance overlap in an unspecified manner.²³ How these relations map onto the tense-aspect system of Ṛgvedic Sanskrit will be discussed in detail below (§3.5, p.147ff.).

Since participles are never the primary predication in a clause, their temporal reference is usually dependent on that of the main verb (even if that verb is ellipsed or null). Specifically the reference time of the participle, R_p , is obtained from the event time of the main predication, E_m , with which it is equal.

perfective, although originating in its ambiguous treatment by writers such as Kuryłowicz (1964) and Comrie (1976), is effectively the innovation of Klein (1992, 1994, 1995), and even he is more doubtful about this in more recent work (Klein, 2009). Nevertheless despite its limitations, the system presented here has relatively wide currency, and is adequate for representing the tense-aspect properties of Ṛgvedic Sanskrit; moreover it would be beyond the scope of this thesis to attempt to develop a theoretically and cross-linguistically more acceptable formalization of tense-aspect when it is not strictly required by the data (for one such proposal see Kiparsky, 2002).

²¹Dahl (2010, p.57) adds two additional precedence relations: $E \prec R$ or $R \succ E$ indicates that E “partially precedes” R; $E \succ \prec R$ indicates that E “immediately precedes” R. However it may be possible to derive both these relations in other ways using simple precedence and inclusion.

²²It is something of a moot point whether or not perfective aspect involves simple inclusion as defined here or *proper* inclusion (e.g. $E \subseteq R$ meaning E is entirely included within R), or both. Following most authors, including Kiparsky (1998) and Haug (2008b, p.294, fn.1) but not Dahl (2010) I have not made use of proper inclusion here.

²³On the neutral aspect see Dahl (2010, p.88–90), following Smith (1997). Although the neutral aspect is not widely recognized nor made use of, Dahl (2010) argues that it may help to account for the various readings of the present tense-aspect in the RV; we will explore this claim below.

3.2.2 Glue

The logical relations described here permit us to represent unambiguously the temporal and aspectual features of a given verbal form, and to explore the temporal and aspectual interactions between verb forms. The ‘glue’ language of semantic composition permits a formal representation of the interaction and combination of *all* the semantic elements of a clause into one unified meaning.

Glue semantics is based on the resource logic known as *linear logic*, developed by Girard (1987, 1995). It is widely used within Lexical Functional Grammar to model semantic structure (s-structure), the semantic component of the grammar.²⁴ Every distinct semantic element of a clause is represented by a *meaning constructor*; meaning constructors contain two parts, the left-hand side containing the meaning (the ‘meaning’ side), and the right-hand side containing a logical formula which governs the combination of this meaning with others (the ‘glue’ side).

In this chapter we will simply use meaning constructors to formalize the semantic features discussed, and if desired they can be ignored. Since semantic composition is relatively unproblematic we will not generally present glue derivations of passages discussed; a sample glue derivation of a Ṛgvedic verse is given below (pp.125–127 and fig. 3.1, p.128).

Glue has recently been used to model the semantics of participles in Ancient Greek by Haug (2008b, 2010) and Bary and Haug (2011). I follow Bary and Haug’s (2011) combination of glue with Discourse Representation Theory (DRT, see Kamp et al., 2011) to model participial semantics; most of the following equations are heavily influenced by their work.

As verb forms, participles are semantically complex, i.e. their semantic contribution to a clause can be broken down into more than one constituent element. Firstly it will contribute the basic semantics of the verbal root, which can be formalized by a meaning constructor of the following structure.

$$(3.4) \quad \lambda e \boxed{\text{meaning}(e)} : (\uparrow_{\sigma} \text{EV}) \multimap \uparrow_{\sigma}$$

Every eventuality has an argument structure, which needs to be integrated into the

²⁴For the use of linear logic in modelling the syntax-semantics interface, see Dalrymple (2001, p.229f.) for a basic introduction; also Dalrymple et al. (2002), Crouch and de Paiva (2004).

semantic derivation. This can be formalized in the following way, as transitivity templates which will be called by verbal stems as appropriate.²⁵

(3.5) a. INTRANSITIVE:

$$\lambda P \lambda x \lambda e \left[\begin{array}{c} \boxed{} \\ \text{theme/agent}(e, x) \end{array} \oplus P(e) \right] : \begin{array}{l} ((\uparrow_{\sigma} \text{EV}) \multimap \uparrow_{\sigma}) \multimap \\ ((\uparrow \text{SUBJ})_{\sigma} \multimap (\uparrow_{\sigma} \text{EV}) \multimap \uparrow_{\sigma}) \end{array}$$

b. TRANSITIVE:

$$\lambda P \lambda x \lambda y \lambda e \left[\begin{array}{c} \boxed{} \\ \text{agent}(e, x) \\ \text{theme}(e, y) \end{array} \oplus P(e) \right] : \begin{array}{l} ((\uparrow_{\sigma} \text{EV}) \multimap \uparrow_{\sigma}) \multimap ((\uparrow \text{OBJ})_{\sigma} \multimap \\ (\uparrow \text{SUBJ})_{\sigma} \multimap (\uparrow_{\sigma} \text{EV}) \multimap \uparrow_{\sigma}) \end{array}$$

c. DITRANSITIVE:

$$\lambda P \lambda x \lambda y \lambda z \lambda e \left[\begin{array}{c} \boxed{} \\ \text{agent}(e, x) \\ \text{theme}(e, y) \\ \text{goal}(e, z) \end{array} \oplus P(e) \right] : \begin{array}{l} ((\uparrow_{\sigma} \text{EV}) \multimap \uparrow_{\sigma}) \multimap \\ ((\uparrow \text{OBL}_{\theta})_{\sigma} \multimap (\uparrow \text{OBJ})_{\sigma} \multimap \\ (\uparrow \text{SUBJ})_{\sigma} \multimap (\uparrow_{\sigma} \text{EV}) \multimap \uparrow_{\sigma}) \end{array}$$

These constructors take an eventuality type which requires an instantiation of that eventuality and return a meaning which requires a subject and if necessary object and indirect object as well as the eventuality. Once these arguments are instantiated we are again left with a meaning which requires an eventuality to make sense. The verbal stem also contributes aspectual semantics, which we combine with the semantics of the verbal root plus the arguments of the verbal stem. The basic aspectual categories discussed above can be formalized in the following ways.

(3.6) a.

$$\text{NEUTRAL: } \lambda P \lambda t \left[\begin{array}{c} \boxed{e} \\ \tau(e) \otimes t \end{array} \oplus P(e) \right] : ((\uparrow_{\sigma} \text{EV}) \multimap \uparrow_{\sigma}) \multimap ((\uparrow_{\sigma} \text{RT}) \multimap \uparrow_{\sigma})$$

b.

$$\text{IMPERFECTIVE: } \lambda P \lambda t \left[\begin{array}{c} \boxed{e} \\ \tau(e) \supseteq t \end{array} \oplus P(e) \right] : ((\uparrow_{\sigma} \text{EV}) \multimap \uparrow_{\sigma}) \multimap ((\uparrow_{\sigma} \text{RT}) \multimap \uparrow_{\sigma})$$

c.

$$\text{PERFECTIVE: } \lambda P \lambda t \left[\begin{array}{c} \boxed{e} \\ \tau(e) \subseteq t \end{array} \oplus P(e) \right] : ((\uparrow_{\sigma} \text{EV}) \multimap \uparrow_{\sigma}) \multimap ((\uparrow_{\sigma} \text{RT}) \multimap \uparrow_{\sigma})$$

d.

$$\text{ANTERIOR: } \lambda P \lambda t \left[\begin{array}{c} \boxed{e} \\ \tau(e) \prec t \end{array} \oplus P(e) \right] : ((\uparrow_{\sigma} \text{EV}) \multimap \uparrow_{\sigma}) \multimap ((\uparrow_{\sigma} \text{RT}) \multimap \uparrow_{\sigma})$$

An eventuality implies a time at which that eventuality takes place (i.e. its event time); therefore $\tau(e)$ specifies the temporal extent or trace of the eventuality e .²⁶ These meaning constructors therefore require a property P that holds of an eventuality e , and produces

²⁵On the use of templates see Dalrymple et al. (2004b).

²⁶For this use of τ in formal semantics see Krifka (1989, p.97).

a dependency of a proposition on a time t such that the event time of e , $\tau(e)$ stands in a particular aspectual relation to the time t ; t is therefore the reference time of the eventuality. Aspect therefore combines with the meaning of the verbal root in such a way that the eventuality variable is existentially quantified, but only in relation to a reference time, such that a reference time is now required for semantic completeness.

Finite verbs derive their reference time from their tense properties, which specify the relation of reference time to perspective time. The major tenses can be formalized in the following way, likewise called as required by verbal forms in the lexicon. The perspective time is obtained contextually, formalized by the FINITENESS meaning constructor (ex. 3.8, from Bary and Haug, 2011).

$$\begin{aligned}
 (3.7) \quad \text{a. PRESENT: } & \lambda P \lambda t \left[\frac{t'}{t' \supseteq t} \right] \oplus P(t') : ((\uparrow_\sigma \text{ RT}) \multimap \uparrow_\sigma) \multimap ((\uparrow_\sigma \text{ PT}) \multimap \uparrow_\sigma) \\
 \text{b. PAST: } & \lambda P \lambda t \left[\frac{t'}{t' \prec t} \right] \oplus P(t') : ((\uparrow_\sigma \text{ RT}) \multimap \uparrow_\sigma) \multimap ((\uparrow_\sigma \text{ PT}) \multimap \uparrow_\sigma) \\
 \text{c. FUTURE: } & \lambda P \lambda t \left[\frac{t'}{t' \succ t} \right] \oplus P(t') : ((\uparrow_\sigma \text{ RT}) \multimap \uparrow_\sigma) \multimap ((\uparrow_\sigma \text{ PT}) \multimap \uparrow_\sigma)
 \end{aligned}$$

$$(3.8) \text{ FINITENESS: } \lambda P \left[\frac{t}{\partial \left[\frac{t_r}{\rho(t, t_r)} \right]} \right] \oplus P(t) : ?(\forall \alpha ((\alpha \text{ PT}) \multimap \uparrow_\sigma) \multimap \uparrow_\sigma)$$

The condition prefixed by ∂ is a presupposition which looks for a suitable perspective time and a relation ρ to fix the reference time of the verb. On the glue side, $\forall \alpha$ allows the meaning constructor to apply to any (but only one) temporal dependency, since it is not always possible to define which f-structure FINITENESS should apply to. Moreover FINITENESS applies only where there is no overt temporal anchoring; it is therefore optional and this is indicated by the exponential ? ('why not').

Adverbially employed participles on the other hand adopt their reference time from the event time of their main verb. The following meaning constructor is therefore required.

(3.9) ADV-PTC:

$$\lambda P \lambda Q \lambda e \left[\begin{array}{|c|} \hline t \\ \hline t = \tau(e) \\ \hline \end{array} \oplus P(t) \oplus Q(e) \right] : \begin{array}{l} ((\uparrow_{\sigma} \text{ RT}) \multimap \uparrow_{\sigma}) \multimap \\ (((\text{XADJ} \in \uparrow)_{\sigma} \text{ EV}) \multimap (\text{XADJ} \in \uparrow)_{\sigma}) \multimap \\ (((\text{XADJ} \in \uparrow)_{\sigma} \text{ EV}) \multimap (\text{XADJ} \in \uparrow)_{\sigma}) \end{array}$$

This meaning constructor takes the meaning of a participial clause which requires a reference time, and returns a function which consumes and then produces a dependency of a proposition on an event. The resulting meaning constructor can then combine with the semantic components of the main verb, i.e. the meaning of the verbal root, its argument structure and arguments, its aspect and tense, according to the pattern we have seen above, to produce a full meaning.

As we will see in the following section, the semantic relation between participles and the main verbs of their clause often extends beyond that of a simple temporal-aspectual relation to the expression of more specific relations such as cause and manner. It is not immediately clear whether these relations are part of the semantic specification of the participle or are pragmatic in nature.²⁷ Although this is an important question in need of further research, from a practical point of view it has proven impossible within the current framework to formalize these relations in the semantic component; we must therefore treat them as pragmatic inferences.²⁸

Having introduced the methods of formally representing meaning, we will now move on to a detailed consideration of the semantics of participles in the language of the *R̥gveda*.

3.3 Adnominal Modification

Participles with syntactically adnominal functions have been defined and discussed from a syntactic point of view in the previous chapter (§2.6, p.50). Semantically, such participles contribute elements of meaning to one of the nominal elements in the clause.

As discussed in the previous chapter, the relation between an adnominal participle and

²⁷This relates to the question discussed by König (1995, p.59–64) as to whether adverbial verb forms with a variety of functions should be analysed as specifically polysemous or simply vague. He argues strongly for polysemy, which would imply that such relations should be formulated in the semantic structure.

²⁸Asudeh et al. (2008, p.74, 77) provide meaning constructors of the sort we require (albeit for a very different construction), i.e. that introduce *means*(e', e) vel sim. However binding the participial event variable by the participle’s aspect (a necessary step if one is to “take the aspect morphology on the participle seriously”, Haug p.c.) means that the participial event variable and the matrix event variable are never simultaneously available in the derivation and such a meaning constructor cannot therefore be applied.

its noun may vary, e.g. the participle may semantically restrict the reference of the head noun, or may simply add a further description of an already fully identified head. The difference can only be determined from the context, i.e. whether, in context, the head noun is or is not fully identifiable without the information provided by the participle. Participles can also function as NPs (in which case they are inherently semantically restrictive), with either a definite or indefinite reference.

From the point of view of semantic composition, there is no difference in these various relations between participle and noun, rather the differences are pragmatically determined. The adnominal participle in ex. (2.23), repeated as ex. (3.10), will have the (partial) semantic formalization given in ex. (3.11); once combined with the INTRANSITIVE and IMPERFECTIVE templates this will combine with the ADNOM-PTC template (ex. 3.12).

(3.10) *yásminn índraḥ . . . óko dadhé brahmaṇyántaś ca nárah* (RV 2.19.1cd)

‘In which (place) Indra . . . established his home,
and (likewise did) men *who speak sacred formulae*.’

(3.11) $\sqrt{\text{brahmaṇy}}$: $\lambda e \boxed{\text{ speak_sacred_formulae}(e) } : (\uparrow_{\sigma} \text{ EV}) \multimap \uparrow_{\sigma}$

The meaning constructor which allows the basic meaning of the participle to combine with the meaning of the noun it modifies is given below.

(3.12) ADNOM-PTC:

$$\lambda P \lambda Q \lambda x \left[\begin{array}{c} \boxed{t} \\ \partial \left[\begin{array}{c} \boxed{t_r} \\ \rho(t, t_r) \end{array} \right] \oplus P(t) \oplus Q(x) \right] : \left((\uparrow_{\sigma} \text{ RT}) \multimap \uparrow_{\sigma} \multimap \left(\left((\text{ADJ} \in \uparrow)_{\sigma} \text{ VAR} \right) \multimap \left((\text{ADJ} \in \uparrow)_{\sigma} \text{ RESTR} \right) \right) \right) \multimap \left(\left((\text{ADJ} \in \uparrow)_{\sigma} \text{ VAR} \right) \multimap \left((\text{ADJ} \in \uparrow)_{\sigma} \text{ RESTR} \right) \right) \right)$$

The meaning side of this constructor is similar to the ADV-PTC meaning constructor given above (ex. 3.9), used to associate the meaning of adverbial participles with their main verbs, but relates it to a noun rather than to another eventuality. This captures the intuition that adnominal and adverbial participles and adjectives do essentially the same thing (modification), but they do it respectively to nominal and verbal elements of a clause. Unlike the ADV-PTC meaning constructor, the ADNOM-PTC constructor does not specify the temporal or aspectual relation of the participle to another element in the clause. However

participles themselves express aspectual and/or temporal information, for which a reference time (R) is required to complete the sense. As with finiteness above the presupposition introduced by ∂ looks for a suitable reference time and a relation ρ to fix the event time of the participle.²⁹ As with other adjectives this reference time will usually be either the speech time (S) or the reference time (R) of the main verb. Consider the following English sentences.

- (3.13) a. Our two-year-old will be an astronaut.
 b. A sixteen-year-old man was arrested last year. . . The man, now seventeen, was sentenced. . .

In sentence one it is clear that the adnominal modifier *two-year-old* applies at the speech time and not at the reference time of the utterance. In sentence two on the other hand, the modifier *sixteen-year-old* only applies at the event time, and not at the speech time. Only context can make clear which reference time should be inferred for any particular adnominal modifier; the difference is neutralized when the utterance refers to present time.³⁰

Adnominal participles in the *R̥gveda* work in exactly the same way. Present, stative and some perfect participles express a permanent quality, a habitual or characteristic action, or else a temporary characteristic or action which is relevant for at least the duration of the action of the main verb. In other words they express imperfective aspect, $R \subseteq E$, with R interpreted either as equal to the speech time or to the event time of the main verb. Both of these possibilities have two alternative interpretations, depending on whether the action referred to is conceived as an ongoing process at the reference time, or as an iterated or habitual eventuality of which the conceptual whole extends over the reference time but of which any one individual occurrence of that eventuality is not ongoing at the reference time.

- (3.14) *ní gavyatā mánasā sedur arkaíḥ*
kṛṇvānāso amṛtatvāya gātúm (RV 3.31.9ab)

‘With *cow-desiring* mind they sat down with praises,
 making a path for immortality.’

²⁹Cf. Bary and Haug (2011) on the use of presuppositions in DRT.

³⁰Klein (2009) suggests replacing his earlier concept of the “time of utterance” (\approx the Reichenbachian S or P) with a “more general notion” of a “clause-external temporal structure, to which situations [= eventualities] described by a sentence can be linked.” This would formalize the ambiguity seen here, by allowing the referent of the clause-external temporal structure to be contextually determined.

- (3.15) *dhīrās cit tát samínakṣanta āśata* (RV 9.73.9c)
 ‘Only the wise, *who desired to obtain* it, have obtained it.’
- (3.16) *yáh śásvato máhy éno dádhanān*
ámanyamānāñ chárva jāghāna (RV 2.12.10ab)
 ‘Who has slain with his arrow the unthinking
 many *who were committing* great sin.’
- (3.17) *árṇāṃsi cit paprathāná sudása*
índro gādhāny akr̥not supārā (RV 7.18.5ab)
 ‘Indra made even the *extended* floods
 fordable and easy to cross for Sudās.’
- (3.18) *práty asmai pípīṣate*
vísṽāni vidúṣe bhara (RV 6.42.1ab)
 ‘To him *who desires to drink*,
 to him *who knows all things* carry (the Soma).’
- (3.19) *árīramat patáyat kác cid ábhvam* (RV 6.71.5d)
 ‘He has stopped every *flying* thing.’

In exx. (3.14, 3.15) the adnominal participles are most naturally interpreted as having a reference time equal to the reference time of the main verb: so the subjects of ex. (3.14) had a mind which was cow-desiring when they sat down, and not necessarily at the present time or permanently, while the wise men in ex. (3.15) clearly desired to obtain their object only until they did obtain it. Likewise in ex. (3.16) those who have been slain cannot be committing great sin at present: the reference time of the participle must be taken from the reference time of the main verb. Similarly nothing is claimed about the present state or even existence of the floods referred to in ex. (3.17). In ex. (3.18) however, the present imperative neutralizes the difference between the two: Indra desires to drink at the present moment, which is the moment referred to by the imperative verb; at the same time the perfect participle appears to have a more permanent reference than to simply the present moment. The ‘flying thing’ (a bat?) referred to in ex. (3.19) may not be flying at the moment of utterance, but rather has the action of flying as a habitual characteristic by which it is categorially identified.

In all the examples above the present or perfect participles have a basically imperfective reference. The anterior aspect of some perfect participles is treated in parallel fashion in adnominal function; i.e. the aspectual relationship E<R applies, with R either equal to S or to the R of the main verb.

(3.20) *sadyó yó n̄bhyo atasáyyo bhūt*
pasṛdhānēbhyaḥ sūriyasya sātaú (RV 2.19.4cd)

‘He who becomes immediately attainable for the men
who have competed in the (contest over the) winning of the sun.’

(3.21) *svásvo ábhīrur mányamānaḥ*
susvāṇēbhir mādati sám ha vīraíḥ (RV 4.29.2cd)

‘He of good horses who considers himself without fear
revels with the heroes *who have pressed (Soma)*.’

Both these examples have present tense verbs, which neutralize the difference between $R_p=S$ and $R_p=R_{main}$, but in both passages the eventuality referred to by the participle *precedes* either or both the speech time and/or the reference time of the verb. The following example shows a perfect participle whose reference time is best interpreted as equal not to speech time but to the reference time of the main verb.

(3.22) *svàr jajñānó nábhasābhy àkramīt* (RV 9.86.14c)

‘*Having been born* as the sun, he stepped forth with a cloud.’

The temporal and aspectual values of the aorist and future participles are more controversial and will be discussed in detail below (§3.5.3, §3.5.5); but the principles discussed here for the semantic composition of adnominal participles can equally apply to these participles.

3.4 Adverbial Modification

Participles in the *R̄gveda* are found in a wide variety of contextual functions; this is particularly true of present participles and ‘present-like’ aorist and perfect participles. The functions in which participles are found are very similar if not identical to the functions in which participles are found in related ancient Indo-European languages like Latin and

Ancient Greek.³¹ The distinct functions of participles are not necessarily marked in any way, e.g. by word order or by the use of particles (as sometimes in Classical Sanskrit and Ancient Greek), although there are some word-order tendencies (discussed below); rather they are determined contextually.

The most important elements which go into determining the contextual function of a participle are the semantics of the two verbs involved, both the base semantics of the verbal roots, and the semantic contribution of the verbal stems.³² The way in which the semantics of the participle and finite verb stems interact to produce a contextual meaning will be seen in the following subsections. As mentioned above it is a matter of debate whether the contextual interpretations of participles and similar words are due to specific semantic possibilities of participles or are pragmatically determined; the limitations of our formalization compel us to assume the latter.

3.4.1 Temporal-aspectual relations

The most basic relationship between the eventualities expressed by a participle and its governing verb is a temporal-aspectual one. This relationship is entirely determined by the semantics of the respective tense-aspect stems of the two verbal forms involved, and it is from this basic relationship that the more contextual semantic relationships develop. As with the adnominal participles above, it is usually assumed to be the case that a participle expresses aspect rather than tense, and that the reference time of the participle is derived from the event time of the main verb (and not, here, alternatively from the speech time).

Sample semantic derivation

As noted above I am not providing semantic derivations for every use of participles. However as an example of the semantic composition of a clause involving a participle, in this subsection I work through the (partial) semantic derivation of ex. (3.23=2.38). I work through the combination of meanings in the text, and give the glue derivation in fig. (3.1,

³¹For the functions of participles in Ancient Greek, see Goodwin (1889, p.333f.); for Latin cf. Pinkster (1990, p.157f.).

³²On the sorts of things involved here, see König (1995) who discusses the significance of word order, the use of conjunctions, Aktionsart, pragmatics etc. on the contextual interpretation of converbs.

p.128).

(3.23) *vīṣūco áśvān yuyujāná īyata ékaḥ* (RV 6.59.5cd)
 ‘Having yoked the separated horses, he speeds (off) alone.’

The derivation begins with the composition of the various semantic elements of the participle itself: the basic meaning of the verbal root (ex. 3.24) combines with the transitivity of the verbal stem (from ex. 3.5) to produce a meaning constructor which requires a subject and an object (ex. 3.25).

(3.24) \sqrt{yuj} : $\lambda e \boxed{\text{yoke}(e)}$: $(y \text{ EV}) \multimap y_\sigma$

(3.25) $\lambda y \lambda x \lambda e \boxed{\begin{array}{l} \text{yoke}(e) \\ \text{agent}(e, x) \\ \text{theme}(e, y) \end{array}}$: $(y \text{ OBJ})_\sigma \multimap (y \text{ SUBJ})_\sigma \multimap (y \text{ EV}) \multimap y_\sigma$

The object is provided by the NP *vīṣuco áśvān* (ex. 3.26); the functional control of the participle by the matrix verb determines the subject of the participial clause as (in this case) the subject of the main clause, which here is a null pronoun (ex. 3.27); the anterior aspect (from ex. 3.6) of the participle applies to the result, yielding a meaning constructor (ex. 3.28) which requires a reference time for completeness.

(3.26) *vīṣuco áśvān*: *a*

(3.27) ‘pro’: *n*

(3.28) $\lambda t \boxed{\begin{array}{l} y \ a \ n \\ \text{yoke}(y) \\ \text{agent}(y, n) \\ \text{theme}(y, a) \\ \tau(y) \prec t \end{array}}$: $(y \text{ RT}) \multimap y_\sigma$

The adverbial syntax of the participle introduces the ADV-PTC meaning constructor (ex. 3.9) which binds the reference time of the participle to the event time of a second eventuality, which will be the main verb of the clause. This produces the following meaning constructor.

$$(3.29) \quad \lambda Q \lambda e \left[\begin{array}{|l} \hline y \ a \ n \ t \\ \hline yoke(y) \\ agent(y, n) \\ theme(y, a) \\ \tau(y) \prec t \\ t = \tau(e) \\ \hline \end{array} \oplus Q(e) \right] : ((s \text{ EV}) \multimap s_\sigma) \multimap ((s \text{ EV}) \multimap s_\sigma)$$

The process then essentially repeats for the main verb, combining the meaning of the root with the intransitivity and imperfective aspect of the stem; the following meaning constructor results.

$$(3.30) \quad \lambda t' \left[\begin{array}{|l} \hline y \ s \ a \ n \ t \\ \hline yoke(y) \\ agent(y, n) \\ theme(y, a) \\ \tau(y) \prec t \\ t = \tau(s) \\ speed(s) \\ agent(s, n) \\ \tau(s) \supseteq t' \\ \hline \end{array} : (s \text{ RT}) \multimap s_\sigma \right.$$

The application of PRESENT tense (from ex. 3.7) and FINITENESS (ex. 3.8) yields the meaning in ex. (3.31).

$$(3.31) \quad \left[\begin{array}{|l} \hline y \ s \ a \ n \ t \ t' \ t'' \\ \hline yoke(y) \\ agent(y, n) \\ theme(y, a) \\ \tau(y) \prec t \\ t = \tau(s) \\ speed(s) \\ agent(s, n) \\ \tau(s) \supseteq t' \\ t' \supseteq t'' \\ \hline \partial \left[\begin{array}{|l} \hline t_r \\ \hline \rho(t'', t_r) \\ \hline \end{array} \right. : s_\sigma \right.$$

If a perspective time for the eventuality of the main verb can be obtained, the sentence will be semantically coherent.

3.4.2 Manner and Attendant Circumstance

As stated above, in many cases more specific semantic relations are pragmatically inferred from the basic temporal relations treated in the preceding section.

Figure 3.1: Glue derivation of ex. (3.23)

$$\begin{array}{c}
 (y \text{ EV}) \multimap y_\sigma \qquad \qquad \qquad (y \text{ EV} \multimap y_\sigma) \multimap \\
 \qquad \qquad \qquad ((y \text{ OBJ})_\sigma \multimap (y \text{ SUBJ})_\sigma \multimap \\
 \qquad \qquad \qquad (y \text{ EV}) \multimap y_\sigma) \\
 \hline
 (y \text{ OBJ})_\sigma \multimap (y \text{ SUBJ})_\sigma \multimap (y \text{ EV}) \multimap y_\sigma \qquad \qquad \qquad (y \text{ OBJ})_\sigma \\
 \hline
 \qquad \qquad \qquad ((y \text{ SUBJ})_\sigma \multimap (y \text{ EV}) \multimap y_\sigma) \qquad \qquad \qquad (y \text{ SUBJ})_\sigma \\
 \hline
 ((y \text{ RT}) \multimap y_\sigma) \multimap \qquad \qquad \qquad ((y \text{ EV}) \multimap y_\sigma) \multimap (y \text{ RT} \multimap y_\sigma) \qquad \qquad \qquad (y \text{ EV}) \multimap y_\sigma \\
 ((s \text{ EV}) \multimap s_\sigma) \multimap \qquad \qquad \qquad (y \text{ RT}) \multimap y_\sigma \\
 ((s \text{ EV}) \multimap s_\sigma) \\
 \hline
 ((s \text{ EV}) \multimap s_\sigma) \multimap ((s \text{ EV}) \multimap s_\sigma) \qquad \qquad \qquad (s \text{ EV}) \multimap s_\sigma \\
 (s \text{ EV}) \multimap s_\sigma \\
 \hline
 (s \text{ SUBJ})_\sigma \multimap (s \text{ EV}) \multimap s_\sigma \qquad \qquad \qquad (s \text{ EV} \multimap s_\sigma) \multimap \\
 ((s \text{ SUBJ})_\sigma \multimap (s \text{ EV}) \multimap s_\sigma) \qquad \qquad \qquad (s \text{ SUBJ})_\sigma \\
 \hline
 ((s \text{ RT}) \multimap s_\sigma) \multimap ((s \text{ PT}) \multimap s_\sigma) \qquad \qquad \qquad ((s \text{ EV}) \multimap s_\sigma) \multimap (s \text{ RT} \multimap s_\sigma) \qquad \qquad \qquad (s \text{ EV}) \multimap s_\sigma \\
 (s \text{ RT}) \multimap s_\sigma \\
 \hline
 (s \text{ PT}) \multimap s_\sigma \qquad \qquad \qquad ?(\forall \alpha((\alpha \text{ PT}) \multimap s_\sigma) \multimap s_\sigma) \\
 \hline
 s_\sigma
 \end{array}$$

eventuality, i.e. to the gladness of the subject, or to the manner of the subject's actions expressed by the main verbs?³⁵ Either would be a valid interpretation, and in truth there is very little difference between them.³⁶ Nevertheless on either side of this grey area there are clear examples of manner proper (ex. 3.33) and clear examples of attendant circumstance:

- (3.34) *purú várāṃsy ámitā mímānā*
'pó dhánvāny áti yātho ájrān (RV 6.62.2cd)
 'You (two) go *measuring* many unmeasured spaces
 across waters, deserts, fields.'

'Measuring' is not a type of movement, and so cannot properly express the manner of the 'going' here, but it occurs alongside it and is clearly conceived as a unity with it.

Although conceptually there is a distinction to be made between the expression of manner and the expression of attendant circumstance, they pattern together in terms of the types of words able to express these meanings. Unlike the other contextual semantic relations discussed in this section, manner and attendant circumstance are not limited to participles. Non-participial adjectives can also express these relations; these are in fact the only adverbial relations that non-participial adjectives are able to express.³⁷ As will be discussed in the next chapter, there are some participles which do not appear to be capable of expressing other adverbial functions and which we may have reason to analyse as synchronically not participles. These forms too can be found expressing manner or attendant circumstance, but no other adverbial relations. Ex. (3.35) shows a non-participial adjective expressing manner or attendant circumstance; ex. (3.36) shows what is usually taken to be an adjectivized participle (but see §4.6.2, p.211), which cannot occur in other adverbial functions.³⁸

- (3.35) *imó agne vītátamāni havyá*
'jasro vakṣi devátātim ácha (RV 7.1.18ab)
 'O Agni, these most acceptable oblations

³⁵On the meaning of the stem *haryá-* and cognate Greek *χαίρω* see Wachter (1998, 2004).

³⁶The difference between the two may be related to the difference between truly adverbial secondary predicates and 'participant-oriented' secondary predicates in the sense of Schultze-Berndt and Himmelmann (2004); Himmelmann and Schultze-Berndt (2005).

³⁷On adjectives expressing 'manner' in the widest sense see Delbrück (1888, p.78); Cantera (2005); Krisch (2005, p.306–308).

³⁸These two functions also pattern together in other languages; it is claimed that these are the only non-restrictive functions of participles in early Germanic languages and hence reconstructable for Proto-Germanic.

untiringly convey to the gods.’

- (3.36) uśán hotar ní śadā yóniṣu triṣú (RV 2.36.4b)
‘O priest, sit down *willingly* on the three seats.’

3.4.3 Purpose

We now move on to non-temporal adverbial relations between participle and main verb which only participles, and not ordinary adjectives, can display.

Present, aorist and future participles in the *Ṛgveda* can express the *purpose* of the action of the main verb, usually (if not always) therefore that of the agent of the main verb.³⁹ The expression of purpose by participles in Vedic has been discussed in detail by Knobl (2005).⁴⁰ He concludes that present participles expressing ‘intention’ are most common with main verbs of “coming, going, sending and summoning.” This is certainly true of the *Ṛgvedic* data: the ten most certain examples I have identified in books II–VII and IX all occur with main verbs expressing movement.⁴¹

- (3.37) áheḷatā mánasā yātam arvāg
aśnántā havyám mánuṣiṣu vikṣú (RV 7.67.7cd)
‘Come forward with unhostile mind
to consume the oblation in the human dwellings.’

- (3.38) pári triviṣṭy ádhvarám
yáty agní rathír iva
á devéṣu práyo dádhat (RV 4.15.2)
‘Three times around the sacrifice
Agni goes like a charioteer
to establish the libation among the gods.’

- (3.39) maghónām áyuh pratirán máhi śráva
índrāya soma pavase vṛṣā mádaḥ (RV 9.80.2cd)
‘*So as to bring to accomplishment* the life and great fame of the patrons,
you flow, O Soma, to Indra as the manly intoxication.’

³⁹Cf. the expression of purpose by present and future participles (but not aorists) in Ancient Greek. With the future participle of the *Ṛgveda* (and possibly also Ancient Greek) this is very likely related to its origin as a derivative present stem with intentional/volitional sense.

⁴⁰The RV passages Knobl treats in detail are 1.2.7 (*sádhant-*), 1.35.10cd (*apasédhant-*), 1.116.17ab (*jáyant-*), 1.179.4cd (*śvasánt-*), 5.31.12ab (*ichánt-*), 5.37.3ab (*ichánt-*), 7.67.7cd (*aśnánt-*), 7.98.1cd (*ichánt-*), 9.41.1 (*ghnánt-*), 9.72.8ab (*śikṣant-*), 10.155.2cd (*udṛṣánt-*).

⁴¹The passages are 2.19.5d, 3.61.6d, 4.12.2b, 4.15.2c, 4.15.3c, 6.66.7d, 7.67.7d, 9.3.6c, 9.80.2c and 9.92.6d.

3.4.4 Cause

The expression of *cause* is closely related to the expression of *purpose*; indeed, both are covered by the same term *hetu*, used by Pāṇini to describe one/some of the functions of the present participle.⁴²

At first sight *cause* and *purpose* would seem to be semantically and even temporally distinct relations, but *cause* must be understood in the restricted sense of the mental cause or reason (or the eventuality underlying the mental cause/reason) behind the action of the main verb. The wider sense of English *cause*, i.e. the physical cause or facilitation of an action, is separately treated under *means* below. Since the mental cause or reasoning behind an action can often be identical to the purpose of an action (if the cause/reasoning relates to the future rather than the present or past), cause and purpose can (but need not) be almost indistinguishable. The English term *motive* may be the most appropriate cover term for *purpose* and *cause*, and this is semantically close to the original meaning of *hetu* (lit. ‘impulse’) used for both functions by Pāṇini.

The expression of cause is primarily found with verbs of certain types: verbs of cognition or emotion such as thinking, knowing, fearing; verbs of desiring, including desideratives; the verb √as ‘to be’. Examples (3.43, 3.44, 3.45) below show participles of verbs of thinking, knowing and fearing respectively.

(3.43) *lodhám nayanti páśu mányamānāḥ* (RV 3.53.23b)

‘They lead (forth) a red beast, *thinking* [*i.e. because they think*]
(it) a sacrificial animal.’

(3.44) *jānānn ṛtám prathamám yát svàrṇaram*
prásastaye kám avṛṇīta sukrātuḥ (RV 9.70.6cd)

‘*Knowing* what is right and first he chose
Suvarṇara for his praise, the one of great intellect.’

(3.45) *alātrṇó valá indra vrajó góḥ*
purá hántor bháyamāno vy àra (RV 3.30.10ab)

‘Unpiercable Vala, O Indra, the encloser of the cow,
before being struck opened up, *because he was afraid*.’

⁴²Discussed by Knobl (2005).

Since mental cause can relate to a present or past state of mind, perfect participles are found expressing this function while future participles are not, in contrast with the expression of purpose discussed above.

(3.52) *átha devánāṃ ubháyasya jánmano*
vidvāṃś aśnoty amúta itás ca yát (RV 9.81.2cd)

‘And *knowing* the gods, both races,
 he obtains what is from there and from here.’

(3.53) *ápoṣā ánasaḥ sarat*
sámpīṣṭād áha bibhyúṣī (RV 4.30.10ab)

‘Uṣas slipped away from the
 crushed wagon, *fearing* (it).’

3.4.5 Means

As discussed above, the term *means* is used for the wider sense of English *cause*. In this function, participles express an eventuality by means of which that of the main verb is brought about. This may range from the single direct physical cause to a particular subcomponent of the process of bringing about the eventuality of the predicate. In contrast to causal participles, participles expressing *means* will often refer to physical actions which make up one aspect of the whole expressed by the main verb; for example participles to verbs of ‘striking’, ‘slaying’, and ‘overpowering’ are often found in this function with predicates expressing some kind of conquest or victory.

In ex. (3.54) the *means* function of the participle is made clear by the structural parallelism between pādas *a* and *b*: following the predicated adjective/noun and the vocative, the final position in the clause (and pāda) is filled by an instrumental noun in pāda *a*, and the participial clause in pāda *b*. Other examples of participles expressing *means* follow.

(3.54) *mahāś asi mahiṣa vṛṣṇyebhir*
dhanaspṛd ugra sáhamāno anyán (RV 3.46.2ab)

‘You are great, O buffalo, by (means of) your manly (deeds);
 (you are) one who gains plunder, O fierce one, (*by means of*) *overpowering*
 others.’

(3.55) *sá jāyase mathyámānaḥ sáho mahát* (RV 5.11.6c)

‘You are brought to birth as the great power *by being rubbed.*’

(3.56) *á tvám ṛjísivā sakhyāya cakre*
pácan paktír ápibaḥ sómam asya (RV 5.29.11cd)

‘Ṛjīsvan has made you friendly
by cooking the food. You have drunk his Soma.’

I have found almost no examples of participles other than present participles expressing *means*; one possible example of an aorist participle is the following, although it might be equally possible to interpret it with a purely temporal sense ‘having impelled’.⁴⁵

(3.57) *yád áyātaṃ dívodāsāya vartír*
bharádvājāyāśvinā háyantā (RV 1.116.18ab)

‘When you travel your circuit for Divodāsa,
for Bharadvāja, O Ásvins, *by impelling* (your horses).’

Besides being semantically similar to the expression of cause, the expression of means is also close but clearly distinct from the expression of manner. König (1995, p.66) argues that this function requires that “the verb in the main clause must be neutral in its meaning with respect to the method of performing the action in question”; in other words it has to be possible for the participial clause to express a means which is not already implied by the main verb. If it were, we would be dealing with *manner*: contrast e.g. *he won [by] running very fast* (means interpretation) with *he passed me running very fast* (manner interpretation). In some contexts it is also close to the expression of equivalence.

3.4.6 Equivalence

Within his “instrumental” (= our *means*) category König (1995, p.66–67) specifies a subtype to which he gives the label “interpretative”, “which can be paraphrased by “p amounts to doing q”.” An example he gives is the English *killing his mother he has also killed the dream*. This is similar to what Haug (2010, forthcoming) and Bary and Haug (2011) call “elaboration”, and could be seen as a separate adverbial function, similar to but distinct

⁴⁵This form, which is a somewhat doubtful example of an aorist participle, is discussed in more detail below (p.241).

from the expression of means (and also manner and attendant circumstance). A participle such as this elaborates on the eventuality expressed by the main verb, or describes it from another angle.

(3.58) *agnīm vṛṇānā vṛṇate kavíkratum* (RV 5.11.4d)
 ‘(In) *choosing* Agni they choose the kavikratu.’

(3.59) *sívyan támāṃsi dúdhitā sám avyayat* (RV 2.17.4d)
 ‘(In) *sewing it up* he enveloped the confused darkness.’

Example (3.58) is remarkably similar to the English example given by König, in that the same verb is used in the participle and predicate. However in ex. (3.59) the two verbs are different: it would be possible to treat this example as a simple expression of means, but in this and other similar passages the identity between the eventualities expressed by the participle and main verb suggest a slightly different relationship. It is not that *by* sewing it up Indra enveloped the darkness, but the sewing up and enveloping are the same eventuality viewed or described in two slightly different ways. Similarly in example (3.60) the participle and verb refer to the same eventuality described in two ways.

(3.60) *ápa sátrūn vidhyatām saṃvidāné*
ártuī imé viṣphurántī amítrān (RV 6.75.4cd)
 ‘In agreement they hit away the enemies,
 these two bow-tips, *kicking off* opponents.’

3.4.7 Result

In principle the expression of *result* or consequence may be thought of as being to *purpose* what *means* is to *cause*: the participle expresses the physical but not necessarily intended consequence or result of the action of the predicate. In practice, however, it is almost impossible to distinguish between purpose and result when the subject of participle and main verb are the same and when the subject of the main verb is an agent, as is usually the case. In ex. (3.61) the semantic relation of the participle to the eventuality of the main verb could be purpose, result, or indeed both. Only in very rare cases does the context rule out the expression of purpose, as in ex. (3.62).

- (3.61) *eṣá rukmíbhīr īyate*
vājī śubhrébhīr aṃśúbhīḥ
pātiḥ síndhūnām bhávan (RV 9.15.5)

‘This race-horse speeds
with golden, bright filaments,
becoming the lord of rivers.’

- (3.62) *tvád bhīyá víśa āyann ásiknīr*
asamaná jáhatīr bhójanāni (RV 7.5.3ab)

‘Fearing you the black clans departed,
not staying together, *leaving* their enjoyments.’

When a result is intended, the only difference between result and purpose is the perspective from which the eventuality is viewed. At the time of the eventuality of the main verb any intended result is necessarily still only a purpose; it is only from an external perspective, for example from the time of the utterance itself, that such a purpose can be conceived of as an achieved result. Therefore whenever it is possible to interpret a participle as expressing either or both *purpose* and *result*, we will take *purpose* as the basic sense, with *result* as a possible pragmatic inference. Only where *purpose* is impossible should *result* be assumed.

3.4.8 Concession

Concessive participles express an eventuality despite which the eventuality expressed by the main predicate holds, and can be translated in English by e.g. ‘although, despite’.⁴⁶ This semantic relation is relatively rare with most participles, but is very frequent with the present participle of the verb ‘to be’, *sánt-*.⁴⁷ Examples (3.63, 3.64, 3.65, 3.66) below are among the very few of other participles found expressing *concession*.

- (3.63) *dípsanta íd ripávo náha debhuḥ* (RV 4.4.13d)

‘*Although desiring harm* the rogues have indeed not caused harm.’

- (3.64) *utá svásārā yuvatī bhávantī*
ád u bruvāte mithunāni námā (RV 3.54.7cd)

⁴⁶König (1991) argues that concessive relations, at least in part, can be understood as the negative of causal relations, i.e. ‘not because’ > ‘despite’.

⁴⁷The frequent concessive use of *sánt-* has been recently discussed by Knobl (2006), who has also noted a similarly frequent concessive use of the Homeric Greek cognate *ἔσθ*.

‘And *although being* young sisters
they are indeed called by masculine and feminine names.’

(3.65) *mahó devān bíbhraṭī ná vyathete* (RV 3.54.8b)
‘*Although supporting* the great gods they do not tremble.’

(3.66) *apám mádhye tasthivāmsam*
tṛṣṇāvidaj jaritāram (RV 7.89.4ab)
‘*Although he was standing* in the midst of waters
thirst found the singer.’

In comparison *sánt-* is relatively common indicating a concessive relation between an adjacent adjective and the main predication, as in the following passages. In all these, the adjective adjacent or near to the participle is semantically opposed to a part of the main predication.⁴⁸

(3.67) *kṛṣṇā satī rúsatā dhāsínaiṣā*
jāmaryeṇa páyasā pīpāya (RV 4.3.9cd)
‘*Although she is* black this one swells with
white nourishment, with jamarya milk.’

(3.68) *jívrī yát sántā pitárā sanājúrā*
púnar yúvānā caráthāya tákṣatha (RV 4.36.3cd)
‘Because the parents, *though being* old and weakened,
you made young again for life.’

(3.69) *urvī satī bhūmir aṃhūraṇābhūt* (RV 6.47.20b)
‘*Although it is* wide, the earth has become constricted.’

According to Kortmann’s (1995) ‘gradient of informativeness’ for adverbial functions (discussed below, §3.6.1) *concession* is the “most informative” adverbial function; as we will see it is therefore reasonable to suppose that non-participial adjectives were incapable in themselves of expressing this semantic relationship. The frequent use of *sánt-*, then, in this context was specifically to enable non-participial adjectives to express concession. Adding this participle beside an adjective changes the syntax of the adjective, from direct modifier of

⁴⁸Other examples are at 2.13.12c, 3.31.5a, 3.32.16b, 4.6.6b, 4.27.1a, 5.12.5b, 5.29.5d.

its noun (whether adnominal or adverbial) to predication of the participial clause introduced by the participle. It is then the participial clause which modifies the noun, which licenses the expression of concession as an adverbial function available to participles. In principle the same procedure could likewise be used to give adjectives other adverbial functions, such as cause or purpose; however those functions tend to involve dynamic eventualities rather than states, which adjectives predicate, whereas the expression of concession has no such restriction.

3.4.9 Chaining

This and the following function of participles should, strictly speaking, be separated from the adverbial uses of participles detailed above, because in terms of semantic formalization they are not dependent on the ADV-PTC meaning constructor but have independent relations to their superordinate verbs. Nevertheless due to their close semantic similarity (evident even in their meaning constructors), I will treat them under the same heading as the other adverbial uses.

To a limited extent, participles can occur in chaining constructions.⁴⁹ Chaining is the expression of two or more semantically coordinate predications using only one finite verb form and one or more syntactically dependent non-finite verb forms.⁵⁰ It is therefore a form of coordination which involves syntactically subordinating all but one of the coordinated verbs, creating as it were a ‘chain’ of subordinate verb forms.⁵¹

The use of participles in chaining constructions is very frequent with imperatives. In the following passage there is only one main verb, the imperatival injunctive *dhāḥ*, but the three preceding participles are also semantically equivalent to finite imperatives.⁵²

⁴⁹For an LFG-based discussion of chaining in a modern Indo-Aryan language, see Beermann and Hellan (2002). Note that this is entirely distinct from ‘chain verb’ (or ‘serial verb’) constructions found for example in some modern African languages.

⁵⁰The best known example in an ancient Indo-European language is the frequent use of the aorist participle in Ancient Greek to express what is a semantically coordinate action, e.g. *ταῦτα εἰπὼν ἀπῆει* ‘he said this and (then) went away’. The same phenomenon is found in Gothic and Old Church Slavonic (on which see Růžička, 1963, p.78–81), where it is clearly based on the Greek but nevertheless shows that the use of a participle in this way was not impossible in these ancient Indo-European languages either.

⁵¹There are other labels in the literature beside ‘chaining’: the equivalent function among those listed by Kortmann (1998, p.468) is “Addition: ‘besides p, q’, ‘in addition to p, q’”; Haug (2010, forthcoming) and Bary and Haug (2011) name such participles in Ancient Greek “independent rhemes.”

⁵²Note that participles appear to be unmarked, at least in most contexts, for modality, and adopt the modality of the main verbs of their clause, whether indicative, imperative, or optative.

(3.70) *devám-devaṃ rádhase codáyanty*
asmadryàk sūnṛtā iráyantī
vyuchántī naḥ sanáye dhíyo dhāḥ (RV 7.79.5a-c)

‘*Incite* [lit. ‘inciting’] god after god for generosity,
impel [lit. ‘impelling’] good-gifts our way,
shine [lit. ‘shining’] widely, (and) establish our thoughts for victory.’

The use of participles in chaining constructions is very close to, and probably derived from, the purely temporal-aspectual relations of these participles. For a perfect (present anterior) participle, the expression of a prior completed action is very close if not identical to the expression of one action preceding another: the only difference is whether the eventuality of the participle is conceived of as semantically subordinate (as it is syntactically) to that of the main predication or not. For example should the following clause be translated as given in the gloss (‘chaining’ interpretation) or something like ‘having struck...you assumed’ (temporal-aspectual interpretation)? Or is there in fact no real difference?

(3.71) *áhiṃ cid ugra práyutaṃ sáyānaṃ*
jaghanvám̐ indra táviṣīm adhatthāḥ (RV 5.32.2cd)

‘*You struck* the snake, o fierce one, who was
lying stretched out, Indra, and assumed your might.’

With perfect participles such as these, and parallel aorist participles discussed below, we will assume a temporal-aspectual relation between participle and main verb rather than the somewhat less specific relation of chaining. For present participles the situation is slightly more complicated. On the one hand the use of present participles with imperatives as in ex. (3.70) above could be identical to the purely temporal use of a present participle: one thing is commanded, and a concomitant action is expressed by the participle which is by implication also commanded. On the other hand present participles are used to express coordinated eventualities which are not necessarily concomitant: it is simply implied that two or more things happen or happened in roughly the same time frame, but the lack of strict concomitance shows that we are dealing with something different from the strictly concomitant/imperfective use of present participles.

(3.72) *só áṅgirasām ucáthā jujuṣvám̐*
bráhmā tūtod índro gātúm iṣṇán

muṣṇánn uṣásaḥ sūryeṇa stavān
 áśnasya cic chiśnathat pūrvyāñi (RV 2.20.5)

‘Indra, having enjoyed the praises of the Aṅgirasas,
 made strong the sacred prayer, making a path for it;
he stole the dawns with the sun, the praised one,
 he pierced the ancient works even of Aśna.’

Aorist participles are also found in similar constructions, sometimes parallel to present participles, sometimes to perfect participles. In the following passage the sequence of events is clear:

(3.73) ádha gmántā náhuṣo hávaṃ sūrēḥ
 śrótā rājāno amṛtasya mandrāḥ (RV 1.122.11ab)

‘Now *having come* to the call of the patron Nahuṣ
 hear, you dear kings of immortality...’

Here the ‘coming’ necessarily precedes the ‘hearing’ which is being commanded.⁵³ This can be understood as a strict reflection of the anterior aspectual properties of the aorist participle, and the same difficulties of deciding between a strictly aspectual and a chaining interpretation, which we saw with the perfect participle above, apply here also. In the following example, on the other hand, the aorist participle *sṛjāná-* is functionally parallel to the present participles seen in the above examples, and is in context parallel to a present participle in the following pāda.

(3.74) úd u tiṣṭha savitaḥ śrudhy àsyá
 hiraṇyapāṇe prábhṛtāv ṛtásya
 vy úrvīm pṛthvīm amátim sṛjāná
 á nṛbhyo martabhójanaṃ suvānáḥ (RV 7.38.2)

‘Stand up, Savitṛ, be attentive,
 O golden-handed, at the start of this offering,
send forth your wide, long form
 and impel mortal food for men.’

⁵³In this passage there is a syntactic irregularity: the participle is in the dual, while the imperative is plural. Geldner (RV, v.1, p.169 ad loc.) considers it anacoluthon, the poet thinking first of Mitra-Varuṇa then of the remaining Ádityas. However in its two other occurrences *gmánt-* likewise appears in the identical form n./a.du.m. *gmántā* (where it is syntactically justified): this appears then to be a fossilization of the isolated *gmántā* as an all purpose form, echoing, functionally and phonetically, the increasingly productive absolutive (*gmántā* : *gatvā*). In fact it could be supposed that *gmántā* here is a pseudo-absolutive, using an obsolescent but semantically parallel form from the poetic language for a construction which was perhaps already common in everyday speech but was still avoided in the high poetic language. Nevertheless the stem can only be analysed as that of an aorist participle. Cf. also p.156 below.

Participles which express chaining could be formalized in glue using simply the ADV-PTC meaning constructor (ex. 3.9) with no additional semantic specification. However to express the semantic bleaching, as it were, of the temporal-aspectual relation between the participle and main clause, we could instead use a meaning constructor such as the following (in place of, rather than in addition to, ADV-PTC), which merely indicates that the reference time of the event expressed by the participle and the event time of the main verb are conceived of as close to one another, but not necessarily in a relation of precedence, inclusion or overlap.⁵⁴

(3.75) CHAIN:

$$\lambda P \lambda Q \lambda e \left[\frac{t}{t \sim \tau(e)} \right] \oplus P(t) \oplus Q(e) : \begin{array}{l} ((\uparrow_{\sigma} \text{RT}) \multimap \uparrow_{\sigma}) \multimap (((\text{XADJ} \in \uparrow)_{\sigma} \text{EV}) \multimap \\ (\text{XADJ} \in \uparrow)_{\sigma}) \multimap (((\text{XADJ} \in \uparrow)_{\sigma} \text{EV}) \multimap \\ (\text{XADJ} \in \uparrow)_{\sigma}) \end{array}$$

This differs from the meaning constructor suggested by Bary and Haug (2011) for their ‘independent rhemes’: the parallel Ancient Greek construction is considerably more fully syntacticized than that of the *R̥gveda*, being much more clearly distinct from a purely temporal-aspectual use of a participle. Moreover the Ancient Greek construction occurs primarily with the (perfective) aorist participle, whereas here we have seen that it is most clear with the (imperfective) present participle. This justifies treating the two constructions as semantically distinct, although there is clearly a functional parallel between the two and it is likely that the two share the same origin.

3.4.10 Contingency

Contingent participles are not, like all other adverbial participles, dependent on the main predication for their temporal reference, but rather they define the temporal reference of the main predication. They can be thought of as a kind of reduced temporal clause expressing time ‘when’, i.e. when the eventuality expressed by the participle is or was happening, the eventuality expressed by the main predication is or was occurring.⁵⁵

(3.76) *tvám̐ vṛdhá indra pūrvyó bhūr*

⁵⁴The symbol \sim indicates similarity.

⁵⁵Kortmann (1998, §2.2.1, p.465) defines contingency in the following way: “[contingency] involves quantification over a situation p: at all times when p is true, q is true, too...”. This is also equivalent to his “Simultaneity Co-Extensiveness: ‘as long as p, q.’” Haug (2010, forthcoming) and Bary and Haug (2011) label these participles ‘frames’.

varivasyánn usáne kāvyáya (RV 6.20.11ab)

‘You, Indra, became the first furtherer,
when you sought relief for Uśan Kāviya.’

In the following example (3.77) the contingent participle determines the temporal reference not only of the main verb, but also of another participle which is itself temporally dependent on the main verb (in chaining function).

(3.77) evá naḥ soma pariṣicyámāno
vāyo dádhac citrátamam pavasva (RV 9.68.10ab)

‘Thus when you are poured around, Soma, for us,
establish most glorious strength and purify yourself.’

In ex. (3.78) the third contingent participle, *utpátant-*, appears to have the conjunction *yád* as it were ‘supporting’ its contextual interpretation.⁵⁶ There are other instances of this, such as ex. (3.79) where the lack of accent on the main verb makes it clear that the conjunction cannot be governing the whole sentence.⁵⁷

(3.78) āvádaṃs tvám śakune bhadráṃ á vada
tūṣṇīm áśīnaḥ sumatīm cikiddhi naḥ
yád utpátan vādasi karkarír yathā (RV 2.43.3a-c)

‘When you cry out, O bird, cry out propitiously,
when sitting silently think good thoughts of us;
when flying up you sing like a lute.’

(3.79) vāyo-vayo jarase yád dádhānaḥ
pári tmānā vísurūpo jigāsi (RV 5.15.4cd)

‘You awake when you adopt strength after strength
you move around yourself in manifold forms.’

This use of *yád* is parallel to the optional use of particles to specify the contextual semantics of participles in Classical Sanskrit and Ancient Greek. In Ṛgvedic Sanskrit, however, no other particles are used in this way, and this perhaps suggests that the interpretation of a participle as *contingent* was not a particularly natural or regular reading, which therefore sometimes needed reinforcing when used.

⁵⁶Although *vādasi* is accented as if it is subordinated, the conjunction *yád* makes little sense with the main verb here, since the previous pāda refers to the bird sitting silently, not flying up.

⁵⁷Another instance is at 10.28.3d.

The glue formalization for contingent participles is based on that of Bary and Haug (2011) for their ‘frames’ expressing narrative progression; however similar differences apply to the Ṛgvedic construction as with the *chaining* participles above: in the *Ṛgveda* it is almost exclusively present participles which occur in this construction, expressing the time ‘when’ the eventuality of the main verb occurs rather than expressing something that precedes it. The relation between t and t' has been altered accordingly. As discussed by Bary and Haug (2011) this meaning constructor eliminates the need for the FINITENESS meaning constructor to apply to the main verb to anchor its reference time, since the reference time of the main verb is anchored by the participial clause.

(3.80) CONTINGENT:

$$\lambda P \lambda Q \left[\begin{array}{|c|} \hline t' \\ \hline t \supseteq t' \\ \hline \partial \left[\begin{array}{|c|} \hline t \\ \hline \end{array} \oplus P(t) \right] \oplus Q(t') \right] : \left((\uparrow_{\sigma} \text{RT}) \multimap \uparrow_{\sigma} \multimap (((\text{XADJ} \in \uparrow)_{\sigma} \text{RT}) \multimap (\text{XADJ} \in \uparrow)_{\sigma}) \multimap (\text{XADJ} \in \uparrow)_{\sigma} \right)$$

3.4.11 Conclusion

In this section we have seen the wide variety of contextual semantics which tense-aspect stem participles are capable of displaying. It is not the case that all functions are equally common either overall or with any one tense-aspect stem, but all are equally valid functions. It is interesting to note that many of these contextual functions can also be expressed by relative clauses or other types of subordinate clause (cf. Hock, 1993), showing that this functionality is not a peculiarity of participles as such but is more generally part of the range of embedded clauses in a wider sense.

The majority of examples given in this section involve present participles in the nominative case. The preponderance of present participles is not entirely due to the overwhelming frequency of present participles in comparison to the other tense-aspect stems: it is only with present participles that the full range of contextual functions discussed above are regularly found. Moreover when aorist and perfect participles are found in a wide range of contextual functions, the participles involved are ‘present-like’: i.e. the perfective or anterior aspectual reference expected for such participles is not found or is at least not prominent, as

unambiguous examples discussed above. But rather than conceive of these relations as a group of distinct, unconnected relations, it may be more appropriate to conceive of them as points on a matrix of semantic relations, all interconnected and sharing the edges of their semantic domains with other, closely related semantic relations, such that we should not expect the lines between these relations to be clear in every instance.

The interrelations of these different contextual functions of participles will be discussed further, in a slightly different context, in the conclusion to this chapter. Now we turn to an analysis of the temporal and aspectual properties of participles in the *R̥gveda*, drawing on what we have already seen of the different semantic ranges and capabilities of the different tense-aspect stem participles.

3.5 Semantic Analysis of Tense-Aspect

In this section we will investigate the tense and aspect properties of the participles as evidenced by their functional employment (seen in the previous section) in relation to the tense and aspect properties of the tense-aspect stems from which they are derived, and in relation to tense and aspect properties of the main predicates of the clauses in which the participles occur.

In principle we would expect tense-aspect stems to be uniform in their attribution of tense-aspect properties to the word forms derived from them; i.e. we might expect there to be no difference between the tense-aspect properties of finite and non-finite verbal forms derived from a particular tense-aspect stem. However it is not necessarily the case that the tense-aspect stem is the only morphological element conveying tense and aspectual information. It almost goes without saying that a present participle in a clause where the main verb is in the past tense will likewise have a past tense reference relative to the perspective time, while a present participle in a clause where the main verb has a future tense reference will likewise have a future time reference relative to the perspective time, and so on.⁵⁸ Since, then, a present participle can have present, past or future temporal reference, depending on the tense of the main verb, it is usually assumed that present (and

⁵⁸Dahl (2010, e.g. p.253–256) explicitly demonstrates this point with examples for all tense stems.

likewise aorist, perfect etc.) participles do not have any tense reference of their own, i.e. they are unmarked for tense, and their temporal reference is adopted from the main verb.⁵⁹ However finite present tense verbs clearly do have tense properties (present tense), and to make matters worse finite imperfect tense verb forms have different tense properties (past tense). This is explicable if we assume that the present ‘tense-aspect’ stem actually conveys only aspectual information, while tense features are expressed by, perhaps, the primary endings on finite present tense verbs and by the augment on past tense verbs such as the imperfect.

It may be therefore that participles share only a part of the tense-aspect properties of corresponding finite verb forms, and if so we can assume that the shared element is that conveyed by the shared morphological element, the tense-aspect stem. On the other hand it is not necessarily the case that all or any present participles, for example, share any tense or aspect properties with other categories derived from the present tense-aspect stem such as finite verbs. Individual forms or even entire morphological categories often develop independently, leaving shared morphology a semantically meaningless relic.⁶⁰ It could be, for example, that the present and perfect participles parallel finite forms precisely, but the aorist participles have undergone a particular idiosyncratic development which has separated them from corresponding finite forms, leaving their aorist tense-aspect stem morphology no more than a historical oddity (or at least functionally distinct from the tense-aspect stem morphology of finite verbs). This possibility does not seem to have been sufficiently taken into account by recent semantic analyses of tense and aspect in the *Ṛgveda* such as that of Dahl (2010), who assumes rather too easily that a given tense-aspect stem will have a unified range of meaning across all the categories in which it appears.

However it cannot even be claimed that the tense-aspect properties of the finite verbal stems of the *Ṛgveda* have been definitively established.⁶¹ Table (3.2) shows the tense and aspect properties attributed to the *Ṛgvedic* present and past tenses by Kiparsky (1998),

⁵⁹But see the discussion below.

⁶⁰In English, for example, the past tense morphology on the non-past modal verb *must* is an obsolete relic, and likewise on the modal verbs *would*, *should* and *could*, which can now only marginally have past tense reference. Cf. §5.1.2 below.

⁶¹For an overview of different approaches to tense and aspect in Vedic, see Dahl (2010, p.4–27).

while (3.3) shows the same as analysed by Dahl (2010).⁶²

Table 3.2: Ṛgvedic tense-aspect according to Kiparsky (1998)

Present	Imperfect	Perfect	Aorist
$E \subseteq R, P \subseteq R$	$E \subseteq R, R \prec P$	$E \prec R, P \subseteq R$	$E \prec R_r, P \subseteq R$

Table 3.3: Ṛgvedic tense-aspect according to Dahl (2010)

Present	Imperfect	Perfect	Aorist
$E \otimes R, P \subseteq R$	$E \otimes R, R \prec P$	$E \prec R, P \subseteq R$	$E \subseteq R, R \prec P$

While Kiparsky and Dahl agree on the tense reference of the present, imperfect and perfect, they disagree on the aorist, with Kiparsky treating it as referring to present time but Dahl to past time. The differences are more marked in their aspectual analyses, with Kiparsky treating the present and imperfect as basically perfective (which for him is the unmarked aspectual relation) while Dahl treats them as representing neutral aspect.⁶³ Their treatment of the aspect of the perfect is almost identical, the only difference being Dahl's use of the \preceq relation to indicate 'partial' precedence. On the aorist they differ again: while Dahl argues the aorist displays simple perfective aspect, Kiparsky argues that it displays anterior aspect, like the perfect, but in two restricted contexts, the recent past and resultative readings.

It is not our task here to analyse the tense and aspect properties of the entire Ṛgvedic verbal system; however in analysing the temporal and aspectual properties of participles we must try to relate this to the wider question of tense and aspect within the verbal system as a whole, to see whether one analysis of Ṛgvedic tense and aspect permits us to account for the properties of participles more adequately than another.⁶⁴

⁶² R_r is used by Kiparsky to refer to the recent past and resultative readings, characteristic of the Vedic aorist.

⁶³Note that they both assume that the present and imperfect must have identical aspectual properties due to their shared tense-aspect stem.

⁶⁴Besides the work of Kiparsky and Dahl there have been many recent discussions and analyses of the Ṛgvedic verbal system, in particular the past tenses; among others see Kümmel (2000a), Mumm (2002) and more widely on Indo-Iranian Skjaervø (2009, p.126–145). The analysis of Tichy (1997) contrasts with the view assumed here in that she sees the difference between the imperfect and aorist primarily in terms of remoteness and not aspect already in Vedic; however I see no justification for this in the *Ṛgveda* at least. I have focused on Kiparsky's and Dahl's approaches here because they formalize their analyses in time-relational terms.

3.5.1 Present participles

Present participles are built to the present tense-aspect stem, which is also shared by finite present and imperfect tense verbal forms. On the basis of the Indian grammatical tradition and the comparative evidence of related Indo-European languages, it would be a fair assumption that the present tense-aspect expresses imperfective aspect. However Kiparsky (1998) treats the present stem as unmarked, adopting perfective aspect by default, while Dahl (2010, p.163–261) argues that the present indicative denotes the neutral aspect, with four specific readings: progressive-processual, iterative-habitual, completive-sequential and performative. These analyses are based on the recognition that not all present tense-aspect verb forms in the *R̥gveda* can easily be interpreted as imperfective. In particular the imperfect rarely if ever expresses imperfective aspect, primarily expressing rather the remote or relative past. Dahl (2010, 2011a) claims that the imperfect can be interpreted imperfectively in some contexts, and that it can be united under a single tense-aspect with the present on the assumption of the ‘neutral’ aspect. Other authors, however, have rather accepted the fact that the imperfect and present do not share the same aspectual properties (Hoffmann, 1967; Tichy, 1997) and that consequently the present tense-aspect stem as such no longer makes a single unified semantic contribution to the meaning of the verb forms with which it is found.

The majority of present participles can be interpreted as expressing imperfective aspect. This is particularly clear with the large number of present participles expressing concomitance, i.e. a purely temporal-aspectual relation between participle and main verb (ex. 3.82), and also applies to all adnominal uses of present participles (ex. 3.83), as discussed above.

(3.82) *yáḥ śámbaram párvateṣu kṣiyántaṃ*
catvāriṃśyáṃ śarády anvávindat (RV 2.12.11ab)

‘He who found Śambara in the fortieth year
as he was dwelling in the mountains.’

(3.83) *ghṛṇá tápantam áti sūryam paráh*
śakuná iva paptima (RV 9.107.20cd)

‘Past and beyond the sun, *burning* with heat
we have flown like birds.’

On the other hand it would be equally possible to interpret all such examples as expressing relative present time as well as imperfective aspect, rather than purely the latter. If participles could adopt the event time of the main verb as the *perspective* time of their own eventuality rather than the reference time, then the expression of present time, $P \subseteq R$, is equivalent to and not clearly distinguishable from the expression of imperfective aspect, $R \subseteq E$. Moreover this is exactly how we assume subordinate clauses containing finite verbs acquire their temporal reference, i.e. defining their perspective time, not their reference time, on the basis of the event time of the verb in the main clause. To the extent that participial clauses are at least similar to embedded subordinate clauses, we cannot simply assume that participles express purely aspect when the expression of present time (combined with imperfective aspect) is indistinguishable. From a formal point of view it is perhaps a moot point in relation to the present participle, since $P \subseteq R \subseteq E$ where $P = E_{\text{main}}$, i.e. present tense and imperfective aspect, is equivalent to $R \subseteq E$ where $R = E_{\text{main}}$, i.e. purely imperfective aspect; the difference would, however, be significant with respect to other combinations of tense and aspect.

Since it makes little difference here, for the time being we will continue to work with the traditional assumption that participles at least primarily express aspect rather than relative tense. As we have seen this is not only adequate to explain the semantics of the present participles we have seen so far, but it also allows us to define the verbal tense-aspect stem as a purely aspectual marker while analysing the augment and primary verbal endings as tense markers. The question will be discussed in more detail below.

Imperfective aspect (or present tense) used with a telic verb can express iteration over a period of time.⁶⁵ This is commonly found with epithetic participles and some restrictive participles, where the present participle expresses a characteristic action or activity of the subject, whereas with atelic verbs such epithetic and restrictive participles express a permanent characteristic.⁶⁶

⁶⁵This iteration can be made explicit by the addition of temporal adverbs such as *divé-dive* ‘day by day’; Dahl (2010, p.256–258) gives examples of this.

⁶⁶Dahl (2011b, p.289) argues that the present participle is primarily progressive, not habitual in Vedic, Iranian, Ancient Greek and therefore Indo-Iranian; I find little to support this supposition in the *Ṛgveda* at least.

(3.84) *prá suṣṭutí stanáyantaṃ ruvántaṃ*
ilás pátiṃ jaritar nūnám aśyāḥ (RV 5.42.14ab)

‘May the praise song now reach, O singer,
the *thundering, roaring* lord of refreshment.’

In this passage the present participle *stanáyant-* of the telic verb \sqrt{stan} ‘thunder’ may refer either or both to a characteristic, iterated, activity of thundering, or to a present ongoing thundering, which must necessarily consist of a repeated series of individual thunders.⁶⁷ In ex. (3.83) on the other hand the present participle *tápant-* of the durative root \sqrt{tap} ‘be hot, heat’ indicates a permanent characteristic of its subject.

The expression of manner, attendant circumstance, equivalence, cause and concession with present participles all depend on the same temporal/aspectual properties of the present participle as does the expression of concomitance: the temporal extent of the eventuality expressed by the main verb is conceived of within or equal to the temporal extent of the eventuality expressed by the present participle (cf. the examples above).

On the other hand the expression of means, described above, usually requires that the eventuality expressed by the participle is completed before the eventuality expressed by the main verb, or at least that it is bounded by it.

(3.85) *bhinád giríṃ sávasā vájraṃ iṣṇán* (RV 4.17.3a)

‘He broke open the mountain, (*by*) *sending his bolt* (against it) with might.’

(3.86) *ṛtám yatí sarámā gá avindat* (RV 5.45.7c)

‘(*By*) *going on* the right path, Saramā found the cows.’

If we assume that the temporal relation between the two eventualities in passages like these is such that the temporal extent of the participle is bounded at one side by the accomplishment of the main verb, then the imperfective relation $R \subseteq E$ can still hold. On the other hand it would be possible to see here evidence in favour of Dahl’s (2010) claim that the present tense-aspect expresses the neutral aspect, which could include both imperfective and perfective readings. However given the relative rarity of examples such as these in comparison with the vast majority of uses of the present participle where imperfectivity is

⁶⁷The existence of a root aorist suggests the telic nature of this verb, cf. Narten (1964, p.275–276).

3.5.2 Stative participles

The status of the stative as a distinct tense-aspect has been discussed above (§1.4.3, p.19f.). Nevertheless its semantic and functional proximity to the present, which led to the replacement of the specifically stative endings (e.g. 3sg. *-e*, RV *śáye*) with the ordinary present endings (e.g. 3sg. *-te*, TB *śéte*), is clear in the functionality of the stative participles.

Like present participles, stative participles express an eventuality with imperfective aspect and potentially present tense. However the type of eventuality expressed by statives is naturally more restricted. In expressing only states, statives can only express an eventuality which extends throughout the time period referred to; since no stative verb stem is telic, no iterative or conative inferences are possible. Moreover, because stative verbs are non-dynamic, the expression of semantic relations such as manner, purpose, cause, means and so on are considerably rarer.

Stative participles therefore appear to be more semantically restricted than present participles. They are found in adnominal functions (ex. 3.88), and in adverbial function expressing concomitance (ex. 3.89), contingency (ex. 3.90); rarely semantic relations such as cause can be marginally inferred, as in ex. (3.91).

(3.88) *áheḷatā mánasā śruṣṭím á vaha*
dúhānām dhenúm pipyúṣīm asaścátam (RV 2.32.3ab)

‘Bring hither with unhostile mind the willing
milk-giving, swelling, unrivalled cow.’

(3.89) *divyá ápo abhí yád enam áyan*
dṛtim ná súṣkam sarasí śáyānam (RV 7.103.2ab)

‘When the divine waters came upon him,
as he was lying like a dried bag in the lake.’

(3.90) *śrudhí hávam á huvató huvānáḥ* (RV 6.21.10c)

‘Hear the call of the one calling, *when you are called upon.*’

(3.91) *gṛṇāná indra stuvaté váyo dhāḥ* (RV 4.17.18b)

‘*Since/while you are now being praise-welcomed,*
 Indra, give strength to the praiser.’

Apart, then, from the semantic restrictions arising from the nature of the stative tense-aspect, these participles have essentially the same semantic properties as present participles, expressing imperfective aspect and potentially present tense.

3.5.3 Aorist participles

The precise semantic properties of the aorist tense-aspect in the *R̥gveda* are controversial. The indicative aorist is generally agreed to have at least two readings, recent past and relative anteriority, and possibly also a ‘statement of fact’ reading. It is more controversial whether the aorist can have a simple past time reference, used e.g. to advance narrative, a function usually associated with the imperfect. As noted above, Kiparsky (1998) analysed the aorist as a present anterior category with a restricted set of readings, denoted by the properties $P \subseteq R$ and $E \prec R_r$. In contrast Dahl (2010, p.263–341) treats the aorist according to its supposed inherited value, as a strictly past perfective category, with the features $R \prec P$ and $E \subseteq R$. On the evidence of finite verb forms in the *R̥gveda* Kiparsky’s analysis is certainly to be preferred to Dahl’s, although his ad hoc representation R_r leaves something to be desired. It may be possible to improve on Kiparsky’s analysis by proposing the relations $R \subseteq P$ and $E \prec R$ for the *R̥gvedic* finite aorist, where the inclusion of reference time within the perspective time directly results in the recent past and relative anteriority readings.⁷⁰

On the other hand the temporal and aspectual semantics of the aorist participle are equally controversial but in distinctly different ways. Dahl (2010, p.336–337) argues that the aorist participle follows the finite aorist in being essentially perfective, saying that “Aorist Participle forms of telic predicates either unambiguously express that a situation has been terminated prior to the reference time of the sentence or are perfectly compatible with this interpretation.”⁷¹ This contrasts considerably with the analysis of Tikkanen (1987, p.106, 113), who argues that the aorist participle has primarily a present time reference (\approx imperfective), but may have relative past time reference in combination with ingressive

⁷⁰Because the time referred to is ‘right now’ relative to P, which itself is either equal to S, the speech time (for recent past) or to the event time of the main verb (for relative anteriority). I am not aware that the relation $R \subseteq P$ has ever previously been proposed or utilized.

⁷¹Dahl says that aorist participles to atelic predicates are extremely rare in the *R̥gveda*; when this does happen he admits there can be an indication of temporal overlap, though he does not indicate how this fits with the supposedly perfective nature of the aorist participle.

cakṛmā ‘we have made’; translating the participle with a perfective/anterior sense provides a better interpretation than simply taking it as though it were a present.⁷³ Likewise in at least three of its four occurrences *sádant-* refers to a completed event in the past relative to the time of the main verb (exx. 3.95, 3.96).⁷⁴

- (3.94) *ádhā ha yád vaṃám agne tvāyá
paḍbhír hástebhiś cakṛmā tanúbhiḥ
rátham ná kránto ápasā bhuríjor
ṛtám yemuḥ sudhya āśuṣāṇáh* (RV 4.2.14)

‘Now what we, O Agni, through desire for you
have made with our feet, our hands, our bodies,
having made as it were a chariot by the work of our hands,
those of good thought have sought and obtained truth.’

- (3.95) *tád ín nv àsya pariśádvāno agman
purú sádanto nārṣadám bibhitsan* (RV 10.61.13ab)

‘Then came his besiegers;
having (previously) besieged many (cities) they desired to break Nārṣada.’

- (3.96) *sukármāṇaḥ surúco devayántó
’yo ná devá jánimā dhámantaḥ
śucánto agníṃ vavṛdhánta índram
ūrvám gávyam pariśádanto agman* (RV 4.2.17)

‘The (Aṅgiras) of good works, well-shining, who serve the gods,
like gods smelting like iron the races (of men),
bright, who increase Agni (and) Indra,
who besieged the cow enclosure, have come.’

A few aorist participles appear to be functionally equivalent to perfect participles derived from the same root, which likewise supports a perfective or anterior interpretation of the aorist participle. The aorist participle *budhāná-* in ex. (3.97) has essentially the same meaning, in an almost identical context, as the perfect participle *bubudhāná-* in ex. (3.98).

- (3.97) *eṣá syá kārúr jarate sūktáir
ágre budhāná uśásām sumánmā* (RV 7.68.9ab)

‘This poet sings with well-spoken (words),
having awoken at the head of the dawns with good intent.’

⁷³As e.g. Geldner (RV, v.1, p.418): “wie die, die einen Wagen machen.”

⁷⁴The other clear example is at 7.70.3c.

- (3.98) *dadhikrāvāṇam bubudhānó agnīm*
úpa bruva uśásam sūryam gā́m (RV 7.44.3ab)
 ‘*Having awoken* (early) I call on Dadhikrāvan, Agni,
 the dawn, the sun, the cow.’

Likewise *yujāná-* is semantically equivalent to the perfect participle *yuyujāná-*, as seen in the following examples from adjacent verses of the same hymn.

- (3.99) *antár īyase aruṣá yujānó*
yuṣmā́mś ca devā́n vísa á ca mártān (RV 4.2.3cd)
 ‘*Having yoked* your two ruddy steeds, you speed between
 you gods and the mortal settlements.’

- (3.100) *ihá tvám sūno sahaso no adyá*
jātó jātáṁ ubháyāṁ antár agne
dūtá īyase yuyujāná ṛṣva
ṛjumuṣkān vṛṣanaḥ súkrā́mś ca (RV 4.2.2)
 ‘Here you, today, son of might, for us
 born, between both races (human and divine) O Agni
 you speed as messenger, *having yoked*, O great one,
 your masculine and bright bulls.’

Thus far the aorist participles we have seen could all support either the past perfective reading of the aorist ($E \subseteq R$ and/or $R < P$) or the present anterior reading ($E < R$ and/or $R \subseteq P$) proposed above. However there are equally many aorist participles which appear to be equivalent to present participles, which as we have seen express imperfective aspect.

- (3.101) *áhiṁ yád vṛtrám apó vavrivā́msam*
hánn ṛjīṣin víṣṇunā sacānáḥ (RV 6.20.2cd)
 ‘When you, O *rjīṣin*, *accompanied* by Viṣṇu slew
 the snake Vṛtra who had covered the waters.’

The participle *sacāná-* ‘being accompanied’ can only express an eventuality with imperfective aspect in relation to the eventuality of the main verb. It is semantically equivalent to some instances of the class 1 present participle of the same root, *sácamāna-*, as in the following example.⁷⁵

⁷⁵Participles and finite forms of the class 1 present can also have agentive-transitive sense ‘follow, accompany X’; cf. e.g. the participle at 9.96.19c. On this root see e.g. Gotō (1987, p.319–320), Kümmel (2000a, p.538–541).

(3.102) *árāvīd aṃśúḥ śacamāna ūrmīṇā* (RV 9.74.5a)

‘The filament has roared, *accompanied* by the wavy one.’

In contrast to the apparently clear equivalence between *yujāná-* and *yuyujāná-* exemplified in exx. (3.99, 3.100) above, one example of *yujāná-* appears in parallel with a present participle, apparently expressing equivalence with a non-past finite form of the same stem.

(3.103) *áto vayám antamébhīr yujānáḥ*
svákṣatrebhis tanvāḥ śumbhāmānāḥ
māhobhīr étāṃś ūpa yujmahe nú (RV 1.165.5a-c)

‘And we, *yoking* (the chariots) with the nearby independent (horses), gleaming with our bodies, now yoke these (chariots) with the great (horses).’

The two uses of \sqrt{yuj} in this verse appear to be referring to the same event, the accusative object ellipsed in the participial clause but the same instrumental adjunct explicit in both. This makes an anterior or past perfective reading of the participle less likely; the most natural way to interpret the participle is as imperfective: ‘*in our present yoking of the horses...* we now yoke the chariots with them’ (elaboration function).

Just as we saw no clear difference between *budhāná-* and *bubudhāná-* in exx. (3.97, 3.98) above, there is no clear evidence for a semantic difference between the aorist participles *urāná-* (to $\sqrt{vṛ}$ ‘choose’) and *ṛcāná-* (to $\sqrt{ṛc}$ ‘mix’) in exx. (3.104) and (3.106) and their corresponding present participles *vṛṇāná-* and *samṛñcāná-* in exx. (3.105) and (3.107) respectively.⁷⁶

(3.104) *īduḥ punānáḥ prajā́m urānáḥ*
kárad víśvāni dráviṇāni naḥ (RV 9.109.9ab)

‘The purified drop, *choosing* offspring will make all goods for us.’

(3.105) *apó vṛṇānáḥ pavate kavīyán* (RV 9.94.1c)

‘*Choosing* the waters he flows, acting like a Kavi.’

⁷⁶Delbrück (1888, p.381) specifically noted the pair of participles in exx. (3.106) and (3.107) as semantically equivalent. An argument could be made for an aspectual difference between them, but in my opinion this would involve reading into the texts more than is there.

(3.106) *ádha dhárayā mádhvā pṛcānás*
tiró róma pavate ádrīdugdhāḥ (RV 9.97.11ab)

‘And *mixing* with the stream, with the honey,
the stone-milked one flows across the hair.’

(3.107) *tveṣám rūpám kṛṇuta úttaram yát*
sampr̥cānāḥ sádane góbhir adbhīḥ (RV 1.95.8ab)

‘He adopts his mighty form, which is his best,
when he mixes with the milk and water in his seat.’

There is no way to interpret *úhāna-* in ex. (3.108) as anything other than imperfective. Similarly, although *prathānā-* in ex. (3.109) is somewhat less unambiguous it too is best interpreted as specifically imperfective.

(3.108) *indrāgnyór ánu vratám*
úhānā yanti síndhavaḥ (RV 8.40.8cd)

‘According to the ordinance of Indra and Agni
the rivers go travelling.’

(3.109) *váhanti sīm aruṇáso rúsanto*
gávaḥ subhágām urviyá prathānám (RV 6.64.3ab)

‘The ruddy shining cows carry her,
the blessed one *as she spreads* widely.’

Even the two *s-*aurist participles, the only aurist participles built to this marked aurist stem in the *R̥gveda*, show no obvious perfectivity or anteriority, but rather suggest an imperfective interpretation.

(3.110) *dákṣan ná vísvam tatṛṣṇānám oṣati*
ny àrśāsānám oṣati (RV 1.130.8fg)

‘As though *burning* everything he (Indra) scorches the thirsty one,
he scorches up Arśāsāna.’

(3.111) *yás tvám agna inádhate yatásruk*
trís te ánnaṃ kṛṇávat sásmin áhan
sá sú dyumnáir abhy àstu prasákṣat
táva krátvā jātavedas cikitván (RV 4.12.1)

‘He who will kindle you, O Agni, with ladle raised,
(who) thrice will make you food on this day;

may he excel with splendour, *being a conqueror,*
wise through your mental power, Jātavedas.’

Moreover apparent similarities between aorist and perfect participles may be deceptive. According to Migron (1990, p.128) the aorist participle *juṣāṇá-* and the perfect participle *jujuṣāṇá-* are semantically identical; Migron uses this assumption in support of an argument that the root means not ‘taste, enjoy’ but rather ‘choose’ in the *R̥gveda*. Superficially their use does appear identical. The majority of examples of both *juṣāṇá-* and *jujuṣāṇá-* occur with imperative main verbs, usually ‘come’ or ‘drink’; when the participle has an object, it is either the pressing, offering or sacrifice being made, or the invocation or praise of the deity. The sequence of events conceived of was presumably as follows: the god hears the invocation, prayer or praise, decides to come to the sacrifice or offering, comes, partakes, and in partaking tastes and hopefully takes pleasure in it. Therefore if the participles mean ‘taste, enjoy’, then they could precede the action of the main predicate when their object is an invocation or praise, but when it is the sacrifice or pressing they can only follow the commanded action of coming or drinking. If however the root means ‘choose (to favour)’, then the action of the participle can always precede that of the predicate, since the choosing of either the offering or praise can precede the coming or drinking. Since the eventualities expressed by perfect participles have to be interpreted as preceding their predicates (see below), the root could appear to mean ‘choose’. However, a closer look at the aorist and perfect participles reveals a difference between them: aorist participles are found with both kinds of object, but the perfect middle participles only with objects of invocation, praise etc. The aorist participles, then, can be given a non-past sense, which in context appears to be the expression of purpose: ‘come/drink and (i.e. in order to) taste/enjoy the offering/praise’; on the other hand the perfect participles occur only with reference to a prior action: ‘having enjoyed the invocation/praise... come’.⁷⁷ Therefore there is a clear functional distinction between the perfect and aorist middle participles of $\sqrt{juṣ}$, which not only supports the traditional meaning assigned to the root, but also shows that superficially similar aorist and perfect participles can in fact have distinctly different temporal-aspectual properties.

⁷⁷There is one passage where a perfect participle occurs with the g. object *ándhasas* ‘(Soma) juice’, at 2.36.3cd (ex. 3.114 below), but here also the imperative is different: *mandasva* ‘rejoice’, which logically can follow the tasting.

(3.112) *á no devébhīr úpa deváhūtim*
ágne yāhī váṣaṭkr̥tim juṣāṇáh (RV 7.14.3ab)

‘Come O Agni with the gods to the divine oblation
and enjoy the cry of ‘*vaṣaṭ*.’

(3.113) *hávaṃ devī jujuṣāṇá ghṛtácī*
śagmām no vácam usatī śṛṇotu (RV 5.43.11cd)

‘Let the goddess, *having enjoyed* the invocation, turned to the ghee,
willingly hear our mighty speech.’

Similarly, although the weight of evidence favours the semantic identity proposed above between *budhāná-* and *bubudhāná-*, it would not be impossible to interpret the aorist participle as equivalent to a present participle, e.g. as ‘awaking’ in ex. (3.97) above. Other examples of aorist participles with apparent imperfective aspect are less clear since they can be interpreted as perfective or anterior to telic roots, e.g. *píyāna-* ‘swelling’ at 1.79.3a (< ‘having swollen’), *guhámāna-* ‘hiding’ at 4.1.11c (< ‘having hidden’), *jásamāna-* ‘tired’ at 1.112.6a and 7.68.8a (< ‘having become tired’).

It is not hard to see why tense-aspect properties of aorist participles are controversial. The evidence presented above supports almost equally an imperfective and a perfective reading of the aorist participle; moreover in many though not all instances the ‘perfective’ reading could equally be an anterior one. It is even possible to obtain the equivalent of a perfective reading from the present anterior properties of the aorist discussed above. If, as I proposed above, the recent past and resultative readings of the indicative aorist can be obtained by positing the tense relation $R \subseteq P$, then if the aorist participle could express tense rather than simply aspect, adopting its perspective time rather than reference time from the main verb, it can be seen that the relation $R \subseteq P$ is equivalent to the perfective relation $E \subseteq R$. This would be parallel to the possibility discussed above that the present participle could express not just imperfective aspect but relative present tense $P \subseteq R$, which in context is equivalent to pure imperfective aspect $R \subseteq E$.

Even so it is not possible to account for both the imperfective and perfective/anterior readings of the aorist participle by means of one unified tense-aspect property which could be attributed to the aorist stem. This is not, in fact, surprising when we recall that the

aorist participles of the *R̥gveda* are unexpectedly infrequent, and are almost entirely absent from later Vedic and Classical Sanskrit. As an obsolescent category, which quite probably survived longer in the archaizing language of the Vedic poets than in the contemporary spoken language, some confusion as to its semantics is only to be expected. We might suppose, for example, that the historically ‘correct’ reading of the aorist participle is with perfective or anterior aspect, but that due to its increasing obsolescence (due perhaps to competition from the perfect participle and absolutive) it was increasingly used ‘incorrectly’ like the present participle (with which it shared both active and mediopassive suffixes) until finally abandoned as a superfluous category.

Despite our inability to define the semantics of the aorist participle in terms of a single tense or aspect property, or even a single unified combination of the two, what we have seen of the aorist participle’s semantic range does contribute to our overall understanding of the semantics of the participial system as a whole. In contrast to the present participles seen above, the evidence does not support a one-to-one correspondence between the aorist tense-aspect stem as used in finite verbal forms and as used in the non-finite participles. If we want to think of participles as inflectional forms of verbs which preserve verbal features, we must admit that the aorist participle does not (always) display the tense-aspect features found in the finite verb, as we might expect it to do. Whether this is true only of aorist participles, due perhaps to their obsolescence, or more generally true (if to a lesser degree) of participles as a category, will be discussed further when we have examined the semantic properties of the perfect and future participles.

3.5.4 Perfect participles

As described by Kümmel (2000a, p.65–78), there are two semantically distinct types of perfect in the *R̥gveda*, depending on the type of verb from which the perfect is formed.⁷⁸ The first is the stative-like perfect (Kümmel’s “Perfekt als Aktionsartkategorie des erreichten Zustands”), which is common but no longer productive. It consists of the category

⁷⁸Kümmel’s assumptions regarding the diachronic development of the perfect tense from Proto-Indo-European are not necessary for accepting his synchronic analysis of the Vedic perfect: the Vedic situation could equally derive, for example, from a perfective stative category as proposed by Willi (2007). On the Vedic perfect see also Renou (1925), Di Giovine (1990a,b), Mumm (2002).

of “lexikalisierte Perfektopräsentien,” which function essentially as present stems, not in opposition to an actual present stem, and the category “naktostatische Oppositionsperfekte,” which refer to present time with respect to a completed action and do stand in opposition to present and aorist stems. The second group is the past perfects (Kümmel’s “Perfekt als Tempuskategorie mit Vergangenheitsbezug”) which to a greater or lesser extent refer to an action as completed in the past, usually but not always with present reference. Kümmel’s distinctions between the different perfect types are based on whether the emphasis is on the present state or time, or on the completion of the action in the past. But all these different readings can (potentially at least) be captured with reference to a single set of tense-aspect properties.

Kiparsky (1998) and Dahl (2010) almost fully agree on the tense-aspect properties of the perfect. It has present tense value, $P \subseteq R$, and anterior aspect, $E \prec R$.⁷⁹ With past perfect stems, the anterior aspect is semantically more salient than the present tense, and indeed this may be the first stage of the development of a simple past value of the perfect seen in later Vedic (Dahl, forthcoming a), by loss of reference to a state. With the “naktostatische Oppositionsperfekte” both present tense and anterior aspect are equally salient. For the present perfects (“lexikalisierte Perfektopräsentien”) on the other hand it is the present tense which is most salient. In these stems the anterior aspect $E \prec R$ is being lost, the eventuality referred to being reinterpreted as the state holding at the reference time R rather than the eventuality which resulted in entry to that state. This ultimately becomes equivalent to the simple present ($R \subseteq E$ and $P \subseteq R$), and indeed many of these present perfects were reinterpreted as presents and given present tense morphology, beginning in the *R̥gveda* and continuing into later Vedic.

It should be noted that the participles of the two major types of perfect distinguished by Kümmel (2000a) are not equally represented in the corpus. The stative perfect stems, despite being considerably fewer than the past perfect stems, have a significant majority in terms of number of participle tokens in the text. There are 158 distinct perfect participle stems in the *R̥gveda*, with a total of 900 individual tokens. But 56% of these occurrences are

⁷⁹As noted above, Dahl (2010) specifies the aspect of the perfect as $E \preceq R$; for our purposes the difference can be ignored.

found with only the twenty (12.7%) most frequent stems.⁸⁰ The eight most frequent stems (5%, the stems with more than twenty occurrences) provide 36% of the total occurrences of perfect participles in the *R̥gveda*; the top three (<2%) provide 24.6% and the most frequent, *vidváms-*, provides over 13%. Eight of the ten most frequent stems are among those listed by Kümmel (2000a, p.69–71) as stative perfects, including the top three. Therefore although the majority of perfect stems are of the past perfect type (and indeed this type may be the only synchronically productive type in the *R̥gveda*), the majority of participles are of the stative type. The data for the ten most frequent perfect participles is summarized in table (3.4).

Table 3.4: The ten most common perfect participles

	Stem	Tokens	% of total	Type
1.	<i>vidváms-</i>	120	13.3%	Stative
2.	<i>cikitváms-</i>	56	6.2%	Stative
3.	<i>vāvr̥dhāná-</i>	45	5%	Stative
4.	<i>jajñāná-</i>	26	2.9%	Past
5.	<i>śásamāná-</i>	26	2.9%	Stative
6.	<i>vāvaśāná-</i>	25	2.8%	Stative
7.	<i>tasthiváms-</i>	25	2.8%	Stative
8.	<i>dīdiváms-</i>	20	2.2%	Stative
9.	<i>pīpiváms-</i>	20	2.2%	Stative
10.	<i>jaghanváms-</i>	18	2.0%	Past

In terms of the contextual semantics of perfect participles, there is a clear distinction between the two types of perfect stem. Those with a present stative sense function very much like present participles and can share many of the same functions, while the participles built to the properly present anterior stems are functionally much more restricted, tending to express only the temporal relation between two activities (i.e. preterity).

Past Perfect Participles

As stated above, past perfect participles most commonly express a purely temporal relation with their main verbs, and the present tense value of the perfect is relatively backgrounded.

(3.114) *áthā mandasva jujuṣāṇó ándhasas*
tváṣṭar devébhīr jānībhiḥ sumádgaṇaḥ (RV 2.36.3cd)

⁸⁰These twenty being the only stems with more than ten occurrences in the RV.

‘Now rejoice, *having enjoyed* the juice,
O Tvaṣṭṛ, accompanied by the gods and their wives.’

(3.115) *áhiṃ cid ugra práyutaṃ śáyānaṃ*
jaghanvám̐ indra táviṣīm adhatthāḥ (RV 5.32.2cd)

‘*You struck* the snake, o fierce one, who was
lying stretched out, Indra, and assumed your might.’

(3.116) *ny étaśaṃ rīramat sasṛmānám* (RV 4.17.14b)

‘He stops Etaśa, *who had set off*.’

Such participles can occur with temporal adverbs, which serve to make clear the temporal sequence (ex. 3.117). Occasionally such participles are also found expressing specific semantic relationships, such as *cause*, possibly seen in exx. (3.118, 3.119).

(3.117) *ád it paścá bubudhāná vy àkhyan* (RV 4.1.18a)

‘Then, after *having awoken*, they saw (it).’

(3.118) *rāyá vayám sasavámso madema* (RV 4.42.10a)

‘With wealth we would rejoice, *since we have conquered*.’

(3.119) *mandānáḥ sómam papivám̐ r̥jīṣin*
sám asmábhyam purudhā gá iṣanya (RV 3.50.3cd)

‘*Having become exhilarated, having drunk* the Soma, O r̥jīṣin,
impel to us cows in abundance.’

Stative Perfect Participles

When expressing purely temporal-aspectual relations, stative perfect participles express concomitance, just like present and stative participles.

(3.120) *vísve devá anamasyan bhīyānás*
tvám agne támasi tashivám̐sam (RV 6.9.7ab)

‘All the gods, fearing, paid homage to you,
Agni, *as you stand* in darkness.’

- (3.121) *tām tvā viprā vipanyávo*
jāgrvámsaḥ sám indhate
havyaváham ámartyaṃ sahovídham (RV 3.10.9)

‘The poets, inspired and *awake*
 kindle you, the oblation conveyor,
 the immortal increaser of strength.’

Relative to the past perfect participles, stative perfect participles are found in a wider variety of contextual functions, but more restricted than present participles, as with the (non-perfect) stative participles. Ex. (3.122) shows a perfect participle expressing *manner*;⁸¹ ex. (3.123) shows a participle expressing *cause*, ex. (3.124) one expressing *means*, and ex. (3.125) expressing *conjunction*.⁸² If a wider range of contextual functions are found with these stative perfect participles than was observed with the stative participle, this is likely to be a result merely of the greater frequency of the former.

- (3.122) *á tá sūrīḥ pṛṇati tútujāno*
yūthévāpsú samíjamāna úť (RV 6.29.5cd)

‘The patron fulfills these (wishes) *eagerly*,
 gathering them like a flock in the waters with his help.’

- (3.123) *ápoṣā ánasaḥ sarat*
sámpīṣṭād áha bibhyúṣī (RV 4.30.10)

‘Uṣas slipped away from the crushed
 wagon, *because she was afraid*.’

- (3.124) *áthā devánām ubháyasya jánmano*
vidváñś asnoty amúta itás ca yát (RV 9.81.2)

‘And *by knowing* both races of the gods,
 he obtains what is from there and here.’

- (3.125) *rāyáḥ sūno sahaso vāvasāná*
áti srasema vṛjánaṃ náṃhaḥ (RV 6.11.6cd)

‘*May we be clothed* in riches, son of might,
 and proceed beyond constriction, as it were (beyond) an enclosure.’

⁸¹On this participle cf. Kümmel (2000a, p.221–222) who suggests it may already be lexicalized as an adjective.

⁸²Furthermore ex. (4.55), p.248, shows a perfect participle expressing *contingency*.

‘That good thing which you, O Agni,
intend to do for the worshipper,
 that very thing of yours is [i.e. comes] true, O Aṅgiras.’

In this verse the future verb form is clearly stronger than a corresponding subjunctive would be; a subjunctive here would be translated rather ‘what(ever) good you *may* do...’. The future verb does not express an inevitable future occurrence in contrast to a possible future expressed by the subjunctive (if it did the last pāda here would be somewhat pointless), but expresses a definite intention on the part of the subject to bring about the eventuality expressed by the verb. However this definite intention does at the same time imply a more certain future occurrence than the subjunctive, at least from the perspective of the subject.⁸⁵ At the same time the future here is clearly distinct from a desiderative, which would similarly express the subject’s volition in regard to bringing about the eventuality but would not be so definite about its likely occurrence.⁸⁶

The semantic difference between the future and the desiderative is clear also in the participle, particularly where both are attested to the same root, as *haniṣyánt-* and *jíghāṃsant-*, respectively future and desiderative participles to the root \sqrt{han} ‘strike, slay’.

(3.127) *áthābravīd vṛtrám índro haniṣyán* (RV 4.18.11c)

‘Then spoke Indra, *intending/about to slay* Vṛtra.’

(3.128) *drúhaṃ jíghāṃsan dhvarásam anindrāṃ*
tétikte tigmā tujáse ánīkā (RV 4.23.7ab)

‘*Desiring to slay* the destructive, un-Indric lie,
 he sharpens the sharp (spear-)tips for hurt.’

In ex. (3.128) the temporal reference of the desiderative participle is clearly to the present relative to the event time of the main verb: it expresses the mental cause behind the action of sharpening the spear-tips. The future participle in ex. (3.127) refers to a more immediate and certain future: there is both a sense of present intention and at the same time reference to the actual impending slaying of Vṛtra.

⁸⁵The close relation and even unclear distinction between intention and certain future can be observed also in the English future with *will*.

⁸⁶The difference between intention and desire can be seen in English in that only the latter is compatible with an eventuality of which the future occurrence is denied: ‘*I desire/want to go but can’t*’ vs. *‘*I intend to/will go but can’t*’.

Although in most instances there is no indisputable difference between *saniṣyánt-* and *síṣāsant-*, respectively future and desiderative participles of $\sqrt{\text{san}}$ ‘win’, in at least one case (ex. 3.129) the future participle, like *haniṣyánt-* above, seems to refer more definitely to the firm intention of the subject and the likely future occurrence of the eventuality than is ever found with the desiderative (ex. 3.130).⁸⁷

(3.129) *nū márto dayate saniṣyán* (RV 7.100.1a)
 ‘Now the mortal *who intends to win* makes a distribution.’

(3.130) *apáḥ síṣāsan svàr ápratīto*
bṛhaspátir hánty amitram arkaíḥ (RV 6.73.3cd)
 ‘*Desiring to win* the waters, the sun, unconquerable
 Bṛhaspati strikes hatred with his rays.’

Similarly, in the following passage it would be inappropriate to replace the future participle with a corresponding desiderative stem. The reason is that the future tense-aspect refers not simply to the desire to achieve the eventuality referred to by the verbal root, but to the actual process, mental or physical, of undertaking to bring it about.

(3.131) *ví jihīṣva vanaspate*
yóniḥ súṣyantyā iva (RV 5.78.5ab)
 ‘Split yourself apart, O Vanaspati,
 like a woman *trying/about to give birth*.’

Other examples of the future participle can likewise be interpreted as referring to the definite and acted-upon intention of the subject and to the therefore likely future occurrence of the eventuality.

(3.132) *úpa kṣaranti síndhavo mayobhúva*
ījānám ca yakṣyámāṇam ca dhenávaḥ (RV 1.125.4ab)
 ‘The delightful rivers, the cows, flow to
 him who has sacrificed and *him who intends to/will sacrifice*.’

(3.133) *sá íd ásteva práti dhād asiṣyán* (RV 6.3.5a)
 ‘Like a shooter *intending/about to shoot* he sets forth (his arrow).’

⁸⁷On the *synchronic* connection of *saniṣyánt-* to the future stem, regardless of its possible historical origins, see Hoffmann (1982, p.61).

(3.134) vakṣyántīvéd ā ganīganti kárṇam (RV 6.75.3a)

‘Like *one intending/about to speak* he comes ever to the ear.’

That the future participle refers to intention but not to the actual and certain future occurrence of an eventuality is clear from the following passage, where the meaning of the main verb and the consequent concessive sense of the participle implies that the moving did not actually occur.

(3.135) ví samanā bhūmir aprathiṣṭā-
'raṃsta párvataś cit sariṣyán (RV 2.11.7cd)

‘The earth has spread wide equally (in every direction);
only the mountain, *though intending to move*, has stopped.’

This analysis of the future stem in the *Ṛgveda* is not far from Heenen’s (2006, p.41) treatment of the desiderative, and indeed in many instances it is hard to discern any clear difference.⁸⁸ However the future refers with more certainty to the likely occurrence of the eventuality (which makes sense in terms of the subsequent development of the *Ṛgvedic* ‘future tense’ as a future tense proper), and it does this because it refers to a more definite intention on the part of the subject than the desiderative does.

In terms of its semantics, in particular its temporal and aspectual features, then, we must acknowledge for the future participle both a relative present time, intentional sense, and to some extent a relative future time reference. We cannot, therefore, treat the future participle as expressing future tense as such, since this would exclude the present intention. An alternative is to treat the future participle as a secondary present stem (with present tense-aspect properties) with additional intentional semantics, parallel to the desiderative; however this would not capture the at times clear reference to the very likely or imminent future occurrence of the eventuality. An alternative which may be appropriate for some instances of the future participle at least may be to analyse the future participle (and potentially also finite forms) as a present posterior tense-aspect, i.e. with present tense reference ($P \subseteq R$) and posterior aspect ($E \succ R$, the opposite of the anterior aspect).⁸⁹ Such a

⁸⁸According to Heenen the desiderative can express that the subject “s’efforce sur l’action,” “tente l’action,” “est désireux, préoccupé, obsédé, engoué de faire l’action” or “est décidé, a l’intention de faire l’action,”

⁸⁹This ‘posterior’ aspect is the same as that labelled ‘prospective’ by Klein (1992, p.537).

tense-aspect combination means that the subject is in a present state in which the achievement of the eventuality referred to is about to or relatively certain to occur. This would account for the combined reference to present intention and future occurrence seen in most of the above examples. In any event, such a stage is presumably necessary in the supposed development from secondary intentional present tense proper to future tense proper.

3.6 Conclusion

3.6.1 Contextual functionality

The adverbial functions of participles correspond to the functions attributed to converbs in modern theories of non-finite verb forms (§1.6 above). As discussed above, the functional range of converbs and participles overlap in many languages, including Sanskrit, meaning that analyses of the functions of converbs are relevant for the analysis of the functions of participles also.

As we have seen above (§3.4), many different semantic relations may exist between a participle and the main verb of its clause; the same is true of converbs. Nedjalkov (1998) divides the adverbial functions of converbs into two groups: ‘taxis’ functions which express the temporal relations simultaneity, anteriority, and posteriority; and ‘non-taxis’ functions which express non-temporal relations, such as manner, means, purpose, cause, concession.⁹⁰ In languages with several converbs, each one might have a very specific semantic function; among various examples given by Nedjalkov (1998) are the Kalmyk converb of purpose (ex. 3.136), and the Dargwa converb of concession (ex. 3.137).⁹¹

(3.136) *saalčn-r* *ykr-myd* *saa-har* *harča-v*
 milking_woman-PL cow-PL milk-CONV go_out-PST
 ‘The milking women went out *to milk* the cows’ (Nedjalkov, 1998, ex. 22, p.444)

(3.137) *uri’* *nu miskin* *i-lli-gva* *nah’a davlasiv i-lla*
 last_year I poor become-PST-CONV now rich become-PST
 ‘*Though I became* poor last year, now I have become rich (again).’ (Nedjalkov, 1998, ex. 23, p.444)

⁹⁰For a very similar but more recent discussion of converb functions see Ebert (2008a).

⁹¹Dargwa is a Northeast Caucasian language spoken in Daghestan; Kalmyk is a Mongolic language spoken in Kalmykia (Northwest Caucasus).

In contrast the Ṛgvedic present participle falls into Nedjalkov’s category of ‘contextual mixed converbs’ (Nedjalkov, 1998, p.432f.), which can express various semantic relations, taxis or non-taxis, depending on the context. This is the most general and semantically vague type of converb, labelled the “general converb” by Ebert (2008a). Stative participles, and stative perfect participles, although somewhat more restricted in their semantic range due to the non-dynamic nature of the eventuality they express, can be treated in the same way as present participles, since they display a range of taxis and non-taxis functions. Likewise some aorist participles, primarily those which are semantically equivalent to present participles, also display this variety of functionality.

Past perfect participles, on the other hand, appear to be more restricted in their semantic range, and the same is true of the aorist participles which express a prior eventuality. Although there may be some possible evidence of wider functionality, these participles appear closer to a specialized taxis converb expressing anteriority. The future participle is difficult to analyse due to its controversial semantics and rarity; it could perhaps be treated as a specifically ‘intentional’ converb.

There have been many attempts to analyse the connections between the semantic relations we have been discussing. It is reasonable to suppose that relations such as cause, purpose, manner, concomitance etc. are not a disconnected, unrelated set of semantic functions, but rather that they are all interrelated in some way. Kortmann (1995, p.223) suggests a “gradient of informativeness” for different adverbial functions, given as table (3.5) below.⁹²

We should not necessarily suppose that there is only one way of analysing these relations. As König (1995, p.67) says, arguing for a multidimensional network of relations rather than a one dimensional cline, “the inventory of circumstantial relations... should not simply be thought of as an unstructured list of notional categories, but more as a network whose points are linked by certain paradigmatic relations and may share certain properties with other points in this network.” Different relations are undoubtedly connected in different ways; the important point is that the relations are not unstructured but connected. A cline such as the ‘gradient of informativeness’ is *one* way in which such semantic relations are

⁹²For similar analyses of adverbial relations, albeit in slightly different contexts, see e.g. Foley and Van Valin Jr (1984, p.270); König (1995, §4.2, p.67); Himmelmann and Schultze-Berndt (2005, p.29).

Table 3.5: Kortmann’s gradient of informativeness

Most Informative ↑	Concession Contrast Condition Means, Purpose Cause, Result
More Informative ↕	Anteriority, Posteriority
Less Informative ↓	Manner Exemplification Specification Simultaneity Accompanying Circumstance Addition
Least informative	

connected. Moreover the linear ordering of functions by Kortmann (1995) corresponds in broad terms to observations made about the acquisition of interclausal relations by children: Bloom et al. (1980), quoted by Viti (2008a) on the development of hypotaxis in Vedic, show that children learn semantically more complex relations later (regardless of the syntactic complexity involved), in the order “Additive < Temporal < Causal < Adversative”, which roughly fits the ‘gradient of informativeness’ given above.

Albeit with some slight emendations discussed below, different areas on the ‘gradient of informativeness’ appear to correspond to the functional ranges of different word types in the *Ṛgveda*. For example while present participles are found across the whole range of functions (though only very rarely in the most informative functions, contrast, concession and condition), adjectives are restricted to the less informative functions of addition, accompanying circumstance, and manner. On the basis of the functionality observed in participles and adjectives in the *Ṛgveda* it may be possible to amend the gradient of informativeness as shown in table (3.6).

There is no obvious reason for considering the expression of simultaneity to be any less informative than the other taxis relations, anteriority and posteriority, so it has been moved up to the same level as them. The close relation observed between cause and purpose

Table 3.6: Proposed gradient of informativeness

Most Informative ↑	Condition Concession Contrast Means, Result
More Informative ↕	Cause, Purpose
Less Informative ↓	Anteriority, Posteriority, Simultaneity Exemplification Manner Accompanying Circumstance Addition
Least informative	

(Pāṇini's *hetu*) means they should be considered on the same level. Since Ṛgvedic participles are rarely found expressing contrast and concession, but never condition, it is possible to treat condition as the most informative function. We can then add different word classes to this table to show their functional ranges, as shown in table (3.7).

Table 3.7: Participles positioned on gradient of informativeness

Most Informative ↑	Condition Concession Contrast Means, Result	Present(-like) Participles ↓
More Informative ↕	Cause, Purpose	
Less Informative ↓	Anteriority, Posteriority, Simultaneity Exemplification Manner Accompanying Circumstance Addition	Past Perfect Participles ↓ Non-verbal Adjectives ↓
Least informative		

As previously stated, there are other ways in which these functions are related, and the functionality of participles likewise varies in different ways. As we have seen it is rare

for stative and stative perfect participles to express functions such as means and purpose, but this is due to the non-dynamic nature of the eventuality they express, and not to their functional capability as such.

In many ways this gradient of informativeness and its relation to the functional range of participles and adjectives is tentative, but nevertheless it does fit the evidence seen in this chapter. It would be valuable to consider also the functional range of the participle-like adjectives, such as the *-tá-* adjective and the so-called ‘future passive participles’ in *-ya-*, *-tavyà-*, *-tva-*. The functional similarity of the *-tá-* adjective to the participles proper was used by Delbrück (1888, p.382) as justification for treating it together with them. Delbrück (1888, p.396) also argued that the ‘future passive participles’ should be distinguished from other adjectives because of apparent verbal properties. The positioning of ‘verbal’ adjectives such as these on the gradient of informativeness would help to confirm or refute its validity as a measure of the functional range of adverbial words. However such an investigation is beyond the scope of this thesis.

3.6.2 Word order

As already discussed, R̥gvedic word order is largely free, and the semantic (and often syntactic) classification of a particular participle is entirely context-dependent. There is however some evidence for a correlation between the position of a participle relative to its noun and main verb and its syntactic and semantic function in the clause. So Knobl (2005, p.104–105) notes that participles at the end of a clause often express purpose, comparing purposive dative infinitives which often occur in clause-final position. The statistics discussed in this section support the connection between function and position more widely.

These statistics are taken from my analysis of every present participle (roughly 2,200 excluding repeated formulae) in RV books II-VII and IX. They should necessarily be considered very approximate, because of the considerable ambiguity between different possible semantic interpretations. For every participle I have assigned a primary interpretation based on my own reading of the text, and where necessary (very often) have assigned one or more possible secondary interpretations. I cannot claim that my primary interpretation is always the correct reading of the verse concerned. Nevertheless it should be the case

that, *ceteris paribus*, any incorrect (or less ideal) interpretations should not be weighted in any particular direction and hence statistically should be irrelevant. I have restricted the following to the present participles partly because of their wide semantic range but more importantly because of their high frequency, which again should reduce the statistical relevance of incorrect semantic interpretations in the data.

Table (3.8) shows the position of present participles in relation to the main verb of their clause and noun with which they agree.

Table 3.8: Relative position of present participles in clause

Position in relation to verb			Position in relation to noun		
Preceding	Following	N/A	Preceding	Following	N/A
1166	990	113	344	993	928
51.4%	43.6%	5%	15.2%	43.8%	40.9%

The table shows that 51.4% of present participles in books II–VII and IX of the *R̥gveda* precede the main verb of their clause, while 43.6% follow. The remaining 5% occur in clauses with no expressed verb, i.e. nominal sentences or those with ellipsis of the verb. This shows a relatively even distribution of participles in relation to the main verb; the slight tendency for the participle to precede is not particularly suggestive. The position of participles in relation to the noun with which they agree, however, is notably different. Only 15.2% precede the noun, while 43.8% follow. The remaining 40.9% occur in clauses where there is no expressed noun, including those where the noun is implied and those where the participle functions as the noun.⁹³ This shows a notable relative infrequency for participles to precede the noun with which they agree. The reasons for this are not entirely clear but may be related to the fact that most participles are nominative, most nominative nouns are topical, and topical elements tend to occur near or at the start of *R̥gvedic* clauses (§2.3.1).

When we consider the position of participles with different semantic and syntactic functions, interesting variations in the data appear. Given the relative infrequency of participles preceding their noun, it is worth considering whether this position is associated with particular functions of participles. Table (3.9) shows the proportions of participles in RV II–VII

⁹³Including also a few cases where there is more than one possible head noun, one preceding and one following the participle, leaving relative position ambiguous.

and IX found in different semantic and syntactic functions, and in comparison to that the proportions of those same semantic and syntactic functions found among only those participles which precede their noun.

Table 3.9: Functions of participles

Function	All prs. participles	Prs. participles preceding noun
Att. Circ.	6.4%	3.8%
Cause	5.3%	5.2%
Concomitance	14.4%	17.7%
Conjunction	8.5%	6.4%
Equivalence	1%	<1%
Means	5.2%	4.4%
Purpose	5.7%	4.9%
Contingency	14.2%	12.2%
Comparative	2.3%	2.6%
NP	13.5%	N/A
Epithetic	12.6%	21.5%
Other adnominal	5.6%	12.8%

The table shows that there are no absolute syntactic or semantic restrictions on the appearance of a particular participle before the noun with which it agrees.⁹⁴ However it is clear that there are relative tendencies. The first half of the table shows the statistics for adverbial participles, split according to semantic function. All but one of these are relatively less common preceding the noun, and by implication relatively more common following it. On the other hand the statistics for the adnominal participles in the final four rows shows that these are all relatively more common preceding the noun, and by implication relatively less common following; in fact all together they are roughly twice as likely to precede the noun with which they agree than we would expect from their mere frequency in the text. Thus the position of participles relative to their noun in the *R̥gveda* shows some statistical correlation to the observation that, in the relatively fixed word order of Vedic prose, adnominal modifiers (adjectives and possessive genitives) precede their noun, while adverbial or appositive nouns, adjectives and participles tend to follow their noun.⁹⁵

The fact that participles expressing *concomitance* are slightly more common preceding

⁹⁴With the obvious exception that participles functioning as NP have no noun to precede or follow.

⁹⁵Delbrück (1888, p.19–20).

their noun than other adverbial participles perhaps supports the idea suggested above that the relative infrequency of participles preceding their noun may be attributable to the usual topicality of nominative nouns. Concomitance is the one adverbial function more commonly found with non-nominative than nominative nouns. Hence the fact that participles expressing concomitance are the only adverbial participles which precede their noun more frequently than average strongly suggests that the infrequency of adverbial participles preceding their noun is attributable to the usual early position of topical nominative nouns rather than to any specific positioning of the participles as such.

Returning to the position of participles relative to the main verb of their clause, there are clear variations in the frequency of participles in different adverbial functions compared with the average tendency for participles to precede the verb approximately half the time.

Table 3.10: Position of participles relative to verb by semantic function

Function	Preceding verb	Following verb
Cause	60.3%	38%
Means	60.6%	30.6%
Concession	100%	0%
Purpose	27%	68%
Result	3%	94%
All participles	51.4%	43.6%

Table (3.10) shows only those adverbial functions for which there is a strong tendency towards preverbal or postverbal position. There are 121 present participles in RV II–VII and IX for which my primary semantic classification was *cause*. As the table shows they are relatively more frequent preceding the verb than would be expected given the overall statistics for participles of all syntactic and semantic classifications, 60.3% beside 51.4%.⁹⁶ Roughly the same is true of the 119 participles for which the primary classification was *means*. All concessive participles precede the main verb in their clause; although there are only about 15 of these in the corpus and we should not exclude the possibility that such participles could follow the verb, the statistical leaning is nonetheless considerable.

On the other hand, 68% of the 130 participles which I have classified as primarily

⁹⁶For those (20) participles for which my only semantic classification was *cause*, i.e. for which I felt no possibility of any alternative semantic interpretation, 70% precede the verb.

expressing *purpose* follow the main verb of their clause, considerably higher than the average of 43.6%. Of the 15 which I analysed as only expressing purpose (i.e. with no secondary semantic classification) 80% follow the main verb.⁹⁷ Similarly 94% of the 36 participles expressing result follow the main verb, a much higher proportion than would be expected, even granted the relatively small numbers involved.

These figures show a slight statistical tendency on the part of participles in certain adverbial functions to appear either before or after the verb. It is notable that participles expressing cause and means naturally tend to refer to eventualities which temporally precede that of the main verb, while participles expressing purpose and result naturally refer to eventualities temporally subsequent to that of the main verb. It is perhaps this which accounts for their statistical distribution, rather than any syntactic rule or tendency.

3.6.3 Tense and aspect in the participial system

In assessing the expression of tense and aspect in the participial system we need to bear in mind the questions which still remain over the expression of tense and aspect in the verbal system as a whole. We saw, for example, that the semantics of present participles are entirely explicable in terms of imperfective aspect, which could correspond precisely to the function of the present tense-aspect stem in finite present tense forms and could be said to be the basic semantic property of this tense-aspect stem. However it is not necessarily the case that the tense-aspect stem should have a single semantic property shared across all the word categories in which it is used. This is clear enough from the fact that the imperfect tense, which shares the present tense-aspect stem of the finite present and present participle, does not display imperfective aspect at any point in the history of Sanskrit. All we can say is that the tense-aspect properties of the present participle may correspond to that of the finite present, which may be due to the identity of the tense-aspect stem.

When we consider the interrelations of the tense-aspect properties of the different participles and thus the tense-aspect system as it appears in the participles, we must be careful not to impose comparative evidence on to the evidence of the *Ṛgveda*. It could be argued

⁹⁷Moreover two-thirds of these occur in absolute final position in the clause, supporting Knobl's connection between the position of these participles and the position of purposive dative infinitives.

that this is what Dahl (2010) does when he assumes that the participial system of the *Ṛgveda* (and indeed the entire verbal system) reflects, almost without change, the tense-aspect system traditionally reconstructed for Proto-Indo-European and attested in Ancient Greek. This does, however, make a convenient starting point. As we have seen the present participle can be treated as expressing imperfective aspect, which fits with the supposed inherited value of the present tense-aspect stem. The various readings of the various types of perfect participle can all be derived from a supposed inherited present anterior tense-aspect. However the aorist participle cannot obviously be correlated with the supposed inherited value of the aorist tense-aspect as a basically perfective aspect stem. We can see that, whatever may have happened or be happening in the verbal system as a whole, the participial system has undergone and is undergoing changes at the time of the *Ṛgveda*.

What we may be seeing is a development from a participial system expressing primarily aspect to one primarily expressing tense. As we saw, the present participle could be analysed either in terms of imperfective aspect or relative present tense. This is true also of stative participles, and of stative perfect participles, which are themselves part of categories which are in the process of being reanalysed as part of the present system. On the other hand the productive past perfect forms participles which almost exclusively express a prior action, which again could be understood in terms of anterior aspect or in terms of relative past tense (related or parallel to the development of past tense reference in the perfect system as a whole). The future participle at this point could be analysed as part of the present system, as expressing future tense, or as expressing posterior aspect, which likewise may be part of the development of the ‘future’ tense from intentional present to future tense proper. The aorist participle has no distinct features which can be attributed to all its forms; instead it seems at times equivalent to the present participle, at times to the perfect. This makes no sense within a purely aspectual system where perfective, imperfective and anterior aspects are clearly distinct, but does make sense within a primarily tense-based system, where relative present and past time are already catered for and there is no room left for a third non-future participle. The obsolescence of the aorist participle can then be understood against the backdrop of this emergent three-way tense distinction in the participial system. Looking further towards Classical Sanskrit, the ultimate obsolescence of

the perfect participle can likewise be explained by its replacement by the absolutive, which again makes sense only if they both express relative past time.

Since developments in one part of the verbal system do not necessarily correspond to developments in the rest we cannot say that this is necessarily related to wider developments found also with the finite verb. However it is notable that the inherited aspectual distinctions are ultimately lost in Middle Indo-Aryan, and the perfect, imperfect and aorist are essentially replaced by a single preterite category, while at the same time a proper future tense develops for the first time. It may be that in these developments the participial system is for some reason in the vanguard.

3.6.4 Conclusion

In this chapter we have explored the semantics of tense-aspect stem participles in the *Ṛgveda*. We have seen that they display a variety of contextual semantics, which can be related to their status as adverbial verb forms and derived from their tense and aspect properties. We have also seen how the different semantic components of participles can be combined with other semantic components of a clause to give a unified meaning, using a formalization in glue semantics.

Having investigated the syntax and semantics of participles as a whole in the *Ṛgveda*, we move on in the next chapter to a reconsideration of the membership of these categories, considering which forms fit the participial syntax and semantics seen here more or less well, and what this means for the constituency of the tense-aspect stem participle categories.

Chapter 4

Participles as a Category

In the previous two chapters we have investigated the syntax and semantics of participles in the *Ṛgveda*. We are now in a position to look more closely at the synchronic membership of the categories of tense-aspect stem participles. As with any word category there is a periphery of forms which, morphologically, syntactically or semantically, fit into the category of tense-aspect stem participle less well than the ‘core’ forms whose status is uncontroversial and on which much of the evidence discussed in the previous two chapters has been based. One such category was discussed briefly above, namely lexicalized participles (§2.6.3, p.53f.).

In this chapter we will reconsider the category of tense-aspect stem participles in the light of our syntactic and semantic investigations of the previous chapters. Firstly, we consider features which are relevant to the categorization of unclear forms; secondly we discount some forms which on first sight we included in the category of tense-aspect stem participle, but which on syntactic or semantic grounds should be excluded; thirdly, we reconsider the problematic categories of stative and aorist participles.

4.1 ‘Non-participial’ Features

We will begin by briefly reviewing some of the syntactic and semantic features which are characteristic of the periphery of the tense-aspect stem participle category. By definition these are features which contrast with the usual syntactic and semantic features of the category.

4.1.1 Argument structure

In the vast majority of cases, and hence we can say in the core membership of the category, the grammatical subject of a participle must have the same thematic role in regard to the eventuality expressed by the participle as does the grammatical subject of the corresponding finite verb in regard to the eventuality expressed by the finite verb. So just as the subject of the finite verb *kṛṇóti* ‘he makes’ is an agent, so the subject of the corresponding participle *kṛṇvánt-* ‘making’ is also an agent, while the subject of the passive participle *kriyámāṇa-* ‘being made’ is a theme, just as is the subject of the corresponding finite verb *kriyáte* ‘is made’.

However there are several participles which do not fit this pattern. In all cases a patientive participle contrasts with agentive finite forms. For example finite forms of the present mediopassive of \sqrt{mrj} ‘groom’ are always agentive (ex. 4.1, likewise RV 1.140.2d, 5.52.17d,e, 10.167.4b), while the corresponding participle *mṛjāná-* is consistently patientive (ex. 4.2, likewise RV 9.96.10b, 9.96.20a, 9.107.22a).

(4.1) *tíṣṭhad dhārī dhr̥ṣatá mṛṣṭa vājān* (RV 1.174.4d)
 ‘He mounts the pair of steeds; boldly *he grooms* the prize-winners.’

(4.2) *sá vājy àkṣāḥ saḥásraretā*
adbhír mṛjānó góbhiḥ śrīṇānáḥ (RV 9.109.17ab)
 ‘This racehorse has flowed, he of the thousand-fold seed,
groomed by the waters, mixing with the milk.’

Similarly e.g. *iṃāná-* ‘being implored’ beside finite present *ímahe* ‘we implore’ to $^2\sqrt{yā}$; several perfect middle participles also show optional patientive value in contrast to finite stems which are exclusively agentive/reflexive, e.g. *yemāná-* ‘held / holding oneself’ beside agentive *yemé* ‘holds oneself’,¹ *badbadhāná-* ‘driven off / having driven off’ beside *badbadhé* ‘drive off’ to $\sqrt{bādh}$,² *babhrāná-* ‘(having been) carried’ beside agentive *babhré* to \sqrt{bhr} ,³ *marmṛjāná-* ‘groomed’ beside agentive *marmṛjmá* at 3.18.4d.⁴

¹Cf. Kümmel (2000a, p.395–399).

²Cf. Kümmel (2000a, p.330–331).

³Cf. Kümmel (2000a, p.338–343).

⁴Neither Schaefer (1994, p.167–169) nor Kümmel (2000a, p.374) recognize *marmṛjāná-* as a perfect intensive participle; in fact Kümmel (2000a, p.374) also argues against the attribution (originally by Hoffmann, 1967,

All the participles seen so far are medial, which may permit an explanation of the patientive argument structure in terms of the multifunctionality of the mediopassive diathesis. In the perfect in particular, where there was no alternative method of forming a passive or patientive perfect participle, what we may be seeing is the use of an otherwise medial participle to fill this gap.

In the case of some morphologically *active* participles on the other hand, this mismatch between the argument structure of a participle and that of the corresponding finite form has been suggested to represent an extremely archaic inheritance, reflecting a PIE situation where participles did not share the argument structure of the stems from which they were derived. To understand this we must briefly digress into the properties of the *-nt-* participle in Hittite.

The Hittite present participle in *-nt-*, cognate with the *-nt-* participles of Sanskrit and other Indo-European languages, shows an ergative agreement pattern, in which the subject of the participle is either the single argument of an intransitive verb (S) or the patient or maximally affected argument of a transitive verb (O), but not (regularly) the agentive argument of a transitive verb (A).⁵ Hittite participles in *-nt-* are also perfective when formed to telic verbs (cf. Neu, 1968, p.117–122; Garrett, 1996, p.103). So e.g. *ašant-* ‘being’ to the intransitive root $\sqrt{eš/aš}$ ‘be’, cognate with and semantically equivalent to Skt. *sánt-* ‘being’, but *kunant-* ‘killed, having been killed’ to the transitive telic root \sqrt{kuen} ‘kill’, cognate with Skt. *ghnánt-* ‘killing’. This perfective or stative meaning, combined with the ergative agreement pattern, makes the Hittite participle functionally parallel to the Skt. *-tá-* adjective (PIE **-tó-*) rather than the **-nt-* participle as attested in other Indo-European languages.

In contrast to the ergative agreement pattern of the Hittite participle, the cognate participles in all other Indo-European languages which attest them have a characteristically accusative agreement pattern, i.e. their subject is S if intransitive or A if transitive but

p.254, fn.284) of the finite *marmṛjṃá* to the perfect. Nevertheless the accent on the participle supports an attribution to the perfect rather than the present, and functionally there is no evidence against such an analysis. On the intensive forms of this root see also Jamison (1983c, p.57–59).

⁵On the Hittite participle see Hoffner and Melchert (2008, p.339–340). A few Hittite participles display both accusative and ergative agreement, e.g. Hittite *adant-* can mean ‘eating’ or ‘eaten’; on this cf. also Kloekhorst (2008, p.183–184).

never O. It is usually assumed that Hittite, given its antiquity, reflects the more archaic situation, in which case the accusative agreement of the other Indo-European dialects, including Sanskrit, must be the result of an analogical reanalysis of the participle, perhaps on the model of the accusative syntax of the finite verb.⁶ Alternatively, Haspelmath (1994, p.170) suggests that the **-nt-* participle in PIE may not have been, according to his terminology, “inherently oriented” towards either the agent (i.e. accusative agreement) or patient (i.e. ergative agreement), but may have been “completely free of inherent orientation in Proto-Indo-European”, comparable to “contextually oriented participles” found in non-Indo-European languages such as Lezgian, where it is clear only pragmatically in which way the participle should be interpreted.⁷ Kloekhorst (2008, p.183–184) assumes the same for PIE, arguing that in Hittite the patientive reading was generalized, except in a few archaic cases, while in post-Anatolian PIE the active reading was generalized.⁸

On the basis of this contrast between the *-nt-* participle in Hittite and other Indo-European languages, certain syntactically unusual participles have been explained as inherited archaisms, in particular Sanskrit *járant-* ‘old’ beside *jáрати* ‘makes old’, *stavān* ‘praised’ to \sqrt{stu} ‘praise’, *pṛṣant-* ‘spotted’, *pépiśat-* ‘adorned’ to \sqrt{pis} ‘adorn’.⁹

The forms *járant-* and *pṛṣant-* will be discussed below (§4.6), where it will be argued that they are not, in fact, participles. Morphologically *stavān* (found only in this n.sg.m. form)

⁶So e.g. PIE **ǵʰm-ské-nt-s* ‘going’ to **ǵʰm-ské-ti* ‘he goes’ means that, to **dhi-dhéh₁-ti* ‘he places’, the participle **dhi-dhh₁-ónt-s* should mean ‘placing’ rather than ‘being placed’. For a similar reanalysis of the Indo-Iranian infinitive in **-dhyāi* see Gippert (1984, p.38–39). Brosman (2010) argues that the reanalysis originated in labile verbs (verbs which could be either transitive or intransitive).

⁷For a similar argument regarding the PIE **-tó-* adjective see Puhvel (1953, p.17). Schmidt (1964) argues that both the PIE **-nt-* participle and the perfect active **-uós-* participle were originally found only in intransitive-stative uses, with the ergative or accusative syntax found in attested languages resulting from divergent extensions of the original use.

⁸Kloekhorst’s argument is based on one of the few attested remnants of the **-nt-* participle in non-Hittite Anatolian, the (lexicalized) name of the storm god, CLuw. ^d*Tarḫuuant-*, HLuw. *Tarhunt-*, possibly Lyc. *Trqqñt-*. This is apparently agentive, being precisely parallel in both form and meaning to RV *túrvant-* ‘overcoming, conquering’ (Eichner, 1974, p.23–29), suggesting that the Hittite treatment of the **-nt-* participle is the result of an idiosyncratic innovation in Hittite rather than an inheritance. However there may also be examples of resultative *-nt-* in other Anatolian languages, e.g. CLuw. *walant(i)-/ulant(i)-* ‘dead’, Lyc. *lāta-* ‘id.’, which suggests the Hittite development was at least partially shared with other Anatolian dialects.

⁹Cf. Watkins (1969, p.142–145), Jasanoff (1978, p.45), Schaefer (1994, p.45–46). Forms from other languages often quoted include Latin *evidens* ‘evident, manifest, visible’ to *video* ‘I see’ and *vehens* ‘travelling, riding’ to *veho* ‘I carry, convey’. According to Renou (1925, p.134) the same is found with Avestan *vazənt-* and *barənt-* ‘aller à cheval, en char’, the former matching Latin *vehens* and the latter the intransitive use of Greek *φέγων*. However in the case of *vehens* and *vazənt-* at least, the root from which they are derived, PIE **√ueǵh* (Skt. \sqrt{vah}), may have been intransitive in PIE (Schlerath, 1996), and similar explanations may account for the other problematic forms.

cannot be a regular participle, at least synchronically: there is nothing to support Watkins' (1969, p.142–145) assumption that the ending represents an inherited *-nt-* participle altered by analogy with *-vant* stems. There have been various alternative explanations suggested, the most sensible of which is that *stavān* represents a haplogized *-vant-* stem adjective, perhaps an original **stava-vān* (cf. Mayrhofer KEWA, v.3, p.521).¹⁰ The intensive participle *pépiśat-* is unexpectedly patientive in comparison with other active forms of the root, as shown by Schaefer (1994, p.152–153), however its isolation (the only other intensive form is a medial participle attested post-RV) means it may well be a nonce form.

Altogether, then, there is no good evidence for active participles showing unexpectedly patientive argument structure in Sanskrit; consequently forms which appear to do this, such as *járant-*, need to be explained.

4.1.2 Transitive participles without objects

This phenomenon has been discussed above (§2.11, p.85). Despite a general tendency for participles to transitive verbal stems to lack objects more frequently than the corresponding finite verb forms, the majority of instances of this are found with a relatively few very common participles, which hence skew the overall proportion of participles lacking objects. In other words the tendency for participles to transitive verbal stems to lack objects is not as frequent as it appears for the majority of participles, but is the rule for a relatively small number.

If, then, it can be reasonably shown that such forms need not, synchronically and even diachronically, be participles, the discrepancy between the majority of participles and this small group of syntactically exceptional forms finds a convenient explanation.¹¹

¹⁰Grassmann (1873, p.1589) considered it a phonological development of an original **stan-vánt-*; Geldner (RV, v.1 p.300 ad 2.19.5ab) explained it as a shortened n.sg.m. form of the present participle *stavānā-*. Kulikov (2006a, p.59–60) broadly follows Watkins, analysing it however as an active 'stative' participle.

¹¹From a comparative point of view, it has been recognized that there is a relative lack of transitive participles in early Indo-European languages other than Greek and Sanskrit, and it has therefore been argued that the development of verbal government in the participles is late. See e.g. Callaway (1901, p.297–314), Sommer (1947, p.67–68), Killie (2007). This does not affect the synchronic fact that in R̥gvedic Sanskrit the majority of participles to transitive stems are themselves transitive.

4.1.3 Functionality

As shown in the previous chapter, participles have a potentially wide variety of contextual functions. However some participles are never found in adverbial functions or are at least restricted in the kinds of functions in which they can occur. Unlike with the syntactic discrepancies above we cannot argue that lack of adverbial function is, in itself, a reason to question the participial status of a form, since it may simply be that adverbial use of a certain participle happens to be unattested. If, however, a form which is of questionable status for other reasons happens also to lack some or all adverbial functions, being found only in adnominal functions or at least only within the same functional range as non-participial adjectives, this can reasonably be used as supporting evidence for synchronic non-participial status, particularly if the word is frequent and the likelihood of chance non-attestation of such functions is accordingly reduced.

4.1.4 Base semantics

If a participle appears to show a different basic meaning from that expected from the verb stem, we are justified in questioning the synchronic status of such a form. Such forms are likely to be lexicalized and hence may be best treated as synchronically adjectives or even nouns.

4.1.5 Morphology

In our primarily morphological definition of the category of tense-aspect stem participles in chapter one, we permitted the inclusion of participles for which no finite verbal tense-aspect stem is actually attested, as long as the existence of such a stem is at least synchronically possible (cf. §1.3, p.14 above). However there exist a number of participles for which the absence of a corresponding finite tense-aspect stem is unexpected and potentially problematic. Such forms can be considered potentially peripheral in so far as the absence of a finite verbal stem may not be due to chance.

More unambiguous morphological problems, such as the ending of *stavǎn* discussed above (p.186), are likewise reasons for questioning the synchronic status of a supposed

participle.

4.2 Participles in Compounding

Further evidence which enables us to distinguish tense-aspect stem participles from non-participial stems is provided by patterns observable in participial compounding. In order to understand how participles are used in compounds in the *Ṛgveda*, we must establish which patterns of compounding may have been inherited, which if any were productive within Sanskrit, what was synchronically possible at the Ṛgvedic stage, and what this tells us about the participial or apparent participial stems which are found in compounds in the *Ṛgveda*.

4.2.1 Participles as second element

It can be stated as a general rule that tense-aspect stem participles in the *Ṛgveda* cannot function as the second member of any type of compound (with the exception of compounding with preverbs).¹² This is in contrast to other adjectives, even ‘verbal’ adjectives such as the *-tá-* adjective, which can form a compound with any noun or nominal prefix. This prohibition against tense-aspect stem participles as the second member of a compound is used by Kulikov (2010) as a criterion by which to classify participles as ‘core’ rather than ‘periphery’ verbal forms.¹³

However two apparent Ṛgvedic participles have been explained as compounds in which the participle is the second element. RIVELEX (p.49) explain *añkūyánt-* ‘going crookedly’ as a compound of **añku-* and *yánt-* (pres. ptc. of \sqrt{i} ‘go’), i.e. from inherited **h₂e/onku-*

¹²The same is true of most old Indo-European languages, including Ancient Greek and Classical Latin, and can be considered an inheritance. There appear to be a very few in Avestan, some of which, however, are falsely compounded in the manuscripts or are found in corrupt or barely comprehensible passages. Of those listed by Duchesne-Guillemin (1936, p.114–116), the only likely genuine compounds are *gāθrō.raiiant-* ‘proclaiming (holy) songs/the Gathas’ (Yt.13.105, v.l. *gāθō.raiiant-*) and *añku.pəsəmna-* ‘ornamented with hooks’ (Yt.17.10); the former is unlikely to be archaic due to its specifically Zoroastrian sense, the latter also need not be archaic. The problematic *ašaoxšaiiant-* ‘increasing Aša’ (Y.33.9) is better read as a sandhi of *ašā uxšiiant-* ‘growing through truth’ (following Humbach, 1991). A few such compounds are also found in Germanic, but only one or two are reconstructable for Proto-Germanic and their antiquity is uncertain; see Carr (1939, p.209–215) and Voyles (1974). The best Germanic comparisons are Old English *sweordberende* ‘sword-bearing’, Old Norse *sverðberandi* ‘id.’; Gothic *allwaldands* ‘overlord (lit. all-ruling)’, Old High German *alawaltenti* ‘id.’ etc.

¹³The participles of $\sqrt{bhū}$, $\sqrt{kṛ}$ and \sqrt{as} are partly an exception to this rule, but only in so far as these roots function as semi-auxiliaries in forming denominative verb stems; such participles therefore should not be considered compounds but participles to semi-distinct verbal stems (cf. Kulikov, 2010, p.116–117).

h₁ie/ont-, translated “walking along side paths.” This is very similar to the interpretation of *ṛjyant-* given by Hoffmann apud Joachim (1978, p.62), namely a compound of *yánt-* and a form **ṛji-*, Caland variant of the adjective *ṛjú-* ‘straight’.

Both forms occur in the archaic book VI, but it seems unlikely that such forms should preserve an inherited means of participial compounding when there is very little evidence to suggest such compounds could be formed in PIE or even PII. There are various possible alternative explanations. The first elements of these two words could have been directional adverbs which became fixed in position before the participle *yánt-* and ultimately fossilized into an apparent compound (but were never morphological compounds). Or they could attest an inherited use of ¹*√i* (or earlier **√h₁eǵ*) as a semi-auxiliary, like Skt. *√kṛ*, *√bhū* and *√as*.¹⁴ An alternative possibility is that both forms are denominative participles to otherwise unattested nouns. There is a morphological problem with this explanation, in that we would expect **ṛjīy-* for *ṛjīy-*; nevertheless the denominative explanation cannot be disproven as long as the only ‘participle’ identified as the second element of these ‘compounds’ is *yánt-*, since this is formally identical to the denominative participle suffix. Therefore before accepting these forms as examples of an almost entirely unattested means of compounding one would like at least one such compound which has a different second element, i.e. one which can only be a fully independent participle. There is therefore no conclusive evidence in the *Ṛgveda* that participles could ever form the second element of nominal compounds.

4.2.2 Participles as first element

In contrast participles are relatively common as the first element of compounds, primarily governing compounds and bahuvrīhis.

Historically, the first element of *Ṛgvedic* governing compounds such as *dhārayát-kavi-* ‘supporting the wise’ was not a participle, but rather a stem ending in a vowel as seen in e.g. *Ṛgvedic* PN *Trasá-dasyu-* lit. ‘frightening the enemy’, Old Persian PN *Dāraya-vauš*

¹⁴Note that with the semi-auxiliaries such as *√kṛ* and *√bhū* there is a tendency for the adverb to appear in tmesis with finite forms, but in compound with participial forms, somewhat parallel to the respective positioning of preverbs. This could explain why it is only in the participle that such a compound is attested. This is a regular pattern, found also with e.g. *śrád-√dhā*, and shows the participial forms patterning not with finite verbal forms but with nominal derivatives like the *-tá-* adjective and infinitive.

‘Darius’ (lit. ‘supporting the good’), Greek *φερέουκος* ‘snail’ (lit. ‘one carrying its house’).¹⁵ The introduction of a dental into the stem must be dated to the Indo-Iranian period due to e.g. Avestan PN *Dārayat.raθa-* ‘supporting chariots’.¹⁶ Synchronically, however, we must analyse e.g. *dhārayát-* in *dhārayát-kavi-* as a present participle. This is because the accent of the governing-compound participles, which itself reflects not a participial accent but the accent of the original thematic compound stem, has been extended to bahuvrīhi compounds where the first element always was a participle, e.g. *dravád-aśva-* ‘having a swift horse’. This could only have occurred if the first element of governing compounds had been reanalysed as a participle.¹⁷

This reanalysis extended the capabilities of participles in compound. Prior to this participles would have been common only in bahuvrīhis, and occasionally in determinative compounds; however none of these compound types were conducive to the expression of an object for a transitive participle in the compound. It may in fact be that transitive participles were excluded from compounding, or that if used in compound they were necessarily used intransitively. In governing compounds, however, transitive participles are obligatory, and the object is necessarily expressed as the second element of the compound.¹⁸ Once this development became regular, there was in principle no restriction on which types of participles (or participles to which types of root) could appear in nominal compounds.

Governing compounds are by far the most common type of compound involving participles in the *Ṛgveda*: there are thirty such stems attested.¹⁹ Functionally, governing compounds are primarily used adjectivally, often epithetically, and in so far as the participle is the (syntactic) head of such a compound, the function of the participle itself is the

¹⁵Wackernagel-Debrunner (AiG, v.2:1, p.316–320) give a comprehensive list of such compounds in various old Indo-European languages.

¹⁶For this development see Renou (1940, p.217–220). This *-t-* insertion is not only found in participles: *śatád-vasu-* ‘whose wealth is hundred(-fold)’ at 1.119.1c shows the same process operating in a bahuvrīhi compound with a numeral as the first element (Mayrhofer EWA, v.2, p.175); here the accent of *śatá-* may have supported the development.

¹⁷Synchronically, therefore, the regular accent of the stem form of an active present participle falls on the final syllable.

¹⁸In *sādád-yoni-* the second element is not an object but an accusative of goal, which shows that ‘transitivity’ in this context should be understood in the widest possible sense, i.e. including any kind of associated accusative.

¹⁹They are: *ābharád-vasu-*, *ṛdhád-ṛaya-*, *ṛdhád-vāra-*, *ṛtád-vasu-*, *kṣayád-vīra-*, *guhád-avadya-*, *codayán-mati-*, *Janád-agni-*, *jārayán-makha-*, *tarád-dveṣas-*, *drāvayát-sakha-*, *dhārayát-kavi-*, *dhārayát-kṣiti-*, **patayát-sakha-*, *bhandád-iṣṭi-*, *bharád-vāja-*, *mandád-vīra-*, *mandayát-sakha-*, *maṃhayád-rayi-*, *yātayáj-jana-*, *yāvayád-dveṣas-*, *vidád-vasu-*, *vṛścád-vana-*, *vṛśad-añji-*, *śrāvayát-pati-*, *śrāvayát-sakhi-*, *sanád-vāja-*, *sanád-rayi-*, *sādád-yoni-*, *sādhad-iṣṭi-*.

same.

In bahuvrīhis on the other hand, participles are necessarily adnominal in function, modifying the second element of the compound. There are only twelve bahuvrīhi compounds which appear to involve participles in the *Ṛgveda*, and of these half in fact involve lexicalized participles or Caland adjectives rather than synchronically regular participles: *dravád-aśva-*, *dravác-cakra-*, *dravát-pāṇi-* (on *drávant-* see p.232); *bhrájaj-janman-*, *bhrájad-ṛṣṭi-* (on *bhrájant-* see p.218); *śucád-ratha-* (on *śucánt-* see p.216). The forms *dadṛśāná-pavi-*, *dyutád-yāman-*, *yuyujāná-sapti-*, *rapśád-ūdhān-*, *stanáyad-ama-*, *spṛhayád-varṇa-* and *svanád-ratha-* are the only certain examples of bahuvrīhis involving non-lexicalized participles in the *Ṛgveda*.²⁰

Participles occurring in other types of compound function as nouns and are usually lexicalized; so the determinative compounds *sát-pati-* ‘lord of (all that) exists’,²¹ *krandád-iṣṭi-* ‘desiring the roaring one (Soma),’²² *jāgrat-svapnā-* (on which see p.204), *īśāna-kṛt-* ‘playing the ruler’ (cf. p.235), *edhamāna-dvīṣ-* ‘hating those who prosper’, possibly *nakṣad-dābhā-* ‘deceiving those who approach (?)’.²³

²⁰The first element of the bahuvrīhi *rapśád-ūdhān-* ‘whose udders are full’ at 2.34.5 appears to reflect a **rapśánt-*, which is unexpected since the stem is medium tantum, and there is no evidence that the stem was formerly active as is the case with *dyutánt-* (on the origin of the difficult root $\sqrt{rapś}$ compare Mayrhofer, EWA, v.2 p.559 and Kümmel, 2000a, p.416–418). It may provide evidence for a spreading of the ending *-ánt* as an all-purpose compound form for participles. Such an ending could have originated in governing compounds such as *vṛṣad-añji-* ‘raining down ointment’, where the secondary participle happens to correspond to a medium tantum stem; in bahuvrīhis it can only be secondary.

²¹The meaning and derivation of *sát-pati-* is controversial. Wackernagel-Debrunner (AiG, v.2:1, p.55) analysed the first element as the g.sg. of a root noun **sád-* ‘dwelling’, i.e. **sáts-pati-* “Gildemeister”, supposedly parallel to PIE **déms-poti-* underlying Vedic *dám-pati-* and Greek *δεσπότης*, and supported by RV *sádas-pati-* and *sádasas-pati-*. This interpretation was followed by Thieme (1938, p.21) (“Hausherr”) and Mayrhofer (EWA, v.2, p.690). This is, however, problematic on semantic grounds, since *sát-pati-* is primarily an epithet of Indra, while forms related to \sqrt{sad} are generally connected to Soma and Agni. Geldner (RV) interpreted the word as a determinative (karmadhāraya) compound (“wahrer Herr”, “wirklicher Gebieter”, “rechtmäßiger Gebieter” etc.), taking the first element *sánt-* as a lexicalized participle meaning ‘true, right’. Renou’s (EVP) translations varied: he followed Geldner in EVP, v.10, p.114, comparing *sát-pati-* to *satyásya pátayah* at 7.35.12; he followed Wackernagel in EVP, v.12, p.41, translating the form “maître de maison” at 2.1.4, but in EVP, v.17, p.77 he translated the form at 3.34.7 as “maître de l’étant.” This last interpretation is followed here. Similar compounds of the PIE word **póti-* ‘master’ are relatively common both in the *Ṛgveda* and other old Indo-European languages, e.g. *rayi-páti-* ‘lord of wealth’, *vásu-pati-* ‘id.’, *vis-páti-* ‘lord of the clans’, Goth. *brupfafs* ‘bridegroom’, *hundafafs* ‘centurion’ (on the Gothic forms see Benveniste, 1963), Greek *δεσπότης*. All these compounds are dependent determinative (tatpuruṣa) compounds in which the first element is a noun in a case relation (here genitive) to the second. The same is therefore likely for *sát-pati-*, and since Wackernagel’s **sáts-pati-* is semantically unlikely we must interpret the first element as the participle *sánt-* ‘being’ used as a noun.

²²Following Geldner (RV, ad loc.) and Renou (EVP, v.5, p.63), but contra Burrow (1960, p.285) who interpreted it as a governing compound “conquering riches.”

²³On the meaning of the participle *nakṣant-*, used as a noun in this compound, and the root $\sqrt{nakṣ}$ see Kümmel (2000a, p.277–278).

In all compound functions, then, participles are semantically adjectival or nominal, while from a syntactic point of view it is only in governing compounds, where the participles have objects (and where the participles are secondary), that there is any sign of the verbal nature of participles. Their appearance in compound is then primarily a part of participles' adjectival nature.

Accent

As stated above the regular accent on a participle in compound is on the final syllable of the stem, and this is found in almost all bahuvrīhi and governing compounds involving participles in Sanskrit.

Two irregular forms, *bhrājaj-janman-* and *bhrājad-ṛṣṭi-*, both to the stem *bhrājant-*, will be discussed below (p.218) as possibly providing evidence for the non-participial status of this form, paralleling the non-participial *rúśant-* in *rúśat-paśu-*. There is, however, a parallel form *stanáyad-ama-* 'of thundering force', the first element of which is clearly a participle synchronically and historically. This compound is hapax and can only be interpreted as preserving the original accent of such bahuvrīhis, which otherwise was changed by analogy with governing compounds.

A different problem is presented by *sādhad-iṣṭi-* 'making successful the sacrifice', which occurs twice in book III. This is a governing compound, meaning its accent cannot even be an archaism. It can only be explained as an anomalous alternative strategy for homogenizing the accents of participles in governing and bahuvrīhi compounds. The accentuation of *sādhad-iṣṭi-* and *stanáyad-ama-*, then, suggest that there may have been some variation in the accentuation of participles in compound at a pre-Ṛgvedic stage; nevertheless the 'normal' accentuation is sufficiently regular that the irregularity in *bhrājaj-janman-* and *bhrājad-ṛṣṭi-* may support the analysis of *bhrājant-* as synchronically adjectival rather than participial.

4.3 Participial Derivatives

There are various nominal derivatives from participles found in the *Ṛgveda*. Some of these, however, are found only with lexicalized participles, while some others are found only in archaic, fossilized inheritances.

4.3.1 Inheritance

The evidence of Sanskrit and other Indo-European languages suggests that secondary derivatives could be formed from participial stems in PIE.²⁴ In the *Ṛgveda* there are several different types of participial derivatives; the only productive derivations are found with lexicalized participles, while other, non-productive derivatives are likely to be inherited relics of previously productive derivational patterns. Synchronically, therefore, derivatives were not productively formed to non-lexicalized participles.

Participial derivatives of the type *saścát-*, whereby the participial stem is fixed in zero-grade and the accent is fixed on the suffix, are of uncertain frequency in the RV because it is unclear whether all potentially relevant forms should be etymologized in this way. The reduplicated stem of *saścát-* ‘pursuer’ and *asaścát-* ‘without equal’ means they are best explained as participial derivatives; *saṃyát-* ‘contiguous, union’ may best be derived from *yánt-* due to the preverb; however other possibilities, *vāghát-* ‘sacrificer’, *vahát-* ‘river’, *sravát-* ‘id.’, *vehát-* ‘(type of) cow’,²⁵ and *acodáte*²⁶ could equally continue the PIE suffix **-ét-/ot-* seen in Gothic *mitaþs -adis* ‘measure’, Latin *teges -etis* ‘cover’, *seges -etis* ‘corn-

²⁴Melchert (1999, p.23 fn.32) discusses a possible derivational pattern: participle in **-nt-*, derived abstract noun in **-nt-i-* (e.g. Hittite *tukkanzi-* ‘cultivation’, Skt. *rámati-* and RCS *mogut̃* ‘lord, master’), derived adjective in **-ntj-o-* (exemplified by Greek *ἐπιούσιος*), feminine abstract in **-ntj-eh₂-*; this pattern may be exemplified by Latin *absentia* to *absens* or *scientia* to *scio*. Further cf. Jasanoff (2009). There is evidence for **-jo-* derivatives to perfect participles in the Hesychian gloss *ιδῦοι μάστρες*, Laconian *βιδυοι* ‘prefects’ and a Mycenaean name *Wi-du-wo-jo* (Szemerényi, 1967, p.24–25). Gothic *berusjos* ‘parents’ is generally assumed to be in origin a feminine perfect participle (e.g. Bammesberger, 1965), but it takes masculine demonstratives and could therefore rather be a *-ja-* derivative from a perfect participle.

Other participial derivatives suggested for PIE include an abstract noun in *-ā-*: Jasanoff (1978, p.88) derives the feminine abstract nouns OE *duzup*, OHG *tugund* ‘virtue’ from **dhugh-nt-ā-*, a derivative from the participle underlying RV *duhánt-*.

Olsen (1989, p.235f.) has argued for PIE participial derivatives formed without suffixation but rather accent shift onto the zero-grade suffix in words like Gr. *μαυάς* (on which see also Meillet, 1933), Skt. *saścát-*, but the PIE origin of such a pattern depends on doubtful sound changes in Greek.

²⁵On which see Sommer (1958), who compares the word to stems like *vahát-* but does not consider them derived from participles.

²⁶On which cf. fn.34, p.197 below.

field'.²⁷

There are several clear examples of adjectives in *-nú-* derived from participles: *pīyatnú-*, *ārujatnú-*, *mehatnú-*, *kavatnú-*, *jigatnú-* and possibly *jighatnú-*.²⁸ Of these *pīyatnú-* and *ārujatnú-* could but need not be synchronic Ṛgvedic derivatives from participles; the others are all problematic. The verb underlying *kavatnú-* is not attested in Sanskrit so this must be an archaic form; the participle underlying *mehatnú-* is not found in the RV; *jigatnú-* and *jighatnú-* do not correspond to attested verbal stems (the latter may be dissimilated from **jighnatnú-*, for which a corresponding participial stem is found in the *Brāhmaṇas*). Similarly *hatnú-* and *upahatnú-* may be related to *ghnánt-*, but if so the phonological developments mean they cannot be synchronic derivatives. It appears, then, that if *-nú-* formed derivatives from participles this was no longer productive by the time of the RV, and is found largely in fossilized forms.

Another inherited but no longer productive derivational pattern is seen in *satyá-* 'true' (possibly cognate with Gr. *ῥσιος*; see Hinge, 2007) and the PN *Násatya-* (the Aśvins), respectively *-ya-* derivatives of *sánt-* (\sqrt{as}) and **násant-* (\sqrt{nas}); the latter additionally shows vṛddhi of the root vowel, a feature found also in OP *xšāyaθiya-* 'king' beside Av. *xšaiiant-*, RV *kṣáyant-* to $\sqrt{kṣā}$ 'rule'.²⁹

The noun *vāta-* 'wind' reflects a thematic derivative of a PIE participle: the cognates Latin *ventus*, Gothic *winds*, Toch (A) *wānt*, (B) *yente* etc. permit the reconstruction of PIE **h₂uéh₁-nt-o-* (see Strunk, 1985, p.502 with references, also Mayrhofer EWA, v.2, p.542); the frequent trisyllabic scansion of Av. *vāta-* preserves evidence of the original ablaut.³⁰ There may be a few other thematic derivatives in the *Ṛgveda* from originally participial stems, such as *pánta-* (on which cf. fn.148, p.257), but all are difficult; cf. Wackernagel-Debrunner

²⁷Cf. also Nikolaev (2006, p.60–62) on these forms. Anttila (1970, p.172) connects Skt. *vāghát-* with Umbrian *vufro* (suffix **-ro-*), which could suggest a possible link between this *-át-* suffix (whatever its origin) and the Caland system.

²⁸On this formation see Hoffmann (1957, p.59).

²⁹In this analysis I follow Szemerényi (1987, v.4, p.1923–1933), contra e.g. Mayrhofer (EWA, v.2, p.39–40) who assumes these are thematic derivatives from abstract *-(a)tí-* stems.

³⁰It has been assumed on the basis of these forms that this verb was acrostatic; moreover Kloekhorst (2008, p.368) argues that this supports an original amphidynamic paradigm of the participle, but he fails to take into account the fact that almost all the full-grade root forms are thematized secondary derivatives and hence separate from the participle, while *vánt-* is perfectly regular within Sanskrit for roots of this shape and can easily have been remade. The original form of the participle is seen in Hittite *ḫuṽant-*, showing zero-grade stem and full grade suffix; the Greek participle *ἄεσις* to *ἄησι* 'blows' may be a perfect match. On this word cf. also Nikolaev (2006, p.47–48).

(AiG, v.2:2, §99–101) for a collection of forms.

4.3.2 Derivatives from lexicalized participles

Besides these unproductive, inherited derivative patterns, there are some derivational suffixes which are productively attached only to lexicalized participles; these can therefore be used as evidence for the synchronic status of particular participial forms. The fact that productive secondary derivatives can be formed only from lexicalized participles demonstrates that secondary derivation was not synchronically appropriate for participles proper, meaning that in this respect the participles pattern with finite verbal forms rather than the nominal system.

The only commonly found derivatives are comparatives and superlatives in *-tara-* and *-tama-* respectively. According to Wackernagel-Debrunner (AiG, v.2:2, p.597) the only such derivatives from participles in Sanskrit are the five RV forms *sáhantama-* (but see p.219 below), *vrádhantama-*, *mṛṣayáttama-*, *mīlhúṣṭama-* and *vidúṣṭara-*. To these can be added the negatives *áviduṣṭara-* and *ádāśūṣṭara-* (8.81.7c, with unexplained irregular *ū*).

In these forms we see two distinct methods of derivation. Most commonly the participle retains its original accent, but *mṛṣayáttama-* shows the ‘stem’ accent typical of compounds. This is also the only present participle to occur in the expected stem form, *sáhantama-* and *vrádhantama-* preserving the full-grade *-nt-* (or thematic verb) stem, which is technically irregular (cf. p.217).

The abstract noun *raráṇátā-* at 1.171.1c is the only participial derivative of this type in the *Ṛgveda*, but shows a synchronically productive suffix attached to a lexicalized participle (cf. Oldenberg, *Noten*, v.1, p.171).

We see then that besides a few non-productive inherited derivational patterns, the only productive secondary derivatives from participles are made not from participles proper, but from lexicalized participles.³¹ This provides a clear morphological distinction between participles proper and lexicalized participles, which in synchronic terms are categorially distinct.

³¹Besides the forms discussed above there are various secondary derivatives to compounds involving participles, e.g. *yāvayatsakhá-* from **yāvayát-sakhi-*, *vaídadaśvi-* from **vidád-aśva-*, *bháradvāja-* from *bharád-vāja-*, but these are to be explained within the realm of compound derivation and do not concern us.

4.4 Negated Participles

In Sanskrit participles are negated by means of combination with the negative prefix *á(n)-*.³² This is the only means of negating a participle: the independent negative particles *ná* and *má* are not used to negate participles, and in fact, besides a very few exceptions, can only be used to negate clauses (Delbrück, 1888, p.540–543).³³

There are 72 negated participial stems in the *Ṛgveda*. Of these 61 are (or could be) formed from present tense-aspect stems.³⁴ The remainder are eight negated perfect participles,³⁵ and three negated aorist participles;³⁶ there are no negated future participles.

The status of negated participles within the participial systems of *Ṛgvedic Sanskrit* and Proto-Indo-European has either been taken for granted (e.g. Wackernagel, 1928, v.2, p.287), or stated equivocally (so the regular definition in RIVELEX, v.1: “Determinativkompositum/verbales Rektionskompositum. . .”). However there is both syntactic and semantic evidence that ‘negated participles’ must mostly be analysed as non-participial, derived stems in the *Ṛgveda*. If negated participles were simply that, i.e. participles with the additional semantic feature [+NEG], we would expect them to correspond to their positive counterparts in respect of both argument structure and semantic range, but this is rarely the case.

Negated participles are almost always intransitive, even when the corresponding positive participle and the finite verbal stem is transitive. For example the negated participle *ánapavyayant-* at 6.75.7d (ex. 4.3 below) has no object, nor can an object easily be supplied; in contrast finite forms of $\sqrt{\text{vye}}$ ‘cover’ are always transitive, including the single finite occurrence of *ápa* $\sqrt{\text{vye}}$ ‘uncover’ (ex. 4.4 below). The exact sense of the negated participle is uncertain (see Geldner’s note, RV, v.2 p.177) because it is unclear how to interpret it with

³²I have discussed negated participles in more detail in Lowe (2011a).

³³Renou (EVP, v.13, p.105) suggested that participles may be occasionally negated by *ná*, e.g. at 5.2.1c and possibly 5.2.4b.

³⁴I include in this number even clearly non-verbal nonce-formations such as *ádvayant-* ‘undivided’, discussed below (p.239). The isolated *ásinvant-* (beside *asinvá-*) is included on the assumption that it reflects an untested present **sinóti* (cf. Mayrhofer EWA, v.2, p.146–147). The form *acodáte* at 5.44.2b, usually analysed as the d.sg. of the negative of *codant-*, cannot be so treated due to its accent; it may perhaps represent a *t*-stem *acodát-*, parallel to *asaścát-* ‘without rival’. Also discounted is *ávivenan* at 4.24.6c, which is better read as an absolutive *ávivenam* (so Gotō, 1987, p.298 fn.710).

³⁵The forms are *ácikitvaṃs-*, *ájaghanvaṃs-*, *áproṣivaṃs-*, *ábibhivaṃs-*, *árarivaṃs-*, *ásaścivaṃs-*, *ávidvaṃs-* and *ádāšvaṃs-*; these last two are built to perfect participles which are lexicalized, as evidenced by the derived superlatives *áviduṣṭara-* and *ádāśuṣṭara-* (cf. §4.3.2).

³⁶They are: *áhrayāna-*, *ásridhāna-* (on which see p.239) and *áčetāna-*.

no object.

- (4.3) *avakrámantah prápadaír amítṛān*
kṣinánti sátrūṁr ánapavyayantah (RV 6.75.7cd)

‘Trampling their opponents with their tiptoes,
they crush their enemies *without withdrawing*.’

- (4.4) *ápo máhi vyayati cákṣase támo*
 jyótiṣ kṛṇoti sūnārī (RV 7.81.1cd)

‘She *removes* the great darkness for (i.e. to create) sight;
the noble lady creates the light.’

The meaning of the hapax legomenon *áyatant-* at 2.24.5c is likewise difficult because active forms of \sqrt{yat} are always transitive and mean ‘array, line up (e.g. a battle line)’. The line refers to two divine or heavenly entities which move according to a fixed, though separate, order.³⁷ The literal meaning of this participle must therefore be something like ‘not lining (themselves) up next to one another (but rather maintaining a fixed distance)’.³⁸

- (4.5) *áyatantā carato anyádanyad íd*
yá cakāra vayúnā bráhmaṇas pátiḥ (RV 2.24.5cd)

‘The two go at a *fixed distance*, each to another (sphere),
the spheres which Brahmanaspati created.’

The single occurrence of the positive present participle at 5.48.5b is in contrast transitive; likewise finite forms such as the 3sg. present *yatati* at 7.36.2d:

- (4.6) *jánaṃ ca mitró yatati bruvāṇáḥ* (RV 7.36.2d)

‘And, called Mitra, he *marshals* men.’

Other negated participles beside which corresponding positive participial and finite forms are always transitive are *ávyant-* ‘not pursuing, not desiring’ (ex. 4.8) and *ámardhant-* ‘not neglecting’. In most other cases involving negated participles to transitive participial stems, the corresponding finite or positive participial forms are also sometimes found without objects. However the absolute regularity with which negated participles to such stems lack objects contrasts with the occasional intransitive use of the positive participial and

³⁷Heaven and Earth according to Sāyana; the Sun and Moon according to Renou, (EVP, 15, p.57).

³⁸On this verse see also Klein (2003, p.784).

finite verbal stems. For example the positive present participle *ghnánt-* to the root $\sqrt{\text{han}}$ ‘strike, slay’ and finite forms of the same stem are usually transitive, although occasionally an object may be lacking (e.g. at 4.17.10a). However none of the three occurrences of the negated participle *ághnant-* appears with objects (7.20.8cd, 5.51.15c and 8.25.12a). The same is true of the negated perfect participle to this verb, *ájaghanvaṃs-* at 8.67.15c: it is intransitive while only one of the eighteen occurrences of the positive participle *jaghanváṃs-* is intransitive (1.32.14b). This could all be coincidental; however it fits the pattern already seen that negated participles are regularly intransitive.

In terms of their semantic range too, negated participles contrast with their positive counterparts in that they are rarely if ever found in the adverbial functions typical of participles, occurring rather in functions which are characteristic only of adjectives (adnominal functions, and the adverbial expression of manner and attendant circumstance). The best possible examples of negated participles with ‘participial’ function are the following.

(4.7) *ákrīlan krīlan hárir áttave ’dán* (RV 10.79.6c)

‘While both *not playing* and playing the golden one
must eat without teeth.’

(4.8) *trīḥ sma máhnaḥ śnathayo vaitaséno*
’tá sma mé ’vyatyai pṛṇāsi (RV 10.95.5ab)

‘Three times a day you pierce me with your reed,
and you fill me (with your seed even) *when I do not desire it.*’

(4.9) *’riṣaṇyan vīlayasvā vanaspate* (RV 2.37.3b)

‘Become firm *and fail not*, O Vanaspati.’

However *ávyant-* (ex. 4.8) could be taken adnominally, ‘one without desire’; similarly *áriṣaṇyant-* (ex. 4.9) could be interpreted as expressing manner, i.e. ‘unfailingly’. If *ákrīlant-* (ex. 4.7) must be interpreted temporally, as above, the influence of the immediately following positive participle *krīlant-* cannot be ignored.

Taking this together with the evidence regarding transitivity, it is clear that negated participles lack two of the major features which distinguish participles proper from (the majority, at least, of) adjectives: the ability to share the argument structure of the finite

is supported by comparative evidence: in Latin the negative prefix similarly derives negative adjectives while real participial negation is achieved by using the independent negative *non*, as in e.g. the adjective *impatiens* ‘impatient’ beside *non patiens* ‘not enduring (obj.)’. In Ancient Greek likewise real participial negation is achieved by means of the negative particles $\mu\acute{\eta}$ or $οὐ(\kappa/\chi)$; synchronically at least participles cannot regularly be negated by combination with the negative prefix $\acute{\alpha}(\nu)$ -.⁴¹

Historically, then, participles combined with the negative prefix were not synchronically negative counterparts of their positive bases, but rather non-participial (though participle-derived) adjectives.⁴² In PIE a participle compounded with the negative prefix derived a non-participial adjective, which could not share the syntactic and semantic possibilities of the simple participle. Whether a participle could be directly negated, perhaps by means of a periphrastic collocation involving an independent word indicating negation, as in Classical Latin and Greek, cannot be certain. The Greek and Latin means of negating participles may perhaps be inherited, but if so this PIE process must have been lost in PII times.

However as we have seen there is some evidence that ‘negated participles’ in the *R̥gveda* can display genuine participial features such as transitivity. It appears then, that at a later, possibly PIA, stage the possibility arose of forming genuinely negated participles by means of the negative prefix $\acute{\alpha}(n)$ -, replacing the inherited means, if any. These were not derived adjectives but synchronically participles, able to function in the same ways as positive participles. The *R̥gveda* presents both stages of development side by side, and therefore negated participles are formally ambiguous and can only be categorized on syntactic and

of PIE date, if Goth. *sunja* ‘true’ is cognate (cf. Lehmann, 1986, p.329). On this and other words for ‘truth’ in Indo-European languages see also Frisk (1936, esp. p.3–6, 16, 28). The replacement of $\acute{\alpha}nant$ - by $\acute{\alpha}nrta$ - as the regular Sanskrit antonym of *satyá*- was almost complete by the time of the *R̥gveda*: at an earlier stage the semantic difference between $\acute{\alpha}nant$ - and $\acute{\alpha}nrta$ - can be assumed to have been something like ‘not true’ versus ‘not right’ respectively; the tendency of words related to the latter form to become used in the sphere of truth is clearly paralleled by Avestan *aša*- ‘truth’ (on which see Hintze, 2007, p.53–58). Late R̥gvedic *asatyá*- ‘false’, as also YAv. *ajhaiθiia*- ‘id.’ are clearly later creations. On the sometimes (incorrectly) related *santya*- see Hoffmann (1968b).

⁴¹The only instance known to me which must be so analysed is $\acute{\alpha}νομολογούμενος$, synchronically the negative of $\acute{\alpha}μολογούμενος$, present mediopassive participle of $\acute{\alpha}μολογῶ$ ‘agree’. The explanation of this single negated participle is uncertain: it may be that the positive participle had become adjectivized, but the verb itself can hardly be archaic since it is denominative from a compound, so it is unlikely to reflect any kind of inherited formation. The few apparently similar examples, $\acute{\alpha}έκων$ (Attic $\acute{\alpha}κων$) ‘unwilling’, $\acute{\alpha}εκαζόμενος$ ‘id.’, and $\acute{\alpha}νάρμενος$ ‘unequipped’, do not correspond to attested finite verbal stems and so cannot be considered negated participles.

⁴²Note also that the accent of these ‘negated participles’ in Sanskrit is always on the prefix $\acute{\alpha}(n)$ -; this is the only context (besides vocatives and some compounds) in which participles lose their inherent accent (cf. Knauer, 1885, esp. p.19–20).

semantic grounds. Classical Latin and Ancient Greek may then represent more closely the PIE state of affairs, while it is Indo-Iranian which has innovated.⁴³

This development is seen in the existence of *ásant-*, a more recent (reformed after the loss of the root-initial laryngeal) negated form of *sánt-*. This word, in contrast to *ásant-*, is the semantic negative of *sánt-*, meaning ‘not being’; it must be treated as the regular negative form of the participle *sánt-* rather than a derivative adjective.⁴⁴

We have seen that there is both synchronic functional and diachronic comparative evidence for an analysis of most Ṛgvedic negated participles as adjectives, rather than participles as such. Given this evidence, this adjectival analysis should be the default analysis of such a form, unless there is positive evidence for the participial status of a particular word, as there is in the case of *ásant-*, *áminant-*, and possibly *ákrīṇant-* discussed above. Besides these forms, however, there is no definite evidence for a participial analysis of any other negated participle in the *Ṛgveda*.

4.5 Adverbs

Further evidence for the participial or non-participial status of potentially ambiguous forms is provided by the use of adjectives as adverbs. It is generally assumed that, as with any other adjective, the n./a.sg.nt. of participles could be used adverbially in the *Ṛgveda*. However a detailed consideration of the forms involved shows that no synchronic participle is ever used in this way.

An early list of supposed participles used as adverbs is given by Wackernagel (1918,

⁴³The evidence of Avestan broadly supports that found in the *Ṛgveda*. There are at most thirty-nine words in the Avesta which could be interpreted as negated participles, most attested only once. Since this includes both Old and Younger Avestan, the evidence is both scarcer and more chronologically disparate than the RV evidence. There are only six negated participles in Old Avestan, none of which have objects. In Younger Avestan there are at most four negated participles governing objects beside thirty without; these four participles all also occur without objects in other passages: *aiiazəmna-* at Vyt.12 (vs. id. at V.18.5 without object), *əuuərəziiant-* at V.3.40 (vs. id. at V.18.5 without object), *asrauuaiiant-* at N.44, 41–45.6 (vs. id. at V.18.5, N.104 without object), *əuūduuah-* at Vr.22.2 (vs. id. at Y.31.12, 17 without object). From a functional point of view the evidence is of course subjective, but my general impression is that participial functions are not found with these Avestan negated participles any more than they are with the RV negated participles. The evidence for ‘participial’ negated participles in Avestan is therefore minor and late, which may suggest that the innovation of genuinely negated participles as opposed to derived negative adjectives took place independently in the two branches of Indo-Iranian.

⁴⁴On the contrast between *ásant-* and *ásant-* see already Oldenberg (Noten, v.1 p.272).

p.394–395): *jāgrat-*, *ṭṛpát*, *dravát*, *drahyát*, *dhr̥ṣát*, *patayát*, *pravát*, *īṣát*.⁴⁵ Besides these forms, Wackernagel-Debrunner (AiG, v.2:2, p.164) considered *tárat* at 9.58.1c–4c and *bhárat* at 9.52.1b to be adverbial a.sg.nt. participles, but these are now generally accepted to be injunctives. Pinault (1989, p.86–87) accepted all these and added AV *stāyát* ‘in secret’.⁴⁶

That most of these forms are used as adverbs is not in doubt; compare the use of *ṭṛpát* and *drahyát* in ex. (4.11) with the adverbially used n./a.sg.nt. of *bahú-* and *bṛhánt-* in exx. (4.12) and (4.13) respectively.

(4.11) *ṭṛpát sómam pāhi drahyád indra* (RV 2.11.15b)
 ‘O Indra, *securely* drink the Soma *to satisfaction*.’

(4.12) *bahú sākám sisicur útsam udrīṇam* (RV 2.24.4d)
 ‘They pour out together *abundantly* from the watery well.’

(4.13) *vīṣanam tvā vayám vīṣan*
vīṣanaḥ sám idhīmahi
ágne dídyatam bṛhát (RV 3.27.15)
 ‘We males kindle you,
 the male, O male,
 O Agni, you who shine *on high*.’

What is questionable is whether any of these adverbs can be treated as case forms of participles, at least synchronically. The adverb *ṭṛpát* has no corresponding participle or even finite verbal stem in the RV, but could perhaps be treated as nt.sg. of an *-nt-* Caland adjective connected to Gr. *τεπνός*, *τεπικέρονος* etc.; *dhr̥ṣát* ‘boldly’ is the n./a.sg.nt. of the Caland adjective *dhr̥ṣánt-* (see p.215); *dravát* ‘swiftly’ does seem to be the n./a.sg.nt. of *drávant-*, which corresponds to the present stem of \sqrt{dru} ‘run’, but the participle itself has been lexicalized as an adjective meaning ‘swift, quick’, rather than expected ‘running’, so synchronically the adverb is derived from an adjective, not a participle; *drahyát* does not even have a clearly corresponding verbal root (the regular full-grade of $\sqrt{dṛh}$ is *darh-*).

⁴⁵Recently repeated without criticism by Nishimura (2003, p.118), who says they “have originated obviously from the present participle.”

⁴⁶Pinault (1989, p.86–87) derives AV *stāyát* from **stāyánt-* “d’un prés. ancien **(s)tāyāti*, cf. aussi *tāyú-* et *stāyú-*...”; the existence of a finite verbal stem, and even of an *-nt-* adjective/participle, is therefore entirely hypothetical. Alternatively *stāyát* could be a.sg.nt. of an *-nt-* adjective related to the Caland system (cf. *stāyú-*). In any case the form does not occur in the *R̥gveda* and will not be considered further.

regular formation of adverbs from the a.sg.nt. of adjectives but never from participles in the *Ṛgveda* demonstrates a clear functional distinction between the two categories.

4.6 The Caland System

We now move on to consider specific words and groups of words which at first sight look like participles, at least morphologically, but which on more detailed syntactic and semantic (and sometimes even morphological) evidence cannot be included in the category of tense-aspect stem participles in the *Ṛgveda*. The first group of words we will consider is those which are or may be ‘Caland adjectives’.

A Caland adjective is an adjective which is part of the ‘Caland System’; the ‘Caland System’ refers to a pattern of suffixal alternation reconstructable for a particular set of Indo-European roots. Any root which is part of the Caland System could form nominal (adjectival) derivatives by means of any or all of the ‘Caland suffixes’, while roots which were not part of the Caland System utilized other suffixes. A distinctive feature of the Caland System is that, as far as we can reconstruct, the different Caland suffixes were largely interchangeable, with the result that the daughter languages have in general selected separately one or another ‘Caland adjective’ for a particular root, and lost the other variants. As described by Nussbaum (1976, p.5):

“In such a view a root like *debh-* “small”, for example, will be said to have parallel derivatives in *-ro-* (Skt. *dabhra-*), *-i-* (*dabhīti-* < *dabhi-iti-*) and *-u-* (Hitt. *tepu-*) all equally primary and derived more or less simultaneously (in the most remote synchrony which we can actually recover) as an immediately possible set, one formation potentially implying the others, whatever the starting point of this implication.”

A PIE **-nt-* suffix is widely acknowledged as one of the adjectival Caland suffixes.⁵⁰

This raises the possibility of ambiguity between Caland adjectives in **-nt-* and participles

(1988–1991) but by Insler (1975) and Humbach (1991) as a finite verb; *vāunuš* at Y.28.8 is an adverb from a nt. perfect participle according to Insler (1975) and Humbach (1991) but for Kellens and Pirart (1988–1991) is a noun; *vīduš* at Y.45.8 and Y.28.4 is again a perfect participle adverb according to Insler (1975, on 28.4) but a secondary derived stem for Humbach (1991) or unrelated to the perfect participle for Kellens and Pirart (1988–1991).

⁵⁰A recent exception is Shatskov (2005, p.105, fn.9), who rejects any suggestion of a non-participial *-nt-* suffix in Indo-European, specifically treating as participles several of the relatively secure Caland adjectives discussed below.

in *-*nt*-.⁵¹ In the following section we will consider the evidence for Caland adjectives in -*nt*- in the *R̥gveda*.

4.6.1 Caland adjectives in *-*nt*-

Caland's original statements about the suffixal alternations which later came to bear his name (Caland, 1892, p.266–268; Caland, 1893, p.592) are focused only on the Indo-Iranian suffixes -*ra*-, -*ma*- and -*i*- in compound.⁵² The only mention of -*nt*- by Caland (1892, p.267, fn.1) himself is in a footnote in which he mentions firstly exceptions to his rule, and then the single example of -*i*- alternating with -*nt*- in Avestan: the compound form *bərəzi*- of the basic adjective *bərəzant*- 'high'. Clearly Caland did not consider -*nt*- on the same level as -*ra*- and -*ma*- here, a fact confirmed by his specific reference to -*ra*-, -*ma*- and -*i*- but not -*nt*- in his subsequent note on the subject (Caland, 1893, p.592). Wackernagel (1897, p.8–14) extended the process to *-*u*-, *-*no*- and some compound suffixes, as also to Ancient Greek and thereby Proto-Indo-European, but he did not mention -*nt*-. The next mention of -*nt*- is by Bartholomae (1900, p.136, fn.2) and later (and secondarily) in the same volume by Hübschmann (1900).⁵³ The suffix was not mentioned at all by Risch (1937) in his treatment of the Caland system in Greek, nor in the updated second edition (Risch, 1974).⁵⁴ However it was taken for granted by Bader (1975) and by Nussbaum (1976), whose unpublished Ph.D. thesis was the single most important work on the Caland system before the recent work of Rau (2009), who also takes it for granted that -*nt*- is a Caland system suffix.⁵⁵

⁵¹Whether the two were diachronically related within PIE does not necessarily affect the possibility of two synchronically separate suffixes either in PIE or *R̥gvedic Sanskrit*. The question will be discussed further below.

⁵²The existence of adjectives in -*nt*- distinct from participles in -*nt*- was already widely accepted; e.g. Bartholomae (1888, p.563f.) treated *bṛhánt*-, *mahánt*-, *járant*-, *rúsant*-, *pṛṣant*- and *ṛhánt*- as adjectives, entirely separate from participles.

⁵³Bartholomae's note actually points out that the alternation between Sanskrit *máhi*- in compound and *mahánt*-, parallel to that between *bərəzi*- and *bərəzant*-, was noted much earlier by Böhtlingk-Roth (PW, v.5, 1868, p.666). Of course the latter merely noted the connection in this word and did not claim any systematic rule or pattern for Sanskrit or PIE.

⁵⁴Likewise de Lamberterie (1990, p.18–25) fails to mention the -*nt*- suffix. In both cases this is presumably because of the relatively few possible -*nt*- Caland adjectives in Greek.

⁵⁵Bader (1975) attributed a remarkable number of Indo-Iranian -*nt*- forms to the Caland system without providing any supporting evidence for such attributions, and as such her analyses of individual forms must be taken with a pinch of salt. Forms she labelled Caland adjectives include *śucánt*-, *dódha(n)t*-, *tṛpát*-, *dhṛṣát*-, *sāhant*- (sic), *vahant*- (sic), *ghnánt*-, *jaghnant*-, *vidhánt*-, *ávicācalant*-, *sánant*-, *árcant*-, various Avestan forms such as *baodañt*- and *frādañt*-, as well as every stem ending in -*át* which occurs as the first member of a compound (governing or otherwise). In the following discussion I will not specifically note where my analyses overlap or conflict with her unsupported claims.

Caland *-nt- outside Indo-Aryan

There is significant, if scattered, evidence for the Caland suffix in *-nt- outside Indo-Aryan. As the evidence has never been collected in one place (most is spread throughout Nussbaum, 1976) I will briefly discuss the data here, before moving on to the Sanskrit evidence.

A few primary Caland adjectives in *-nt- are found outside Indo-Aryan. Av. *xruuaṅt-* ‘bloody’, thematized in Lat. *cruentus* appears beside Skt. *krūra-*, *ákravihastā-* (Nussbaum, 1976, p.25). Gr. *κρέων* ‘ruler’ is part of the Caland system seen in Av. *srīra-* etc. Toch. (A) *arkant* (B) *erkennt* ‘black’ beside (A) *orkām* (B) *orkamo* (<**h₁org^h-u-mo-*?) and Gr. *ἔρεφος* also appear to reflect primary Caland adjectives in *-nt- (Nussbaum, 1976, p.79). Lat. *gracens* (*cracentes*, Ennius A.505) may be a primary formation beside complex suffixes in *gracilens*, *gracilis*; also possibly Av. *ərəγṅt-* ‘entsetzlich, abscheulich’ (Bartholomae, 1904, p.349), the etymology of which is uncertain.

Slightly less clear are Gr. *μέλας* and possibly *τάλας*, *-nt- Caland adjectives which underwent secondary alteration to -n- stems according to Nussbaum (1976, p.21, 27). Thematized Caland *-nt- suffixes may be seen in Av. *ərəzata-*, Lat. *argentum*, Welsh *ariant* etc. beside Skt. *ṛjrá-* Gr. *ἀργός* < **ἀργρός*, *ṛjīti-* (i.e. *ṛjī-iti-*) Gr. *ἀργυρέφανος*, Hitt. *ḫarkiš* etc., and possibly in Lat. *nūntius* (<**neue-nt-iō-*) beside *noverca*, Gr. *νερός* (Nussbaum, 1976, p.99).

Occasionally *-nt- is found as part of complex Caland suffixes. So in Av. *bəzəuuṅt-*, like Skt. *bahulá-* an extended variant of the u-stem adjective Skt. *bahú-*, Gr. *παχύς*, beside e.g. a *-ro- stem reconstructable to Proto-Hittite (Oettinger, 1986, p.21) and the s-stem noun in Av. *(də)bəzah-*, Gr. *πάχος*.⁵⁶ Also Hitt. *daššuṅt-* ‘strong’ beside *daššu-* ‘id.’ (Nussbaum, 1976, p.69), and possibly Av. *ərəzuuṅt-* beside *ərəzu-*, Skt. *ṛjú-* ‘straight’.

There is some evidence for abstract nouns in *-nt- related to the Caland system; Nussbaum (1976, p.86) was uncertain how to relate these to the adjectival *-nt- suffix and it may be that we are simply dealing with substantivized neuter adjectives. Nussbaum adduced evidence from Tocharian and Old Irish: Toch. (A) *koṃ-pärkānt*, (B) *kaṃ-pirko* ‘sunrise’ related to Sanskrit *bṛhánt-*; OIr. *lethet* ‘breadth’ (<**pl(e)th₂-nt-*), *tiget* ‘thickness’ (**√teg*), *treisset* ‘strength’ (**√treg*), *lagat* ‘smallness’ (**√h₁leg^hh*, cf. *ἐλαχύς* etc.),

⁵⁶Cf. Mayrhofer (EWA, v.2, p.220–221).

and *lóchet* ‘flash’ (cf. *rúśant-* below). More recently Dishington (2010, p.303–304) reconstructs PIE **dhughont-* (ON *dugandi*, OHG *tugend* ‘usefulness, capability, doughtiness’) and **uidont-* (ON *vísendi* ‘intelligence’, OHG *wizzantheit* ‘Wissen, Kenntnis’).

Altogether there is considerable evidence outside Indo-Aryan for an **-nt-* suffix forming part of the Caland system, although primary Caland adjectives in **-nt-* not also found in Sanskrit are at most five. In the next sections we will reconsider the evidence for Caland adjectives in **-nt-*, focusing on the data from Sanskrit, which provides the majority of the evidence for the primary suffix.

4.6.2 *-nt-* adjectives in Sanskrit

bṛhánt- et al.

The most widely accepted Caland adjective in **-nt-* reconstructable for PIE is the very one first noted by Caland, attested in Sanskrit *bṛhánt-* ‘high’, Avestan *bərəzant-*, the Irish PN *Brigit*, Germanic names in *Burgund-*, and the Tocharian compound (A) *koṃ-pärkānt*, (B) *kaum-pirko* ‘sunrise’, with alternative suffixes seen in Avestan *bərəzi-* (**-i-*), Hittite *parku-* and Armenian *barjr* (**-u-*), and Tocharian (A) *pärkär*, (B) *parkre* (**-ro-*). There is no verbal stem to which *bṛhánt-* could be a participle; moreover *bṛhánt-* is extremely common in the RV (and later Sanskrit) with an exclusively adjectival sense. It is not even widely suggested that *bṛhánt-* may have been a participle in origin; e.g. Mayrhofer (EWA, v.2, p.232) lists *bṛhánt-* separately from the verbal root $\sqrt{bṛh}$ and makes no suggestion that it could be a lexicalized participle.⁵⁷

A few other adjectives in *-nt-* which are clearly adjectival and have no corresponding verbal stems (or roots) can likewise be attributed to the Caland system. The isolate hapax *ṛhánt-* ‘small(?)’ (RV 10.28.9c) is listed as a Caland adjective by Rau (2009, p.90); various etymological connections have been suggested (see Mayrhofer EWA, v.1, p.262) but none are secure. If, following Sihler (1995, p.163) we take it as an Indic creation based on its apparent antonym *bṛhánt-*, it would still in a sense be a Caland adjective. The adjective

⁵⁷One exception is Klingenschmitt (1982, p.107–108) who, comparing the Hittite and Tocharian evidence for finite forms of this root, concluded that it had a root aorist in PIE and that **b^hr̥g^hónt-*, the predecessor of Sanskrit *bṛhánt-*, was a participle to the aorist stem. Likewise Shatskov (2005).

Moreover the usual feminine stem is *járatī-*, which cannot correspond to a class 1 present stem but does correspond to the regular feminine of adjectival *-nt-* stems.⁵⁸ Its diachronic status, however, is more controversial. The older view was that *járant-* and its cognates Greek *γέρων* ‘old man’ and Oss. *zāronđ* ‘old’ were participles in origin (so, e.g. Wackernagel-Debrunner, AiG, v.2:2, §70b p.163). More recently Nussbaum (1976, p.18–20) has argued convincingly that *járant-* is a Caland adjective, with such corresponding stems as *jívri-*, *jírvi-* ‘weak’, *jarás-* ‘old age’; and he is followed by e.g. Tucker (2002a, p.420 fn.4) and Rau (2009, p.101). Likewise Gotō (1987, p.153) argues that *járant-* is an “autonome Adj.-Bildung wie z. B. *brhánt-* : *brhatī-*”, but without reference to Nussbaum or to the Caland system. On the other hand Gotō’s argument, and by implication also Nussbaum’s, is rejected by Lubotsky (1997b, p.563); Kümmel (2000a, p.197 with fn.244) considers the form in origin a participle, but states that it must have become an adjective already in PIE.

The semantically equivalent *juránt-* was likewise traditionally considered a participle to a present (more recently an aorist) stem *jurá-*, and this is still maintained e.g. by Lubotsky (1997a, p.574). Again it was Nussbaum (1976, p.18–20) who argued that the two attested forms of the apparent *juránt-*, namely the weak case forms *juraté* (7.68.6a) and *juratám* (2.34.10d), are in fact relics of an earlier amphidynamic Caland adjective *járant-/jurit-*.⁵⁹ There is some support for this also in the distribution of forms, since the ‘secondary’ full-grade weak case forms of *járant-* found in the RV are found largely in late books.⁶⁰ Again Gotō (1987, p.153, fn.238) argues the same point without reference to Nussbaum or the Caland system. The connection between *járant-* and *juránt-* has been widely accepted, often on the assumption that the amphidynamic inflection can be used to support an original amphidynamic inflection of participles in PIE (cf. on this Kümmel, 2000a, p.197 fn.244); this will be discussed further below. Whatever the original situation, accepting the connection between *juránt-* and *járant-* entails that the former is, like *járant-*, not synchronically

⁵⁸Diachronically the evidence is controversial: either the usual feminine *járatī-* or the rare (*a*)*járantī-* (e.g. AV 7.6.2) must be irregular; the former if the word is in origin a participle, the latter if it is in origin an adjective. For an explanation in terms of a theory which rejects a participial origin of *járant-*, see Gotō (1987, p.153 fn.238).

⁵⁹On the vocalism of the weak grade stem see Pinault (1988, p.334–335).

⁶⁰The stem *járant-* is attested in the RV at 1.117.13a, 1.161.7b, 8.73.11b, 9.112.2a, 10.34.3c and 10.80.3a, which looks like a late attestation, although it is clearly inherited; on the other hand *juránt-* is attested at 2.34.10d and 7.68.6a which shows that these archaic forms supply the missing old RV evidence for this adjective.

a participle; moreover Kümmel (2000a, p.197–198) points out that the single apparently correspondent finite form *jurátam* at 1.182.3c is, like *járati*, transitive, and so *juránt-* could not correspond functionally to this verbal stem anyway.⁶¹

(4.17) *utá tyád vāṃ juraté aśvinā bhūc*
cyāvānāya pratītyaṃ havirdé (RV 7.68.6ab)

‘And this was for *old* Cyavāna, O Aśvins,
 your retribution for the oblation-giver.’

(4.18) *āti kramiṣṭaṃ jurátam paṇér ásum* (RV 1.182.3c)

‘Step beyond, *make old* the life of the miser.’

uśánt-

The word *uśánt-* ‘willing’ is usually analysed as a lexicalized, morphologically regular present participle to the root $\sqrt{\text{vaś}}$ ‘desire’. This supposed present participle is much more common than finite forms of the corresponding stem; moreover while the finite forms are commonly transitive (ex. 4.19), the participle never has an accusative object, meaning simply ‘willing’ (ex. 4.20).⁶² The ‘participle’ is only found in adnominal function, or in adverbial function expressing manner or attendant circumstance; that is precisely the functional range of non-participial adjectives.

(4.19) *utá syá naḥ sárasvatī*
ghorá hīraṇyavartaniḥ
vṛtraghnī vaṣṭi suṣṭutīm (RV 6.61.7)

‘And this Sarasvatī,
 the awesome, of golden wheels,
 the slayer of Vṛtra *desires* our praise-song.’

(4.20) *uśántas tvā ní dhīmahy*
uśántaḥ sám idhīmahī

⁶¹Incidentally any suggestion that *járant-* can represent an archaic patientive function of a participle vis à vis the present *járati* (cf. 4.1.1, p.185 above) can be countered by the argument of Kümmel (2000a, p.197–198) that the intransitive meaning of this root is basic and the transitive sense found in *járati* is later. Likewise although Pāṇini introduces *járant-* as a nominal form with specifically past tense (by rule 3.2.104), equivalent to the *-tá/-ná-* adjective *jīrṇá-*, this has no necessary diachronic implications; rather it is a necessary consequence of the fact that for Pāṇini the present stem *járati* no longer existed and the root $\sqrt{jī}$ had a basically telic meaning ‘age, become old’ (*Dhātupāṭha* ‘vayohāni’).

⁶²In some instances it could in principle be possible for the participle to be sharing the object of the finite verb, but such an interpretation is never necessary.

uśánn uśatá á vaha
 pitṛñ havíṣe áttave (RV 10.16.12)

‘*Willing(ly)* we establish you,
willing(ly) we kindle you;
willing(ly) convey here the *willing*
 forefather-spirits to eat the oblation.’

From its function and meaning in the *R̥gveda* it is clear that *uśánt-* is not, synchronically, simply the participle to the present active stem. It is usually considered to have been lexicalized; so e.g. Wackernagel-Debrunner (AiG, v.2:2, §70b p.163–164) assume that *uśánt-* was “adjektiviert.” Pinault (1988, p.334–335) considered *uśánt-* more certainly a participle (at least in origin) than *járant-*; in contrast it is no surprise that Bader (1975, p.34–35) lists the form in her optimistic collection of supposed Caland adjectives. While assuming that it is formally a participle, García Ramón (2009, p.239) notes that *uśánt-* shares its lack of object with its cognate Greek *ἐκών*, “a coincidence which has not been given the attention it deserves.”

While *uśánt-* and its cognate *ἐκών* are functionally adjectives, the other attested cognate, Hittite *uekkant-*, is not (García Ramón, 2009, p.238–240). While the Sanskrit and Greek forms entirely agree and can be analysed as historically adjectives, the Hittite cognate is functionally a regular participle, having the patientive semantics expected for an *-nt-* participle in Hittite (‘desired’). However we can hypothesize that the Hittite form is the synchronic (and historic?) participle which is unattested in other I-E languages while the Caland adjective is not found in Hittite. It is in fact less surprising that Hittite should have preserved or recreated the participle and lost the adjective than that the adjectival function of the cognate form in Sanskrit was preserved in the face of pressure from the verbal paradigm.

Supporting evidence that *uśánt-* represents an inherited Caland adjective comes from Avestan, where an *h*-stem (i.e. inherited *s*-stem) noun *vasah-* ‘will’ is attested; *s*-stem nouns are commonly considered to have been part of the Caland system.⁶³ Further the Greek

⁶³Av. *vasah-* is clearly attested in the compound *vasasə.xšaθra-* ‘ruling at will’ at Y.43.8 and probably in the n.sg.m. *vasā* at Y.31.11, even if many apparent examples of the (adverbial) neuter singular *vasō/vasē* are, as argued by Widmer (2004, p.136), actually n.sg. of *usant-* (*-ē* as an *-nt-* stem ending is expected but not attested according to Schindler, 1982).

form *ἐκρηλος* ‘at ease’ appears to show a different Caland suffix, PIE *-lo-, to the same root, albeit to an extended stem.⁶⁴

Further evidence that *usánt-* should be considered an inherited Caland adjective rather than an inherited participle may be found in the ablaut reconstructable for the form in PIE. The cognate Greek word is, as stated, *ἐκών*, likewise usually considered an inherited, lexicalized, participle. Comparison of these cognate forms has naturally led to the reconstruction of a PIE paradigm with amphidynamic ablaut and accent, i.e. **uék-ont-/uk-nt-* (Rix, 1976, p.123, 144).⁶⁵ The ablaut pattern of the ancestor of *usánt-* then does not match the hysterodynamic present stem reconstructable from Skt. *váṣṭi* (and the Hittite verb, according to Kloekhorst, 2008, p.996–997).⁶⁶

The amphidynamic accent-ablaut pattern reconstructed on the basis of *usánt-* and *ἐκών* is, of course, parallel to that seen above with *járant-* and *juránt-*. Although it is often assumed that *-nt- participles in PIE had amphidynamic ablaut, it is largely on the basis of these two forms,⁶⁷ while unambiguous participles show ablaut patterns parallel to the stems from which they are derived.⁶⁸ Besides the stems underlying *járant-* and *usánt-*, there are only two other PIE *-nt- stems for which there is (at least alleged) evidence of such a paradigm (Schaffner, 2001, p.610–622). One is the stem underlying Skt. *bṛhánt-*, once again a Caland adjective, while the other is the stem underlying Skt. *dánt-* ‘tooth’.^{69,70}

⁶⁴Perhaps with -η- reflecting stative *-ē-.

⁶⁵An alternative, relatively popular suggestion, preferred by Schaffner (2001, p.611), is that an acrostatic paradigm underlies the attested forms. This is based on the belief that the Hittite verb *√uekk* ‘desire’ displays an acrostatic present stem, leading us to expect an inherited acrostatic participle. This analysis of the Hittite verb has been convincingly refuted by Kloekhorst (2008, p.996–997), however, leaving an amphidynamic paradigm as the only possible explanation of Gr. *ἐκών* and Skt. *usánt-*.

⁶⁶The accent of Greek *ἐκών* (gen. *ἐκόντος*) is an exception to the rule that nouns and adjectives in -ων, -οντος are paroxytone (Probert, 2003, p.87), and can only be related to the oxytone accent of the Greek strong aorist participles (unless we were to assume the full-grade root was secondary), where however the suffix should have e-grade ablaut. This is in fact problematic for any account of its PIE ancestor, whether adjectival or participial (the same arguments apply as for *dánt-* (below) against any suggestion that that verbal stem may originally have been aorist).

⁶⁷E.g. Nikolaev (2006, p.52).

⁶⁸Which cannot include the amphidynamic ablaut pattern since this is not found in the finite verbal system.

⁶⁹Schaffner mentions further a stem attested only in Germanic, **wīgand-* ‘warrior’ seen in OE *wīgend*, OHG *wīgant* etc.

⁷⁰Although the noun *dánt-* ‘tooth’, together with its many cognates (Latin *dēns*, Attic Gr. *ὀδούς*, Aeolic *ἔδοντες*, Goth. *tunþus* etc.) is usually assumed (following Schindler, 1975, p.62) to reflect a PIE aorist participle to the root **√h₁ed* ‘eat’, Schaffner (2001, p.617–620) has convincingly argued that this is unlikely. Schaffner points out that an original root aorist participle should have had a full grade suffix in *-e- (Forssman, 1964; Hoffmann, 1969b, p.264f.), while all the positive evidence of attested forms points rather to an o-grade (Gr. *ὀδούς*, Lith. *dantis*, ON *tōnn*, OE *tōþ*, OHG *zant*). At the same time any suggestion of a thematic aorist stem is countered by the clear evidence for the zero grade: Skt. oblique stem *dat-*, Arm. *atamn*, possibly Lat. *dent-*

Besides this the most significant evidence for amphidynamic ablaut in PIE participles is the vocalism of the participial suffix when accented (in the strong grade of hysterodynamic present stems). This is consistently *-ó-*, and must be reconstructed so for PIE, e.g. the present participle of the verb ‘to be’ must be reconstructed as **h₁s-ónt-/h₁s-nt̄’*.⁷¹ On the (questionable) assumption that accented o-grades are secondary, the inference can be drawn that the accented strong grade of the hysterodynamic participle may reflect a form with originally accented, e-grade, root.⁷² That is e.g. an original amphidynamic **h₁és-ont-/h₁s-nt̄’* at some point shifted its accent and lost the vocalism in the first syllable, producing the reconstructed hysterodynamic **h₁s-ónt-/h₁s-nt̄’*.⁷³ Such a development may, for example, have been in order to regularize the ablaut patterns of the participles with the hysterodynamic verbal stems with which they were associated. But even if an original amphidynamic paradigm is possible, this is not what we must reconstruct for PIE itself; it can only be valid for a pre-PIE stage. Now there is nothing to prevent us from assuming that the later Caland adjectives in **-nt-* and the later participles in **-nt-* were originally a single formation with amphidynamic ablaut, which later split into two distinct morphological categories, one with retained amphidynamic ablaut, the other with ablaut patterns determined by the verbal stem from which the word was formed.⁷⁴ However this is all supposition based on internal reconstruction, and it remains the case that in PIE as we are able to reconstruct

and OIr. *dēt*. Schaffner therefore reconstructs an amphidynamic non-participial adjectival or substantival agent noun **h₁éd-ont-/h₁d-nt̄’*. A simpler explanation, however, is that we have here an original hysterodynamic participle to a root present stem, i.e. **h₁d-ónt-/h₁d-nt̄’*. A root present is generally excluded for this root on the grounds that the original present was an acrostatic Narten present, implying a root aorist, but most if not all of the evidence for the Narten present can be explained by language-specific sound laws, e.g. Lachmann’s Law for the long vowel of Latin *ēst* etc., Winter’s Law (Matasović, 1995) for the long vowel in Balto-Slavic; if the Narten present is a phantom we then can reconstruct a root present (and, satisfyingly, restore ‘eat’ as the basic meaning of the root). In any case *dánt-* need not be considered further here since it is clearly not a participle in the *R̥gveda*.

⁷¹Kuryłowicz (1968, §342, p.268–269); Anttila (1970); Morpurgo-Davies (1978); Peters (2004); Petit (2005). On this participle see also Watkins (1967); Seebold (1969).

⁷²See Widmer (2004, p.135–138) and Meier-Brügger (2003, p.185) with references.

⁷³Likewise Kloekhorst (2008, p.183–184) argues that the hysterodynamic inflection of participles in PIE “must have been a quite recent refurbishing within PIE from an older system” of amphidynamic ablaut, basing his argument on the paradigm of the word for ‘wind’ which he reconstructs with amphidynamic ablaut, assuming this was a lexicalized participle from the root ‘blow’ **√h₂ueh₁*. However cf. fn.30, p.195 above; moreover in other respects the Anatolian evidence clearly supports hysterodynamic ablaut, including the only remnant of the **-nt-* participle in the Luwian languages, CLuw *^dTarḫuuant-*.

⁷⁴On this assumption, then, participles were an originally adjectival formation which became secondarily associated with the verbal system in pre-PIE, this association becoming formal when verbal stem ablaut pattern began to be transferred to the adjectives. This development would also have enabled the formation of adjectives to derived verbal stems, a central step in the creation of **-nt-* participles.

the translation supplied above it is equally possible, if not preferable, to take *agním* as the object of the following participle, *vavṛdhánt-*, leaving *śúcánt-* here entirely parallel to all other occurrences and in no way speaking against a non-participial analysis of the word. In conclusion although it cannot be considered certain, the weight of evidence would seem to favour the classification of *śúcánt-* as a Caland adjective rather than as a participle.

The hapax legomenon *citánt-* is formally difficult: it occurs only in the i.sg.f. *citántyā*, which implies a thematic verbal stem; however the attested aorist stem is an *s*-aorist (suggesting an original root aorist, see Narten, 1964, p.114) which makes the existence of a thematic aorist very unlikely.⁸⁰ Functionally *citánt-* is merely an epithet and is equivalent to the Caland adjective *citrá-* ‘brilliant, excellent’.

(4.25) *vanéma tád dhótrayā citántyā* (RV 1.129.7a)
 ‘May we win this with an *excellent* offering.’

(4.26) *avidḍhìndra citráyā na ūtí* (RV 2.17.8c)
 ‘Aid us, Indra, with your *excellent* help.’

Caland adjectives in *-nt-* usually have athematic stems (as would be expected); however *sáhant-* (usually taken as a participle but see below) is thematic, even in the derivatives *sáhantama-* and *sahantya-*; moreover cf. *ajárantī-* mentioned above (fn.58, p.210). For *sáhant-* and *ajárantī-* this can be explained as the reanalysis of the strong stem (of the original amphidynamic paradigm), e.g. **gérh₂-ont-*, as a thematic stem **gérh₂-o-nt-* and generalization to the rest of the paradigm; for *citánt-* such an explanation is problematic due to the zero-grade root. Nevertheless there are better parallels in the Caland system than in the verbal system for the unexpected ablaut of this form, and functionally the evidence can speak either way. Altogether the explanation of *citánt-* is uncertain, but an analysis as an aorist participle seems less reasonable than as a Caland adjective, or indeed as a nonce form.

⁸⁰Simply ignoring the problem of the full grade suffix on the grounds that it may be metrically conditioned seems somewhat unhelpful, since we might just as well suppose the whole word is nonce.

tujánt-

The only finite verbal form possibly corresponding to the stem seen in RV *tujánt-* ‘eager’ is a hapax medial present form *tujete* at 1.61.14b (beside a class 7 nasal present, a class 10 present and a passive present stem). Kölligan (2002, p.144–145) suggests that *tujánt-* was a root aorist participle which was reanalysed as a present, resulting in the back-formed present. Functionally, however, all four forms of the participle are no more than adjectives meaning ‘eager’; furthermore, the existence of RV *túgra-* and *túji-* (both PNs) suggests a Caland system to this root, into which *tujánt-* would fit without difficulty.⁸¹ Furthermore Kölligan argues that the Ancient Greek s-stem noun/adjective *στύγος* ‘hatred’ is etymologically related, further strengthening the connections of this root to the Caland system (although Kölligan considers it an inner-Greek creation). It therefore seems preferable to analyse *tujánt-* as a Caland adjective, rather than pursue the tenuous evidence for a corresponding verbal stem which would allow us to analyse it as a participle.

bhrájant-

Another possible Caland adjective is *bhrájant-* ‘sparkling’ to $\sqrt{bhrāj}$ ‘sparkle’.⁸² In the RV this supposed participle is the only active form of the root; post-RV active forms are rare, late and doubtful.⁸³ The only evidence for a Caland system in this root is the s-stem noun *bhrájas-* ‘brilliance, sparkle’. However the irregular accent on the compounds *bhrájaj-janman-* ‘of brilliant origin’ and *bhrájad-ṛṣṭi-* ‘whose spears sparkle’ may also support a non-participial status for this word.⁸⁴ On the other hand the existence of *vibhrájant-* (attested twice in identical pādas in books VIII and X of the *Ṛgveda*) is difficult to reconcile with a non-verbal origin for the word; nevertheless it is perhaps more likely that a Caland adjective *bhrájant-* was secondarily associated with the verbal system, at least to the extent that the semantically appropriate preverb *ví* could be added to it, than it is for a participle *bhrájant-* to be synchronically or even diachronically related to an otherwise medium tantum verbal system.

⁸¹Rau (2009, p.88) lists *túgra-* and *túji-* as Caland forms.

⁸²On the meaning of this root see Roesler (1997, p.147–157).

⁸³See the list in Gotō (1987, p.233).

⁸⁴§4.2.2, p.193f.

sáhant-

One of the many varied forms of the root \sqrt{sah} ‘conquer’, *sáhant-* is usually classified as a class 1 present participle; however it is the only active present form of this relatively common root, and it seems clear that the widely attested medial present is the original present stem of this verb.⁸⁵ Moreover in contrast to the other usually transitive stems of this verb, and in particular in contrast to the usually transitive medial participle *sáhamāna-* (ex. 4.28, also containing a perfect participle to the same root), *sáhant-* never has an object, and hence appears to be little more than an adjective ‘conquering’ (ex. 4.27).⁸⁶

(4.27) *sá víṭ suvīrā marúdbhir astu*
sanāt sáhantī púṣyantī ṇṛmṇám (RV 7.56.5)

‘May this settlement have good heroes through the Maruts,
conquering from of old, prospering in manliness.’

(4.28) *sá pavasva sáhamānaḥ pṛtanyún*
sédhan rákṣāṃsy ápa durgáhāni
svāyudháh sāsahván soma sátrūn (RV 9.110.12)

‘You, flow, *conquering* the lovers of war,
driving away the evil spirits and dangers,
being conqueror of enemies with good weapons, O Soma.’

Moreover the existence of the superlative *sáhantama-* ‘mightiest’ (1.17.9a) and the -ya- derivative *sahantya-* ‘conquering’ (1.27.8a, 6.16.33b, 8.11.2b) speaks against any synchronic participial status for *sáhant-* since these derivatives are found only to lexicalized or non-participial stems; furthermore these derivatives are likely to have some antiquity since they show the synchronically irregular full-grade suffix (cf. above p.217). Again the only other evidence for a Caland system to this root is the extremely frequent *s-*stem noun *sáhas-* ‘power’; once again we are left with a form for which the evidence is perhaps not conclusive, but does point more strongly toward the Caland system than to the verb.

⁸⁵The form *sáhas* at 1.174.8 was formerly considered a verbal form, either present active injunctive or aorist subjunctive, but is now understood to be a noun.

⁸⁶Geldner sometimes translates *sáhant-* as a noun, e.g. “Bezwinger” at 8.40.1b (RV, v.3, p.353).

pṛ̥ṣant-

There is no verbal root in Sanskrit with which the synchronic adjective *pṛ̥ṣant-* ‘spotted’ can be connected; LIV (p.492–493) connects it to a PIE verbal root \sqrt{pres} (attested in Tocharian, Hittite and Balto-Slavonic) but cognate evidence for the (supposedly root aorist) stem (Toch. B *pārsāte* “spritzte”) is marked as questionable.

On the other hand beside the corresponding Avestan form *paršat-* (in the YAv. compound *paršat.gāuu-*) there is also also a *-u-* adjective YAv. *paršu-*, from which a Caland system can be reconstructed.⁸⁷ The argument structure of *pṛ̥ṣant-* also contrasts with what might be expected for such a form were a verb attested, and has hence been classed with e.g. *jārant-* as an example of an archaic patientive participle.⁸⁸ But as we have seen the argument structure of *jārant-* is best explained as a consequence of its adjectival origin, not on the basis of a supposed patientivity of the **-nt-* participle in PIE; the same applies to *pṛ̥ṣant-*. Hence both morphological and functional evidence support the attribution of this word to the Caland system rather than the participial system.

tāpant-

Although in this section I have largely been arguing for the reanalysis of supposed ‘participles’ as Caland adjectives, in the case of *tāpant-* the evidence rather points the other way.

The original argument for a Caland system origin of *tāpant-* ‘hot’ comes from Nussbaum (1976, p.23–24), who notes the Old Irish cognate *té, téit* ‘hot’ and Caland variants Ved. *tāpu-* ‘id.’ and RCS *teplъ*; he is followed by Rau (2009, p.94, 176). Nussbaum partly based his argument on the supposed functional difference between the stative-intransitive participle and the agentive finite present stem of \sqrt{tap} ; however the present stem can also be intransitive.⁸⁹ Nussbaum’s argument otherwise rests firstly on the lack of a corresponding finite thematic verbal stem outside of Indo-Aryan while the *-nt-* stem itself is found in another Indo-European language, and secondly on the existence of the variant Caland suffixes.

⁸⁷Neither Nussbaum (1976) nor Rau (2009) have connected these forms to the Caland system.

⁸⁸Schaefer (1994, p.46 with references).

⁸⁹Moreover Gotō (1987, p.159–160) and Kümmel (1996, p.49, fn.71) assume the transitive sense is a secondary development.

Such arguments, however, are only valid if there is a clear functional difference precluding the possibility that the word in question is a participle. In fact of the three forms of *tápant-* found in the RV two are agentive (exx. 4.29, 4.31) and only one is stative-intransitive (ex. 4.30). One of the agentive forms is compounded with the preverb *prá-* – this is not so obvious an addition to an adjective as *ví* is to an adjective of ‘sparkling’ (*vibhrájant-* above) and so suggests a verbal derivative; however on the basis of the two remaining RV forms and the variable argument structure of the finite stem (exx. 4.32, 4.33) any functional argument that *tápant-* cannot synchronically be simply a participle is clearly insupportable.

(4.29) *añjānti yám pratháyanto ná víprā*
vapāvantam nágnínā tápantaḥ (RV 5.43.7ab)

‘Which (cauldron) the priests anoint, stretching it out as it were,
as it were *heating* it, enveloped in the omentum, with fire.’

(4.30) *ghṛṇā tápantam áti sūram parāḥ*
śakunā iva paptima (RV 9.107.20cd)

‘Beyond, past the sun, *burning* with heat,
we fly like birds.’

(4.31) *vīṣā ví jajñe janáyann ámartyaḥ*
pratápañ jyótiṣā támaḥ (RV 9.108.12ab)

‘The immortal bull was born, who brings to birth,
who *heats up* the darkness with his light.’

(4.32) *ád ít sūryas tapati tapyatúr vīthā* (RV 2.24.9d)

‘So the sun, hot at will, *burns*.’

(4.33) *índrāgnī tápanti mā*
aghā aryó árātayaḥ (RV 6.59.8ab)

‘O Indrāgni, they *burn* me,
my bad hostile foes.’

The only possible evidence for a Caland adjective (perhaps existing alongside the participle and potentially attested at RV 9.107.20c) is the existence of the Classical PN *Tapatī-* with the adjectival zero-grade suffix beside the expected class 1 feminine participle *tápantī-*. This PN is not attested before the *Mahābhārata*, however, and does not necessitate the

positing of an inherited Caland adjective in *-nt-*. Overall, then, there is no significant functional or morphological evidence that *tápant-* is anything other than the regular present participle of the verb \sqrt{tap} ‘be hot, heat’.

Conclusion

There may be one or two other difficult forms which can be attributed to the Caland system although they have not previously been so analysed. For example the first element of the unclear *bṛbád-uktha-* (8.32.10a), possibly related to the equally unclear *bṛbú-*, may have such an origin, and there may even be a further Caland variant in Greek, if *βάρβαρος* is related.⁹⁰

For most of the forms we have considered above, however, there is clear morphological and/or syntactic and semantic evidence which brings into question the usual attribution of these forms to the verbal (participial) system, and which supports a connection to the adjectival (Caland) system. It is only on firm bases such as these that we are justified in reanalysing words such as *usánt-* as Caland adjectives. Although it would conceivably be possible to assume that all the above forms are, in origin at least, participles, and that the morphological and functional discrepancies are due to later developments, the combined weight of the evidence clearly demonstrates a set of *-nt-* adjectives in the *Ṛgveda* which synchronically are more closely aligned with the adjectival system than the verbal system. Further, given the existence of cognates for some *-nt-* Caland adjectives in other Indo-European languages, there is nothing to prevent us from projecting the *Ṛgvedic* situation back to PIE. As we have seen in this section, the number of Caland adjectives in *-nt-* has been significantly underestimated in Sanskrit due to the working assumption that anything in *-nt-* must be a participle; it may be that the same is true of other Indo-European languages.

Nevertheless we cannot assume an absolute division between participle and Caland adjective in the *Ṛgveda*, although the distinction appears to have been maintained to a greater degree than might have been expected. The obvious formal similarity between the productive class of *-nt-* participles and the unproductive class of Caland adjectives would naturally have exerted pressure on the latter to be reanalysed as or replaced by the former. This may

⁹⁰On these words see Mayrhofer (EWA, v.2, p.230).

explain the appearance of the preverb on *vibhrá̃jant-*, as discussed above. But the clear morphological, syntactic and semantic evidence displayed by a not insignificant number of *-nt-* formations in the *Ṛgveda* compels us to speak of two distinct categories, one verbal and hence participial, the other adjectival and therefore non-participial.⁹¹

4.6.3 Caland adjectives in *-(m)āna-*?

It has not previously been recognized that a considerable proportion of the forms traditionally analysed as mediopassive aorist participles but which do not have corresponding finite verbal stems do correspond to roots with recognized Caland systems. A complete list is (with the reference to the corresponding Caland system as listed by Rau in brackets): *guhámāna-* (Rau, 2009, p.98), *cítānā-* and *áacetāna-* (Rau, 2009, p.96), *tṛṣāṇā-* (Rau, 2009, p.102–103), *jásamāna-/dásamāna-* (Rau, 2009, p.103),⁹² *dhṛṣámāṇa-* (Rau, 2009, p.103), *piśānā-* (Rau, 2009, p.96), *píyāna-* (Rau, 2009, p.90), *prathānā-* (Rau, 2009, p.82), *budhānā-* (Rau, 2009, p.104–105), *bhiyānā-* (Rau, 2009, p.103), *mandānā-* (Rau, 2009, p.105), *rucānā-* (Rau, 2009, p.97), *vipānā-* (Rau, 2009, p.104), *śúcāmāna-* (Rau, 2009, p.97), *śubhānā-* (Rau, 2009, p.95), *śvitānā-* (Rau, 2009, p.98), *prasahānā-* (Rau, 2009, p.89).

This includes 17 of the just over 40 roots that are traditionally analysed as forming mediopassive ‘aorist’ participles, i.e. nearly 40%, which is more than double the proportion which have attested corresponding finite mediopassive aorists. Although it is unlikely that all of these are related to the Caland system, the possibility that some might be so connected should be considered.

To my knowledge it has never been explicitly claimed that either of the suffixes *-māna-* or *-āna-* are Caland suffixes. Rau (2009, p.85) lists YAv. *darəzāna-* as part of the Caland system to the root $\sqrt{darəz}$ (Skt. $\sqrt{dṛh}$), but without explanation.

It would be controversial to claim that a suffix or suffixes previously understood solely as participial suffixes should in fact also have a distinct, previously unrecognized, adjectival function. To consider this proposal seriously we must first distinguish the athematic from

⁹¹It would take us too far from our present topic to consider other possible influences or origins for some *-nt-* adjectives in Sanskrit, such as reanalysis of *-n-* stems as suggested by Nikolaev (2006, p.62f. and p.c.).

⁹²The roots \sqrt{jas} and \sqrt{das} are to be treated as one, following the equation made by Hoffmann apud Mayrhofer (KEWA, v.3, p.732); see also Kümmel (2000a, p.236).

the thematic forms and treat them separately, since these could potentially be two distinct Caland suffixes. Secondly it does not follow that simply because there is a Caland system to a root with a problematic ‘aorist participle’ that that ‘participle’ is necessarily a Caland adjective. What we need is a set of forms which formally and functionally correspond to their Caland system rather than to any assumed verbal stem, which lack participial semantics and contextual function, and which have no better alternative explanation.

Some of the above forms can be removed from consideration at the outset. For example *mandāná-*, morphologically and semantically problematic as an aorist participle to \sqrt{mand} (as still Lubotsky, 1997a, p.1035), is better analysed as a perfect participle to \sqrt{mad} (see e.g. Jamison, 1983a, p.156; Gotō, 1987, p.235f.; Kümmel, 2000a, p.356–360).

Athematic Forms

The supposed aorist participle *tr̥ṣāṇá-* is functionally no more than an adjective ‘thirsty’, equivalent to the adjectives *tr̥ṣṇáj-*, *tr̥ṣyāvánt-*, *tr̥ṣítá-*; moreover it does not have any possible corresponding finite paradigm. The clearest Caland form of the root, *tr̥ṣú-* ‘greedy’, is found also in Avestan *taršu-* ‘dry, firm’ and Gothic *þaurusus* ‘dried, withered’. Jasanoff (2003a, p.155) reconstructs a passive aorist **átarṣi* on the basis of *tr̥ṣāṇá-*, but this cannot be supported if we reject the existence of passive aorist participles (cf. §4.9.1, p.244).

(4.34) *dhánvāny ájrāṁ apr̥ṇak tr̥ṣāṇām* (RV 4.19.7c)
‘He drenched the *thirsty* fields and deserts.’

(4.35) *nārā gauréva vidyútam tr̥ṣāṇá*
’smákam adyá sávanópa yātam (RV 7.69.6ab)
‘O heroes, like *thirsty* bulls to lightening
come to our pressing today.’

The hapax *vipāná-* (ex. 4.36) is similarly lacking in corresponding verbal forms, and in context is not obviously different from adjectival uses of *vípra-* (ex. 4.37).⁹³

(4.36) *átaḥ samudrám udvátas*

⁹³In most instances *vípra-* is of course used as a noun referring to the priests. Besides rare examples like ex. (4.37), the original adjectival sense is also preserved in compounds such as *vípra-vacas-* ‘whose speech is inspired’.

cikitvāṁś áva paśyati
yáto vipāná éjati

(RV 8.6.29)

‘From that height on the sea
the wise one looks down;
whence he, *inspired*, goes.’

(4.37) *á te dáksam mayobhúvaṃ*
váhnim adyá vṛṇīmahe
pántam á puruspṛham

á mandráṃ á várenyam
á vípram á manīśīnam
pántam á puruspṛham

(RV 9.65.28–29)

‘Your skilled, pleasing
cart-horse we choose today,
(and) the much desired drink;

the pleasing, the desirable,
the *inspired*, the wise,
the much desired drink.’

Verbal forms of the root \sqrt{vip} ‘become inspired, tremble’ are rare in Sanskrit, and the supposed participle *vipāná-* is the only evidence for a root aorist.⁹⁴ Rau (2009, p.180) connects the Caland adjective *vípra-* with the root noun *víp-* ‘inspired speech’, but does not recognize any other nominal Caland forms. As with *tṛṣāná-*, however, we are left with a form *vipāná-* which, if it cannot be conclusively connected to the Caland system, cannot at least be connected to the verbal system with any certainty.

There are also a few isolated forms to roots expressing brightness, colour, or appearance which do not have corresponding attested finite verbal stems but do have corresponding Caland systems. So *śvitāná-* ‘bright’ at 6.6.2a (ex. 4.38) is predicated of Agni, comparable to *śvetá-* ‘bright, light’ used of Agni at 3.1.4b, 5.1.4d (ex. 4.39), of Indra-Agni at 8.40.8a and of Agni’s course at 10.20.9a; in contrast to the Caland adjectives, verbal forms to this root are extremely rare and never qualify Agni.

(4.38) *sá śvitānás tanyatú rocanasthá*

⁹⁴On the verbal stems which are attested see Jamison (1983a, p.51, 133), Kümmel (2000a, p.498–499). A reduplicated aorist is found, and an *iṣ-*aorist occurs in Vedic prose (Narten, 1964, p.243). On the relation of the deverbative stem seen in *vipanyú-* etc. to this root see Gotō (1989).

ajārebhir nānadadbhir yāviṣṭhaḥ (RV 6.6.2ab)

‘He (Agni) is *bright*, thundering, standing in light,
the youngest (fire) with his ageless roaring flames.’

(4.39) *śvetó vājī jāyate āgre áhnām* (RV 5.1.4d)

‘The *bright* racehorse (Agni) is born at the head of the days.’

The adjective *śvetá-* ‘bright’ is connected to the Caland system of this root by Rau (2009, p.71, 175), although thematic adjectives are not universally accepted as part of the Caland system. An *-i-* stem Caland variant may be attested in the compounds *śitipád-* ‘white/bright footed’ and *śitipṛṣṭhá-* ‘white/bright backed’ with an irregular dissimilation. The more secure Caland adjective *śvitrá-* (with Middle Persian cognate *spīhr*) is not attested before the *Atharvaveda*, by which time it had undergone a semantic shift, coming to mean ‘white’.⁹⁵ Hence *śvitrá-* is not used of Agni (it is most often used of snakes or other beasts). Nevertheless it is again true that at least as good a case can be made for connecting *śvitāná-* to the Caland system as to the small and infrequent verbal system of the root $\sqrt{\text{śvit}}$.

Other comparable forms to semantically similar roots are *śubhāná-* ‘beautiful’ (beside *śubhrá-*), *piśāná-* ‘adorned’ (cf. *śilpá-* < **piślā-* Rau, 2009, p.144), *rucāná-* and *áčetāna-*.⁹⁶ The hapax *piśāná-* at 7.57.3c is usually taken as transitive with a preverb *ā* in tmesis, but both syntactically (§2.12.1, p.97) and semantically it makes sense to take the preverb and object with the main verb, leaving the ‘participle’ with an entirely adjectival sense (ex. 4.40).

(4.40) *ā ródasī viśvapíśaḥ piśānáḥ*
samānām añjy añjate śubhé kām (RV 7.57.3cd)

‘All adorned and *decorated* they anoint
the two worlds (with) the same anointing for beauty.’

Likewise *śubhāná-* and *rucāná-* could but need not be interpreted as transitive. There are a few other isolated forms which could be related to the Caland system but for which alternative explanations cannot be ruled out. For example I will argue below that *píyāna-*, *prathāná-* and *prasahāná-* are best explained as analogical formations created on the basis

⁹⁵Cf. Roesler (1997, p.107–112).

⁹⁶For Hoffmann (1968a) *rucāná-* was a root aorist participle.

of the perfect middle; however given the frequency of correlation between the Caland system and these apparent root middle ‘participles’ the secondary analogical support of the Caland system cannot be ruled out.

Thematic Forms

There are only four stems in the *Ṛgveda* commonly analysed as thematic mediopassive ‘aorist’ participles, and all of them correspond to roots which form Caland systems:

guhámāna-, *jásamāna-/dásamāna-*, *dhṛṣámāṇa-* and *śúcámāna-*.⁹⁷ Of these, only *jásamāna-/dásamāna-* is attested more than once (*jásamāna-* twice, *dásamāna-* once), and if it were not for this it would be possible to consider the whole set as nonce-formations. None of these four forms corresponds to an attested finite mediopassive aorist, although all four roots do attest *active* thematic aorists. Moreover two of these roots, $\sqrt{dhṛṣ}$ and $\sqrt{śuc}$, attest Caland adjectives in *-nt-* (see above), and $\sqrt{dhṛṣ}$ even attests a form in *-ānā-* post-RV, *dhṛṣāṇā-*, which could correspond to the possible Caland adjectives in *-ānā-* discussed above.

The thematic participles to these two roots, *dhṛṣámāṇa-* and *śúcámāna-* do not display adverbial functions, but *guhámāna-* and *jásamāna-/dásamāna-* do display adverbial functionality typical of participles but not other adjectives. These latter two are therefore excluded from potentially being Caland adjectives on functional grounds, leaving only two hapax legomena which cannot be used to support the existence of any kind of derivational pattern, nominal or verbal.

Analysis

With forms in *-nt-*, such as *járant-* above, we saw clear syntactic and semantic evidence for a distinction between Caland adjectives and participles, but with the possible forms in *-(m)āna-* we have only the morphological evidence of a lack of corresponding finite verbal stems, and the fact that semantic evidence does not contradict a possible adjectival origin. This evidence cannot be considered conclusive, since it is purely negative. Nevertheless these morphologically problematic forms can receive a more favourable explanation if we

⁹⁷On *nṛtámāna-*, *kṛpamāṇa-* and *juṣámāṇa-*, which are best not analysed as aorist participles, see p.239 and fn.144, p.254 below.

are willing to accept a connection with the Caland system.

Moreover further evidence for the existence of a Caland suffix in *-ānā-* is provided by the Vedic adjectives in *-asāna-*, e.g. *bhiyāsāna-*, *sahasānā-*.⁹⁸ These adjectives became mildly productive in Vedic, but are originally adjectival derivatives in *-āna-* based on *s*-stem nouns, which by implication means roots which had or could have had Caland systems. Rau (2009) does in fact list a few of these adjectives under the relevant roots; this is best analysed as a Vedic extension of the marginal Caland suffix *-āna-* within the Caland system, rather than as a formation of pseudo-participles to nominal stems.

At this point we should not, perhaps, attempt to draw too strong a line between adjectival and verbal derivation. An isolated form such as *piśānā-* could have been created on the basis of multiple weak analogies, rather than one clear analogy. The possible existence of isolated aorist participles to semantically similar roots, the (largely co-incidental) frequency of *-āna-* formations to roots with Caland systems, and the apparent identity between the active participial suffix *-nt-* and the Caland adjective suffix *-nt-* may all have influenced the creation of a form *piśānā-* which thus cannot necessarily be classified as either ‘adjectival’ or ‘participial’, and perhaps never could be. It is therefore possible to speak of a ‘Caland suffix’ in *-āna-* (for the *Ṛgveda* at least) while maintaining that this suffix originated in the participial system. Its marginal nature means that its synchronic status may never have been clear.

An alternative possibility is that Caland *-āna-* is a historically distinct adjectival suffix; e.g. it could come from a **-no-* derivative to a stative stem, i.e. **-eh₁-no-*. The connection between the PIE stative in **-ē-* and the Caland system was first established by Watkins (1971); it is usually assumed this **-ē-* is barely if at all attested in Indo-Iranian, but this Caland formation could prove an exception.⁹⁹ Some of the forms discussed above are cognate with such statives in other languages, e.g. *tr̥ṣānā-* with Latin *torrēre* (stative at least in the participle *torrens*), *rucānā-* with *lūcēre*, while most of the others are roots with adjectival or ‘stative’ meanings. However the small quantity of evidence for this formation means that

⁹⁸On these see Renou (1937, p.80–81, 87); Leumann (1952, p.35, fn.3); Insler (1968).

⁹⁹Jasanoff (2003b) discusses the common derivation of adjectives from such stative stems (stems which he does not consider verbal in origin), e.g. adjectives in **-tó-*, even arguing that the formation of **-nt-* adjectives to these stems led to the development of the aorist passive/stative in Greek. So the formation of adjectives in **-no-* to such stems is perfectly likely.

on methodological grounds we have little to favour the assumption of inherited morphology over simple analogy.

4.6.4 Conclusion

In attempting to assign forms to the Caland system, we must heed Meißner's (1998, p.251) warning: "es ist nicht alles „Caland“, was glänzt." On the other hand the equivalent warning could equally apply to participles: simply because a word ends in *-nt-* or *-āna-* does not necessarily mean it was synchronically or even diachronically a participle.

We have seen that several forms traditionally analysed as *-nt-* participles are better treated as Caland adjectives parallel to the (relatively) uncontroversial Caland adjectives in *-nt-* such as *bṛhánt-*. We have also seen some evidence for a connection, perhaps secondary, between the mediopassive participial suffix *-āna-* and the Caland system. Interestingly the third participial suffix, PIE **-uos-*, can also be marginally connected to the Caland system via the possibly related and relatively verbal Caland adjective suffix in **-u-* (Gusmani, 1968, p.91–119). Although the details cannot be recovered, this may support the supposition that tense-aspect stem participles and Caland adjectives share a common origin, although at the earliest stage we can reconstruct with any certainty they are clearly distinct.

4.7 Lexicalized Participles

From forms which look like participles but never were or may never have been, we move on to forms which historically can be attributed to the participial system, but which from a synchronic perspective must be clearly separated. The lexicalization of participles was discussed in the context of participial syntax above (§2.6.3, p.53f.). The process of lexicalization is a gradual one, and different categories or levels of lexicalized participles can be distinguished.

4.7.1 Morphologically irregular formations

The most distinctly lexicalized participles are those which due to phonological developments no longer correspond directly to finite stems. For example the inherited perfect participle

dāśvāms- to $\sqrt{dās}$ ‘grant, offer worship’ no longer synchronically matches the perfect stem, which has otherwise been remade to invariant *dadās-* throughout; moreover functionally it is clearly a noun ‘giver, worshipper’, occurring overwhelmingly in the dative singular.¹⁰⁰ The negated form *ádāśvāms-* likewise cannot synchronically be considered participial, as is clear from the existence of the comparative *ádāśūṣṭara-* at 8.81.7c (§4.3.2).

On the other hand the four occurrences of the morphologically correct perfect participle *dadāśvāms-* are functionally identical to *dāśvāms-* (Kümmel, 2000a, p.243–244), even occurring all in the dative singular; it appears then that *dadāśvāms-* is not a synchronic participle but a redetermination of the noun *dāśvāms-* based on its apparent etymology as an irregularly unreduplicated perfect participle. The participial origin of the noun *dāśvāms-* would have been clear from its suffix, despite its entirely nominal use.

The nouns *rīśant-* and *riśant-*, both ‘harmer’, have been analysed by Jamison (1983a, p.144, fn.79a) as haplogized forms from the reduplicated aorist, which explains the unexpected long root vowel found in some forms (analogically shortened in the others) and the transitive semantics.¹⁰¹ Functionally, however, the forms are nouns, and since in their extant form they cannot synchronically be matched to a verbal stem, they are best treated synchronically as nouns.

4.7.2 Morphologically regular present participles

Beside the few forms like *dāśvāms-* and *rīśant-*, which betray their non-participial status by their lack of correspondence with a verbal stem, there are many more like *dadāśvāms-*, which morphologically look just like participles, but which functionally are nouns or adjectives.

The neuter noun *jāgat-*, ‘world’, is generally agreed to be a substantivized present participle to an unattested class 3 present **jāgāti* which has been replaced by the attested class 3 present *jīgāti*. Its use in the *R̥gveda* clearly shows that it was still associated semantically with the root $\sqrt{gā}$ ‘step, go’, as it frequently occurs paired with nominal derivatives of

¹⁰⁰On this form cf. p.23 and fn.67 above.

¹⁰¹This formation of a participle from a reduplicated aorist would be unique, and would contrast with the statement above (p.21) that participles were not formed to the productive aorists in Indo-Aryan. It may be better to suppose that the reduplicated participle originated in a reduplicated present which was later reanalysed as an aorist. On this origin of the productive Sanskrit reduplicated aorist see Jamison (1983a, p.217); for an alternative view see Willi (2007).

the root $\sqrt{sthā}$ ‘stand’, the dichotomy conveying the sense ‘all creation’. The neuter of the present participle of the root \sqrt{car} ‘move’ is three times used in the same way (1.146.1, 10.5.3, 3.54.8), however the difference between the two is clear: *cārant-* can function as a genuine participle, occurring with preverbs and adjectivally qualifying nouns, whereas *jāgat-* occurs only as a substantive. So despite still being associated to the verbal root $^1\sqrt{gā}$, *jāgat-* shows no sign of its participial origin and synchronically it is clearly a noun. The most telling evidence against a participial function for *jāgat-* is that it never occurs paired with the present participle of $\sqrt{sthā}$, but rather with either the root noun *sthā-* (e.g. 2.27.4a), the agent noun *sthātṛ-* (e.g. 4.53.6b) or the neuter of the perfect participle *tasthivāms-*.¹⁰²

The form *ārhant-* ‘worthy’ is morphologically the present participle to the root \sqrt{arh} ‘deserve’, but it does not match functionally the finite verbal stem from which it appears to be derived and so is best analysed synchronically as an adjective. Finite forms of this root in the *Ṛgveda* are all transitive, except one with an (accusative looking) infinitive at 4.55.7d and a unique form with the preverb *āti* meaning ‘be more worthy’ at 2.23.15a. In contrast none of the participles have objects, rather all have an intransitive sense ‘worthy’, and functionally *ārhant-* is found only in those functions common to all adjectives.¹⁰³ As noted below, the adjectival status of *ārhant-* was understood by Pāṇini, and is evidenced by the large number of derivatives found in the Classical language.

(4.41) *ārhan bibharṣi sāyakāni dhānvā*
 ’rhan niṣkām yajatām viśvārūpam
 ārhan idām dayase viśvam ābhvam
 nā vā ójīyo rudra tvád asti (RV 2.33.10)

‘*Worthy* you bear arrows and bow,
 worthy (you bear) your venerable multicoloured necklace,
 worthy you dispose all this immensity,
 there is none greater than you, Rudra.’

(4.42) *eṣā índro arhati pītīm asya* (RV 2.14.2d)

‘This Indra *deserves* a drink of it.’

¹⁰²See Narten (1972) for a detailed discussion of this noun.

¹⁰³It could possibly be sharing the object of the finite verb at 7.18.22c, but such an interpretation is not necessary.

The participle *dviṣánt-* to $\sqrt{dviṣ}$ ‘hate’ has been lexicalized as a noun ‘enemy’ in the *Ṛgveda*, and this too was recognized later by Pāṇini.¹⁰⁴ All six forms of the participle in the *Ṛgveda* function as nouns. The case distribution is typical of nominalized participles: the nominative never occurs, while the accusative is found once, the dative once, and the genitive three times (including the genitive plural once); in contrast genuine participles are most common in the nominative and accusative, with the genitive (and in particular the genitive plural) being considerably rarer. None of the *Ṛgvedic* attestations of *dviṣánt-* are transitive; in contrast four of the five finite forms of this root (and stem) in the RV have expressed objects, while the object for the fifth can easily be supplied.¹⁰⁵

(4.43) *mā radhāma dviṣaté soma rājan* (RV 10.128.5d)
 ‘May we not become subject to *the enemy*, king Soma.’

(4.44) *yām u dviṣmās tām u prāṇó jahātu* (RV 3.53.21d)
 ‘Let his life-breath leave the one whom *we hate*.’

As discussed above, *drávant-* has been lexicalized as an adjective meaning ‘swift, quick’, beside the finite present stem of the verb \sqrt{dru} which means ‘run’. As we have seen this is clear not only from the semantics of the form, but also from its use in the a.sg.nt. as an adverb, which is not found with synchronic participles.

The apparent participle *vrādhant-*, to the root $\sqrt{vrādh}$ ‘be proud, boastful’ had become an adjective already in the *Ṛgveda*; this is clear from its purely adnominal functionality and from the nominal derivative *vrādhantama-* ‘proudest’ at 1.150.3b (§4.3.2). This also explains its survival while the verbal root fell out of use: the root is attested only in the lexicalized participle and in a single finite form *vrādhanta*, which is secondarily based on it (Gotō, 1987, p.302 with references).

Similarly both functional evidence and the evidence of secondary derivatation makes clear the adjectival nature of *mṛláyant-*.¹⁰⁶ The root $\sqrt{mṛd}$ ‘forgive (sin)’ (on which see

¹⁰⁴The contrast described by the grammatical tradition between the sense ‘enemy’ found with *dviṣánt-* and the sense ‘hating’ of the finite forms, which can be used in the context of a family relationship where ‘enemy’ would be inappropriate, is already seen in the RV, with *dvéṣti* used of a mother-in-law at 10.34.3a, but *dviṣánt-* never so used.

¹⁰⁵Cf. also Kellens (1987) on the lexicalized Avestan *-nt-* form, OAv. *daibišiiant-* YAv. *tbišiiant-*, the formal relation of which is somewhat difficult.

¹⁰⁶The accentuation of the book I forms of the participle is irregular, appearing to reflect *mṛlayánt-* rather

Jamison, 1983a, p.102–103) was originally transitive, sometimes occurring with an object (usually *āgas-* ‘sin’) but the object was frequently ellipsed and the root came to be perceived as intransitive; however it usually occurs with a dative of the person forgiven. In contrast none of the participles have accusative objects or even dative adjuncts, and all can be interpreted as simple adjectives or even nouns ‘merciful (person), forgiving (person)’. This interpretation is supported by the existence of the superlative *mṛlayáttama-* (1.94.14b, 1.114.9c, 5.73.9d), the formation of which is excluded for genuine participles.

Besides clearly lexicalized forms such as these, there exist some slightly more ambiguous words. The forms *gṛṇánt-*, *pácant-*, *pávamāna-*, *yájamāna-*, *stuvánt-*, and *sunvánt-* were discussed above (§2.6.3, p.53f.). We saw in the case of some of these words, e.g. *pávamāna-*, that there is no evidence for participial functionality, while for others, such as *sunvánt-* there is evidence for participial uses beside the clear nominalized uses, which could be interpreted as the synchronic existence of two identical but functionally distinct stems.

There is likewise some evidence for *stuvánt-* being used participially (i.e. as participle to the present stem seen in *staúti* ‘praises’); it has an object at 6.29.4c and 8.3.14a, and adverbial function at 7.33.5c. Nevertheless the majority of occurrences are clearly lexicalized as a noun ‘singer’ (cf. ex. 4.45). Similarly the frequent *gṛṇánt-* is in almost all occurrences clearly a noun ‘praise-singer’.¹⁰⁷ However there are a few examples of *gṛṇánt-* governing an accusative (1.9.9b, 6.68.8c, 8.3.13d), which implies a genuine participle.¹⁰⁸

Another clearly lexicalized participle is *prajānánt-*, synchronically little more than an adjective, most commonly used in the sense ‘wisely, knowingly’. In one or two instances, however, it is found with an object and can be taken as a genuine participle.

The apparent present participle from the root \sqrt{sams} ‘chant’, *sámsant-*, is more ambiguous: it is most frequently found with no object (contrasting with the finite present stem), in an adjectival or even nominal sense ‘chanter, one who chants (in the rite)’ (ex. 4.45); but at the same time it is not infrequently found with objects and in adverbial function (ex. 4.46), so that neither the lexicalized nor the participial use can be said to be primary in the

than *mṛláyant-*. Jamison (1983a) does not mention the accent; it is perhaps due to a later reanalysis of the stem on the basis of the derivative *mṛlayáttama-*.

¹⁰⁷Occasionally it can be used adjectivally, e.g. 6.66.9a where it is an epithet of the *máruta-*, the Maruts’ car.

¹⁰⁸It may be possible that *gṛṇánt-* is sharing the object of the main verb at 3.17.4a, 3.61.1b, 4.10.4b, 5.8.4b, 8.27.13d and 9.29.2b but in no passage is such an interpretation necessary.

R̥gveda.

(4.45) *yáḥ śáṃsate stuvaté śámbhaviṣṭhaḥ*
purūvasur āgámaj jóhuvānam (RV 5.42.7cd)

‘He who, most propitious to the *chanter* and singer
will come with many riches to the one who calls.’

(4.46) *ṛtám śáṃsanta ṛtám ít tá āhuḥ* (RV 3.4.7c)

‘*Chanting* the truth they speak only the truth.’

Similarly, in several instances the present participle *pṛṇánt-* to the root $\sqrt{p\bar{r}/pr\bar{a}}$ ‘fill’ appears to have been lexicalized as an adjective or noun ‘generous (one)’ (ex. 4.47); however there are also clearly participial uses of the word, e.g. at 1.124.5d, 2.11.11c, and in compound with *á* at 4.53.2c and 7.75.3d (ex. 4.48).¹⁰⁹ Again we appear to be dealing with a synchronic participle and a synchronic adjective or noun existing alongside one another.

(4.47) *pṛṇánn ít pṛṇaté máyah* (RV 7.32.8d)

‘Only *the generous man* is a delight to *the generous*.’

(4.48) *janáyanto daívyāni vratáṅy*
āpṛṇánto antárikṣā vy āsthuh (RV 7.75.3cd)

‘Producing the divine ordinances
filling the skies they have stood apart.’

4.7.3 Morphologically regular non-present participles

So far we have seen primarily lexicalized present participles. However the other tense-aspect stems also show lexicalized participles. The most common active aorist participle by a long way is *vidhánt-*, which is so unexpectedly common for an active aorist participle precisely because it has been lexicalized, in the sense ‘worshipper’. In this case in fact the root \sqrt{vidh} and the present stem *vindhá-* are widely regarded to have been back-formed from this aorist stem, which is thought to derive from the aorist of *ví-* $\sqrt{dh\bar{a}}$ (or rather PIE $*\bar{u}i-\sqrt{dheh_1}$).¹¹⁰

¹⁰⁹The negated form *ápṛṇánt-* functions as the negative to the adjective ‘generous’, not to the participle.

¹¹⁰On this see in particular Hoffmann (1969a); García Ramón (2004). In contrast Insler (1975, p.200–201) rejects Hoffmann’s explanation of this root, assuming an inherited root \sqrt{vidh} . The origin of the root \sqrt{vidh} does not affect the fact that *vidhánt-* is primarily not synchronically a participle but rather a noun in the *R̥gveda*.

The participle is almost entirely nominalized in the sense ‘worshipper’, occurring mostly in the dative and genitive singular (ex. 4.49). However at 2.4.2a (ex. 4.50) and 10.46.2a the participles can be interpreted as having objects and adverbial function, suggesting the marginal parallel existence of a genuine participial stem beside the lexicalized noun.

(4.49) *dádhāti rátnaṃ vidhaté yáviṣṭhaḥ* (RV 4.12.3c)

‘The most youthful one will give wealth to the *worshipper*.’

(4.50) *imám vidhánto apám sadhásthe
dvitádadhur bhṛgavo vikṣv āyóḥ* (RV 2.4.2ab)

‘*Worshipping* this one in the seat of the waters
they again placed him, O Bhṛgus, in the clans of Āyu.’

One clearly lexicalized stative participle is *śāna-* ‘ruler’, as is evident from the existence of the compound *śāna-kṛt-* ‘playing the ruler’.¹¹¹

As lexicalized perfect participles (beside *dāśvāms-* discussed above) Kümmel (2000a, p.91) lists *vidvāms-*, *dadvāms-* (= later *dadivāms-*), *rarivāms-* and *anūcānā-*. Some of these are undoubtedly lexicalized, but others are less clear and in addition there are several other apparent perfect participles which show signs of lexicalization.

As stated by Kümmel (2000a, p.238–242) the active perfect participle *dadvāms-* is found only without object in the RV in contrast to the finite perfect active stem, and has been lexicalized as a noun ‘donor, giver’ (“Spender, Geber”). The nominal nature of the perfect active participle can be seen also in the case distribution: one n.sg.m. beside two g.sg.m. and one g.pl.m. Kümmel (2000a, p.244) also notes that in Vedic prose *dadvāms-* is used to gloss earlier *dāśvāms-*, which as discussed above was an unambiguous noun. However post-RV examples of *dadivāms-* are found with objects and the expected participial meaning ‘having given X’, which suggests that either a synchronic participle *dadvāms-* existed at the time of the *Ṛgveda* but is unattested, or that the participle was recreated on the basis of finite forms to exist alongside the lexicalized former participle.

The common *vidvāms-* has clearly been lexicalized as an adjective ‘knowing, wise’, and the derivative forms *dúrvdvaṃs-*, *súvidvaṃs-* and *vidúṣṭara-* confirm the non-participial

¹¹¹On the stative origin of the stem see Kümmel (2000a, p.123–124) and below.

nature of this stem.¹¹² However *vidváms-* is occasionally found in participial functions, and sometimes governing an accusative (e.g. 2.15.7a) or genitive (e.g. 2.29.1d, 3.31.1b), which again suggests the marginal possibility of a genuine participial stem alongside the adjective.

Despite Kümmel’s claim that the perfect active participle *rariváms-* of the root $^1\sqrt{rā}$ ‘give’, is lexicalized, there is actually little evidence for this. The positive participle occurs only once and is used adnominally (so could therefore be a participle or an adjective/noun); it is the common negated participle *árariváms-* which is used almost exclusively nominally, and is clearly non-participial. In fact as Kümmel (2000a, p.420–422) himself argues, the finite perfect active stem has a somewhat lexicalized intransitive sense ‘be a giver’ anyway. In contrast the medial participle *raráñá-/raráña-* does not match the (di-)transitive argument structure and meaning of the finite medial present and perfect stems.¹¹³ These medial participles are almost consistently intransitive, with an adjectival sense ‘giving, generous’, sometimes adverbially ‘generously’. At 10.169.4a, however, *raráña-* is transitive and appears to be functioning as a genuine participle to the present stem, mirroring the imperative *ririhi* in the preceding verse; similarly 2.32.5d, 10.183.1c. Nevertheless in the majority of instances the middle perfect/present participle appears to be lexicalized, in contrast to the perfect active participle.

The word *anūcānā-* ‘reciter(?)’ is attested only once in the *Ṛgveda*, at 8.58.1c. At a later stage of the language this is uncontroversially lexicalized, and is one of the few perfect participles to survive long enough to be defined by Pāṇini (Aṣṭ. 3.2.109). This lexicalized sense is widely assumed to hold for the *Ṛgveda* as well: the form is listed separately from the verb by Grassmann (1873, p.61), Lubotsky (1997a, p.68), and most recently RIVELEX (p.222) who describe it as an “-āna-Bildung... zur Wz. vac-.”¹¹⁴ The word is used in 8.58.1c as a restrictive adjective to the noun *brāhmañá-* and does appear to have some kind of technical sense, such as ‘one who has repeated (and learned sacred texts)’. But there is no evidence for any other forms of *ánu-√vac* in the RV, so it cannot be said with certainty that

¹¹²On this perfect stem see Kümmel (2000a, p.495–498), although he barely discusses the RV finite forms and does not mention the participle.

¹¹³Kümmel explains this on the assumption that the active perfect and the perfect middle participle reflect an older (intransitive) stage of the perfect, while the finite middle reflects a newer ‘Oppositionsbildung’ to the (transitive) present and aorist. But it could equally be a secondary development of the medial perfect participle.

¹¹⁴Grassmann (1873) actually listed the form twice, once as a separate lexical item (p.61), once as a participle under \sqrt{vac} (p.1194).

it is the participle and not the stem which was lexicalized. It may be, then, that *anūcānā-* in the *Rgveda* represents a perfectly regular participial formation from *ānu-*√*vac* ‘recite, study’: we do not have sufficient evidence to be certain.

Finite forms of the root √*san* ‘win’ are usually transitive, but can be intransitive (i.e. with object, e.g. *vājam* ‘prize’, implied). The perfect participle *sasavāms-* on the other hand only very rarely has an object, and is largely found with an adjectival sense ‘victorious’. It appears then that this participle too has been lexicalized (cf. Kümmel, 2000a, p.545–546).

According to Kümmel (2000a, p.221–222) the perfect middle participle *tūtujāna-* or *tūtujānā-* appears to function as the perfect stem counterpart of the intransitive class 6 and 10 presents of the root √*tuj* ‘thrust forward’, while the single active perfect form, an optative, is transitive, parallel to the nasal present. This intransitive use of the perfect middle appears to be somewhat adjectival, as Kümmel notes. Most examples of the perfect participle are best interpreted with the adjectival sense ‘eager, keen, hurried’; even the two which have a dependent dative *toké tánaye* ‘for bodily offspring’ (7.67.6c, 7.84.5b=7.85.5b) can still be interpreted adjectivally.

The perfect participle *śasāmānā-* (to √*śam* ‘toil’) is mostly used as a noun ‘one who has toiled (in preparing the rite)’, occasionally as a restrictive adjective to *nārah;* the fact that it is considerably more common than finite forms in the RV (x26 vs. x8), and also the case distribution (d.sg. x6, g.sg. x6, d.pl. x1, l.pl. x1, vs. n.sg. x6) shows that this too is a lexicalized participle.

4.7.4 Conclusion

Several of these lexicalized participles survived to the end of the Vedic period, and as we have seen are specifically defined by Pāṇini as nominal rather than participial stems. Aṣṭ. 3.2.109 specifies *anūcānā-*, Aṣṭ. 3.2.128 *pāvamāna-* and *yājamāna-*, Aṣṭ. 3.2.131 *dviśánt-*, Aṣṭ. 3.2.132 *suvánt-*, and Aṣṭ. 3.2.133 *árhant-*.

We have seen in this section a relatively small but not insignificant number of stems which, although morphologically and historically regular participial derivatives from verbal stems, synchronically are detached from their corresponding verbal stems due to lexicalization as adjectives or nouns. This lexicalization generally involves loss of transitivity and

semantic change, and it produces adjectives and nouns which are not restricted as participles are in, for example, the formation of secondary derivatives. We have also seen several words which are lexicalized in the majority of their occurrences, but at other times appear to be genuine participles; this seems to show the parallel existence of lexicalized stems alongside morphologically identical synchronic participles.

4.8 Nonce-Formations

Another category of forms of unclear synchronic status, alongside that of lexicalized participles, is that of participial nonce-formations (*Augenblicksbildungen*). Many hapax legomena participles could be analysed as nonce-formations, that is as forms which have been created spontaneously in context as metrically or semantically convenient forms, but which do not correspond morphologically to an attested or reconstructable verbal stem.¹¹⁵ However in many cases we cannot be certain whether we are dealing with a nonce formation or with the only example of an otherwise unattested verbal stem. The default position must be to assume that a particular word is not a nonce-formation unless there is good evidence in favour of such an interpretation, e.g. that such a verbal stem could not have existed given our knowledge of the R̥gvedic verbal system, or evidence that the form is derived from a noun or adjective, or was influenced by the context in which it appears.

We must distinguish two distinct kinds of nonce-formations in this context: firstly nonce-formations which are not participial, but nominal or adjectival nonce formations which simply happen to look like participles; secondly participial nonce-formations which, while they are not derived by any kind of regular process from a verbal stem, were intended to be understood as participles in the context in which they were created, and hence can show participial properties such as verbal government and participial semantics. The former category cannot be considered a part of the category of participles, but the latter, despite their morphological irregularity, must be considered within the category of participles in so far as they were created as nonce participles.

¹¹⁵Nonce formations in Vedic have been recently treated by Knobl (2004, 2009a,b).

4.8.1 Non-participial nonce-formations

An example of a non-participial nonce-formation is the hapax legomenon g.pl. *sthātām* ‘stationary things’ at 1.70.3b, usually listed in grammars as an aorist participle **sthānt-*, but in fact a nonce genitive plural of *sthātṛ-* ‘one who is stationary’. It occurs beside (and in opposition to) another irregular genitive plural *caráthām* ‘of which things move’ to *carátha-*. However the usual antonym of *carátha-* is *sthātṛ-*, as probably even in verse 7 of the same hymn;¹¹⁶ thus in the same way that we expect in 1.70.3b **caráthānām* but find *caráthām*, so we expect **sthātṛnām* but find *sthātām*. The two unique forms in this verse are thus best explained in the same way, as poetically haplogized nonce genitive plurals which have lost their penultimate syllables. So although the genitive plural *sthātām* could formally suggest a participle **sthānt-* corresponding to the root aorist of $\sqrt{sthā}$ ‘stand’, in fact the form has nothing whatsoever to do with the participial system, and there is no evidence that $\sqrt{sthā}$ formed a root aorist active participle in Sanskrit.

Another non-participial nonce-formation is *nṛtāmāna-* used of Indra at 5.33.6b. It is usually analysed as a class 6 present or an aorist participle, but it does not correspond to any finite verbal stem and is best taken as an artificial form based on *nṛtama-* ‘most heroic’ and also influenced by the use of *nṛtú-* ‘active(?)’ for Indra (and other gods); it is not the only hapax in the verse (the other is *ámarta-* for usual *amṛta-* ‘immortal’) and occurs following the phonetically similar noun *nṛmṇāni* ‘heroic deeds’. Therefore the evidence that this is a nonce-formation is quite strong, and since the analogical bases for its creation are nominal rather than verbal, it should not be considered within the participial system.

The form *cikitvánā* at 8.60.18b is explained as a “metrischer Augenblickersatz für *cikitúṣā*” by Wackernagel-Debrunner (AiG, v.3, p.299); however since its morphology cannot be reconciled with the participial system it must be treated as a nonce nominal formation.

The apparent negated participle *advayant-* ‘undivided’ at 3.29.5a is clearly related to a group of adjectival derivatives *dvayú-*, *advayas-* and *advayu-* rather than being a genuine verbal form, even though in principle a denominative stem based on *dvá-* ‘two’ cannot be ruled out (however unlikely). Similarly the negative ‘aorist’ participle *ásridhāna-* at 7.69.7b

¹¹⁶The reading is uncertain: it may be *sthātús carátham* or *sthātús ca rátham*.

could be connected to the nominal forms *srídh-* and *ásridh-* rather than the verbal stem.¹¹⁷

4.8.2 Participial nonce-formations

In contrast the form *vijānūṣaḥ* to *ví-√jñā* at 10.77.1b, apparently to a stem *vijānvāms-*, although showing a nonce mixture of present stem with perfect suffix (cf. p.18), is still participial in both form and function. It is a creation from within the participial system, and cannot be excluded from the category of participles simply because of its formal irregularity.

Likewise the participle *adānā-* ‘being eaten’ to *√ad* ‘eat’ at 4.19.9a is another hapax legomenon which is morphologically isolated. To reconstruct a passive aorist (as Kulikov, 2006a) or a stative to this otherwise exclusively active (and defective: *√ghas* provides aorist and perfect forms) root seems unjustifiable. It can only be a nonce-formation, either simply in opposition to the agentive active present participle *adánt-*, or on the basis of the (mostly stative) patientive ‘root’ participles such as *idhānā-*. Either way, it is another creation from within the participial system, and must therefore be categorized within this system.

Morphologically the active root participle *huvánt-* to *√hū* ‘call’ at 6.21.10c (ex. 4.51) must be an aorist participle because the root present is medium tantum; however it occurs directly before the root middle participle and is clearly a nonce form built in opposition to that as an agentive participle.¹¹⁸

(4.51) *śrudhí hávam ā huvató huvānāḥ* (RV 6.21.10c)

‘Hear the call of the one calling, when you are called upon.’

There are many other such forms, often dismissed as nonce-formations but even so undeniably participial. So *nuvánt-*, an isolated stem within the paradigm of *√nū* ‘roar’ appears to be formed after *ruvánt-*, regular present participle of the semantically similar *√rū* ‘bellow’.¹¹⁹ The isolated class 10 present participle *tujáyant-* at 7.104.7a is, according to Jamison (1983a, p.58), a nonce form built on the pattern of similar verbs of motion (so *tujáyadbhir évair* ‘with violent movement/rush(?)’ after e.g. *patáyadbhir évaiḥ* at 1.158.3d).¹²⁰ Gotō (1987, p.78) lists *túnjamāna-* under “Augenblicks- bzw. Kunstbil-

¹¹⁷RIVELEX, p.680 gives both possibilities.

¹¹⁸So also Cowgill (1969, p.30).

¹¹⁹Gotō (1987, p.198 with fn. 382).

¹²⁰An alternative view is given by Kölligan (2002, p.144–145) who considers the class 10 present inherited,

dungen” and says of it: “wohl metrisch, vielleicht auch zur Verdeutlichung der reflex. Bedeutung gegenüber affekt. *tuñjānā-* bzw. *túñjāna-*.” The irregularly thematic and medial *bíbhramāṇa-*, beside the athematic active stem seen in *bíbharti* to \sqrt{bhr} ‘carry’, is likewise a nonce-formation based on the metrically equivalent *paprathānā-* earlier in the verse (Gotō, 1987, p.227). The hapax *turánt-* ‘hurrying’ at 6.18.4b was, according to Jamison (1983a, p.58–59), created analogically to the present stem *turáya-* of the root \sqrt{tvar} ‘hurry’.

Other isolated irregular forms include *ánniyant-* ‘desiring food’ (4.2.7a), a morphologically problematic denominal formation from *ánna-* ‘food’;¹²¹ also *áčetāna-* ‘without knowledge’ to \sqrt{cit} ‘perceive’ at 7.4.7d and *yodhānā-* to \sqrt{yudh} ‘fight’ at 1.121.8b whose full-grade roots cannot easily be explained.¹²² A slightly more ambiguous form is *krákṣamāṇa-* ‘crackling, roaring(?)’ at 8.76.11b.¹²³ This form is almost entirely isolated, the only possibly related forms being RV *vanakrakṣá-* and the hapax *avakrakṣín-* (8.1.2a). The stem *krakṣ-* is thought to be onomatopoeic (Gotō, 1987, p.116), and it is not clear whether a verbal root $\sqrt{krakṣ}$ ever really existed.¹²⁴ Should we therefore treat the ‘participle’ as the single survivor of an otherwise unattested verbal root, or as a nonce-formation based on the adjectives *avakrakṣín-* and *vanakrakṣá-*? Since the root is intransitive and the form itself an epithet, the syntactic and semantic evidence provides no help. Although the only related forms we have are nominal, we cannot rule out the possibility that *krákṣamāṇa-* represents a real participial formation (whether nonce or not).

Similarly ambiguous is *háyant-* to \sqrt{hi} ‘impel’ at 1.116.18b.¹²⁵ This is listed as “nonce” under the active aorist by Lubotsky (1997a, p.1646); Gotō (1987, p.346) considers it a back formation to the compound *aśvahayá-* ‘impelling horses’ (a morphologically regular nomen agentis compound-type), which would mean it is best treated as a non-participial nonce-formation. However it has been analysed as a regular participle: Insler (1972, p.558)

cognate with Greek *στῦγέω* ‘hate’. Cf. also Rau (2009, p.139, fn.47) who lists this along with several other zero-grade root class 10 presents supposedly associated with Caland system adjectives.

¹²¹The morphology of this form, for which we might rather expect **annīyá-*, and of related denominatives in *-ñyá-*, has recently been discussed by Vine (2009).

¹²²For a possible explanation which I do not consider valid, see Jasanoff (2002).

¹²³Transmitted *rákṣamāṇa-* at 10.68.1 was emended to *krákṣamāṇa-* by Geldner (RV), Oldenberg (Noten) et al., but this is unnecessary: see Gotō (1987, p.257).

¹²⁴Mayrhofer (EWA, v.2, p.407) at least does not doubt the existence of the root.

¹²⁵Ex. (3.57) above. Besides this single RV occurrence, it is found at TS 1.6.12.4, clearly based on the RV passage.

argued that this form reflects an original acrostatic root aorist (ptc. **háyat-*), while Joachim (1978, p.176) thought it reflected a thematic medial present (cf. e.g. *páyate* — *pínvati*) with participial “Diathesenindifferenz.” It is impossible to say with any certainty what *háyant-* represents; it must therefore be included within the category of participles, but only as it were by default.

Another difficult form is the class 1 medial participle *jánamāna-* at 8.99.3c to \sqrt{jan} ‘produce, beget’; the class 1 stem of this root is almost entirely active, the only other ‘medial’ forms being secondary 3pl.s in *-anta*.¹²⁶ According to Geldner (RV, v.2, p.427 ad loc.) *jāté jánamāne* is metri causa for *jāté-jāte* ‘at birth after birth’ in which case it is a nonce-formation based on the marginally participial *tá*-adjective; Gotō (1987, p.145–147) argues that this is a rare but genuine medial form of the stem with real medial sense and function, but that seems the less likely explanation.

The isolated participle *dhiṣanyánt-* ‘desiring intelligence(?)’ occurs at 4.21.6a in the same pāda as the noun *dhiṣā-* and also another denominative *saranyá-*, so it is likely to be a poetic nonce formation based on these.

The evidence of context cannot be relied on exclusively to justify the labelling of a form as nonce; it must be a reasonable combination of context and morphology which otherwise defies clear explanation. For example Lubotsky (1997a, p.879) considers the aorist participle *píyāna-* at 1.79.3a to be “nonce”, presumably because it directly follows the word *páyasā* (as the also isolated and possibly nonce present form *páyate* directly precedes *páyobhiḥ* at 1.164.28d). However it functions like a participle, expressing concomitance, and it could be a genuine verb form preserved in a verse containing polyptoton. It is likely to be an analogical formation but not necessarily nonce: the best basis for its creation is probably the alternation between reduplicated perfect and unreduplicated aorist participles as in e.g. *juṣṣāná-* : *juṣāná-* (discussed in more detail below). As noted above the creation of *píyāna-* could also have been influenced by the root’s participation in the Caland system.

Similarly the fact that *hárṣant-* at 1.127.6 appears in the sequence *hárṣato hṛṣívato* does not in itself mean that the form must be nonce, but here the fact that this root is otherwise exclusively medial adds support to such an analysis (cf. Gotō, 1987, p.347 on this root).

¹²⁶On which see Jamison (1979b).

As noted by Narten (1969, p.81–82), a small group of hymns in book IV, possibly the work of a single poet, contain a relatively high number of irregular ‘nonce’ participles: *uṣāṇā-* at 4.16.14c and *uṣāmāṇa-* at 4.22.2, both for *vāsāna-* to $^2\sqrt{vas}$ ‘wear’; *uṣāmāna-* at 4.19.4 to $\sqrt{vaś}$ ‘desire’; *saṣṛmāṇā-* at 4.17.14 for *saṣrāṇā-* to $^1\sqrt{sṛ}$ ‘start running’.¹²⁷ From a formal point of view these could be treated as irregular ‘nonce’ thematizations, but it is impossible to know whether we are in fact seeing the reflection of a variant dialect development which permitted such forms (i.e. thematic participles to historically athematic stems).

4.8.3 Conclusion

There exist then a variety of rare or hapax words which may or may not be ‘nonce’ in the sense defined above. There are only a few where the combined evidence of morphology, semantics and context provide evidence that the form concerned, although appearing to represent a participle, was in fact created on adjectival or nominal bases and hence should not be considered participial. There are considerably more where some non-participial influence should be recognized in the creation of the word, but where the form was still clearly intended to be understood as a participial formation. These forms, and all ambiguous forms where the evidence does not permit us to make a clear judgment, must be considered functionally within the category of participles, even if morphologically they cannot obviously be derived from verbal tense-aspect stems.

4.9 Tense-Aspect Stem Participles

We now move on to consider not the relation of marginal forms to the participial system, but the relation of genuine participial forms to their tense-aspect stems. In terms of syntax and semantics we can now take for granted that the forms we are talking about are or should be analysed as tense-aspect stem participles proper. It may appear, then, that there is nothing left to say, since we can predict the syntactic properties and the semantic range of a participle based on our understanding of the tense-aspect stem from which it is derived and from our understanding of participial syntax and semantics developed in the previous

¹²⁷On *saṣṛmāṇā-* see also Knobl (2004, p.266–267).

chapters. And it is true that there is little more to add on the subject of present, perfect and future participles. However there are some participles which are, syntactically and semantically, uncontroversially participles but of which the tense-aspect stems from which they are derived are more difficult to analyse.

This is particularly true of stative and aorist participles; and these will be the subject of this section. There is one small instance from the present system, however, which we will deal with first. Tucker (2002b, p.291–292), following the observation of Grassmann (1873, p.1515), notes that the present participle *siñcánt-* ‘pouring out’, while corresponding morphologically to the finite stem seen in *siñcáti* ‘pours out’, does not correspond to it in terms of argument structure, being intransitive (unaccusative) while the latter is agentive-transitive; syntactically it corresponds rather to *sicyáte* ‘pours out’ (unaccusative). Tucker proposes a more general rule that present participles to transitive thematic (class 6) nasal stems with corresponding intransitive class 4 presents can themselves be intransitive, being therefore synchronically the participle to the class 4 present as well as or instead of the participle to the nasal present. In the case of *siñcánt-* we must say ‘as well as’, since at least half the Ṛgvedic occurrences of the participle do syntactically correspond to the finite nasal present stem. Nevertheless we must somehow account for the unexpected unaccusative argument structure of the remaining forms of *siñcánt-*: there is no justification for treating these forms as somehow non-participial (as e.g. with *járant-*, p.209f.), therefore a synchronic suppletive relationship between the finite class 4 stem and the class 6 participle of \sqrt{sic} is the simplest way of accounting for this.

4.9.1 Stative participles

The category of stative participles is somewhat problematic in the *Ṛgveda*, partly due to the controversial status of the stative as distinct tense-aspect stem, and partly due to frequent formal ambiguity between stative and present or aorist stems which, while distinguished by differing finite verb endings, are potentially neutralized in the participle.

In this work I have accepted the independent status of the stative tense-aspect stem in the *Ṛgveda*, but at the same time we must acknowledge that stative stems were in the process of being rebuilt as medial present stems. In the case of finite forms, the distinct

person/number endings sometimes allow us to state clearly whether a particular form is present or stative, but in the case of the participle we cannot be so definitive. For example the form *avasran* at RV 4.2.19 is the only surviving example of the stative paradigm of $^2\sqrt{\text{vas}}$ ‘wear’, which is assumed to be the original stem type underlying the root present *váste* (Kümmel, 1996, p.97–99). The participle *vāsāna-*, however, is entirely ambiguous: diachronically we may confidently call it a stative participle, but synchronically it is as much a present participle, and can only be considered to retain any stative affiliation to the extent that the stative still existed as a distinct tense-aspect stem. In the case of *vāsāna-* there is little we can say since the stative stem was simply rebuilt as a present, so there is no morphological or semantic difference which could distinguish stative participle from present. The same is in principle true of *śáyāna-* to $\sqrt{\text{śī}}$ ‘lie’, although here finite forms of the root are almost exclusively stative in early Vedic (the only exception is a single optative form, see Kümmel, 1996, p.109–110), meaning that we can more confidently label *śáyāna-* a stative participle at this stage of the language. This problem is limited to those roots where the stative was directly converted into a present: in many other roots we can more securely distinguish stative from present participles since the two stems are semantically distinct, the former having a stative, often patientive, sense, while the latter has a dynamic, often agentive, sense.

Besides the potential confusion with the present (and as we will see, sometimes the aorist), a few roots potentially at least show confusion between the stative and the perfect. The root $\sqrt{\text{īś}}$ ‘rule’, with participle *īśāna-/īśānā-*, is somewhat problematic; the finite stem, 3sg. *īše*, is usually assumed to have originated as a perfect, but Kümmel (2000a, p.123–124) has argued that this may actually be in origin stative, the original perfect being a phantom, because he can find no justification for the medialization of the stem if it originated as a perfect. In the case of $^2\sqrt{\text{vid}}$ ‘know’, which forms an unreduplicated perfect, it is difficult to draw any kind of synchronic line between the perfect middle and the stative; nevertheless Kümmel (1996, p.104) considers that the two may be partially distinct, in particular in the participle where an accentual difference between *vidāna-* and *vidānā-* almost entirely corresponds to a semantic distinction between the two, the former having patientive (stative)

meaning and the latter reflexive (perfect).¹²⁸ In both these cases an accentual difference might possibly serve to distinguish stative from perfect participles, but as we will see below accent is not a reliable indicator.

Certain participles are relatively well established as stative participles. So *gr̥ṇānā-*, *cītāna-*,¹²⁹ *dúhāna-* and *dúghāna-*, *dr̥śānā-/dr̥śāna-*, *bruvāṇā-* and *stāvāna-*.¹³⁰ These are generally attributed to the stative tense-aspect on the basis of formal and functional correspondence to attested finite stative stems; functionally this mainly involves stative sense and (often) patientive argument structure.

Besides these well-established stative participles there are several participles, usually listed in grammars as aorist participles, which are also best considered under the category of stative participles. Several of these have already been connected to either the stative or the passive aorist by Kulikov (2006a).

As discussed above (p.22) Kulikov (2006a)¹³¹ and Jasanoff (2002, 2003a) have argued that the passive aorist could form participles in the *R̥gveda*. In fact relatively few patientive aorist participles correspond to attested finite passive aorists; and even when they do, the productivity of the passive aorist in Sanskrit makes any such pattern likely to be coincidence.¹³² It may be possible to reconstruct a passive aorist, but it is never necessary to do so merely on the basis of a patientive participle. For example Kulikov (2006a, p.55) argues that *adānā-* ‘(being) eaten’ at 4.19.9a reflects an unattested passive aorist **ádi* due to its patientive semantics. However an equally hypothetical stative to this root could mean ‘eaten’; in fact it is as likely to be a nonce creation based on the root present stem on the analogy of other patientive *-ānā-* participles (cf. above p.240).

The origin of the Indo-Iranian passive aorist is not known; it may have a nominal

¹²⁸The participles *vidāna-* and *vidānā-* have been controversial forms, often attributed to ¹ \sqrt{vid} ‘find’, as e.g. by Schaefer (1994, p.184 and fn.551); Schmidt (1957); Seebold (1973). However Kümmel (1996, p.101–104) has argued convincingly that both are correctly analysed as part of ² \sqrt{vid} . Cf. also Tremblay (1997, p.113–115).

¹²⁹The only possible finite stative form to this root is the unclear *cité* at 10.143.4a which Kümmel (1996, p.39) interprets as a 3sg., in contrast to the more traditional interpretation as an infinitive. If *cité* is a stative it is the only one to a root aorist (Kümmel, 1996, p.10).

¹³⁰On all these see Kümmel (1996) and Kulikov (2006a).

¹³¹Essentially repeated in Kulikov (2006b, p.64–67; 2009, p.78–79).

¹³²Verbal roots which have both ‘aorist’ participles and passive aorists: \sqrt{kr} , \sqrt{cit} , $\sqrt{dr̥ś}$, \sqrt{budh} , \sqrt{yuj} , \sqrt{ruc} , ¹ \sqrt{vr} , \sqrt{su} , \sqrt{stj} . Jasanoff also lists $\sqrt{juṣ}$ but the participle is agentive; \sqrt{vah} and $\sqrt{śubh}$ have aorist passives in Classical Sanskrit; $\sqrt{bhī}$ has a passive aorist listed in grammatical literature but not otherwise attested; \sqrt{guh} and $\sqrt{śuc}$ also have passive aorists but the ‘aorist’ participles are thematic so cannot correspond.

origin, in which case the connection of a participle to the formation would have to be secondary.¹³³ As Kümmel (1996, p.20–21) has argued, the 3pl. and (Avestan) imperative forms of the passive aorist were only secondarily associated with the 3sg. passive aorist (the only ‘original’ passive aorist form), but were originally part of the morphologically (as built to verbal roots) and semantically (as patientive-intransitive) similar stative paradigm. Now since it is uncontroversial that ‘stative participles’, i.e. participles corresponding to finite stative paradigms, are found in the *Ṛgveda*, it would therefore seem better to explain the unexpectedly patientive participles of the *Ṛgveda* only by association with an inherited construction which derives a variety of forms such as imperative and optative and which can be demonstrated to form participles in the *Ṛgveda*, rather than with a historically unclear formation whose only independent form is the 3sg. indicative/injunctive and which, if it were to form participles, would presumably have to import them from the stative anyway.

In some roots, however, patientive participles cannot correspond morphologically to attested statives, while they could correspond both formally and functionally to attested aorist passives. A good example is *suvāná-* ‘pressed’, which is attributed by Kulikov (2006a, p.61) to the aorist passive *ásāvi*, while the attested stative is built to the nasal present stem, *sunvé*. In fact it is not the only such patientive participle to correspond functionally but not formally to a nasal stative: *idhāná-* can be compared to *indhé*,¹³⁴ *vrāṇá-* to *vṛṇvé*, *hiyāná-* to *hinvé*, also possibly *samarāṇá-* to *ṛṇvé*.¹³⁵ These nasal statives are a secondary, Vedic creation (Kümmel, 1996, p.13) and could reflect an inherited root stative, in the case of RV *śṛṇvé* actually preserved in Avestan *sruiē* according to Kümmel (1996, p.152–154).¹³⁶ The patientive *suvāná-* (ex. 4.52) must then reflect the original stative **suvé*, which was replaced by the nasal stative *sunvé* (ex. 4.53), which itself then formed a new ‘regular’ stative participle attested in the patientive occurrences of *sunvāná-* (ex. 4.54).

(4.52) *eṣá suvānáḥ pári sómaḥ pavítre*

¹³³On the possible origins of the passive aorist see Kümmel (1996, p.14–20, 157); for an entirely different view, see Jasanoff (2003a, p.153f.).

¹³⁴On *indhé* see Kümmel (2000a, p.125, fn.80).

¹³⁵The connection between these last two forms is somewhat uncertain due to the complicated relations of the two (or more) roots \sqrt{r} (see Kümmel, 1996, p.24–26; 2000a, p.101–105; 2000b); the stative forms and the participle do not match functionally, but this may be because of the preverbs.

¹³⁶Gāthic *sruiē* (Y.33.7) is a problematic form; competing interpretations are as a 1sg. passive (Humbach, 1959, v.2, p.41; 1991, v.2, p.97) or as an infinitive (Insler, 1975, p.215).

sárgo ná sṛṣṭó adadhāvad árvā (RV 9.87.7ab)

‘This *pressed* Soma around the strainer
has run, the courser, like a flood released.’

(4.53) *ayám sóma indra túbhyam sunve* (RV 7.29.1a=9.88.1a)

‘This Soma, O Indra, *is pressed* for you.’

(4.54) *prá sunvānasyāndhaso*
márto ná vṛta tād vácaḥ (RV 9.101.13ab)

‘The mortal man has not chosen
this speech of the *pressed* juice.’

The same pattern is found with \sqrt{idh} ‘kindle’: the inherited stative participle *idhāná-* (ex. 4.55) functionally corresponds to the new finite nasal stative *indhé* (ex. 4.56) which itself also forms a ‘regular’ nasal stative participle *indhāna-* (ex. 4.57).

(4.55) *sá no revát samidhānāḥ svastáye*
saṃdadasvān rayím asmāsu dīdihī (RV 2.2.6ab)

‘Brilliantly *kindled* (*and now aflame*) for our welfare,
when you are completely exhausted shine riches upon us.’

(4.56) *indhé rájā sám aryó námobhir*
yásya prátikam āhutaṃ ghṛténa (RV 7.8.1ab)

‘The king and lord *is kindled* (*and now aflame*) with homages,
whose face is oblation made to with ghee.’

(4.57) *indhāno akró vidátheṣu dídyac*
chukrávarṇām úd u no yaṃsate dhíyam (RV 1.143.7cd)

‘*Kindled* (*and now aflame*) in assembly may the beast, shining,
raise our bright coloured poetic-thought.’

Precisely parallel are *hiyāná-* (ex. 4.58), *hinvé* (ex. 4.59) and the patientive occurrences of *hinvāná-* (ex. 4.60).¹³⁷ The connection between the patientive *vṛāná-* and the hapax apparent nasal stative *vṛṇvé* is more difficult to demonstrate since the latter form is unexpectedly

¹³⁷As discussed by Kümmel (1996, p.140–141) the distinction between the stative and present in this root appears to have been breaking down at the time of the *Ṛgveda*, since for example the 3pl. stative *hinviré* is often found in agentive-reflexive function. Nevertheless the pattern discussed here is still clearly visible in the genuinely stative forms of the root.

Kulikov (2006a) assigns the patientive occurrences of the participles *yujāná-* and *srjāná-* to the passive aorist; however it might be better supposed that these too represent unattested stative paradigms, e.g. 3sg. **yujé*, **srjé*, particularly given the existence in the RV of the 3pl. passive aorist (but originally stative?) *ayujran* and *ásrgram/n*. Even if these roots no longer (or never) had a stative paradigm, these participles still pattern as stative participles, and so should be treated as such in a synchronic analysis.¹³⁹

Other possible stative participles include *stavāná-* and *stuvāná-*, which are both functionally equivalent to the morphologically regular stative *stávāna-*. According to Kümmel (1996, p.131–136) *stavāná-* is a form of *stávāna-* with secondary suffixal accentuation while *stuvāná-* is the original present middle (cf. Greek *στεῦραι* ‘boast’) which has become confused with the stative.¹⁴⁰ The patientive forms of *huvāná-* ‘being called’ are more difficult to explain. Kulikov (2006a, p.55–56) assumes an unattested passive aorist, but it is better analysed synchronically as a stative participle: although no stative is attested (Kümmel, 1996, p.142), semantically a stative to such a root is not unexpected; alternatively an analogical origin on the basis of the stative participle *bruvāná-* to the semantically and phonologically similar root $\sqrt{brū}$ ‘call’ may be possible.

The extremely problematic *krāná-* formally corresponds to the frequent medial aorist stem of \sqrt{kr} ‘make’, but functionally seems in some passages to contrast with the finite stem in being basically patientive, while in others it is virtually impossible to interpret. Some forms of *krāná-* can be interpreted as nouns (possibly from the nt.sg. of the participle?), others appear to be adverbial, and a few are unambiguously adjectival/participial. Although Geldner tried to interpret some as agentive-transitive participles, presumably to save the connection to the medial aorist (which is invariably agentive-transitive), the best overall interpretation is still that of Oldenberg (1903; *Noten*, v.1 p.58 ad 1.58.3), by which *krāná-* is originally a patientive participle, from which a noun and finally an adverb developed.

¹³⁹Diachronically there may be an alternative explanation for *yujāná-*: although in the *Rgveda* the mediopassive root aorist is agentive while an active root aorist is not found, in Old Avestan there exists an agentive active root aorist (e.g. 3sg. ind. *yaogə* Y.44.4) while the mediopassive (3pl. sbj. *yaojantē* Y.30.10) is patientive. If then the Avestan diathetic contrast is inherited, while the Rgvedic situation is a secondary development, *yujāná-* ‘yoked’ may simply represent the original value of the mediopassive root aorist participle. Diachronically we cannot be certain which is the correct explanation of *yujāná-*, but synchronically it remains the case that *yujāná-* ‘yoked’ does not correspond to the RV mediopassive root aorist but rather patterns as a stative.

¹⁴⁰Kulikov (2006a, p.51–52) rather connects *stuvāná-* to the aorist passive, which as we have seen is unjustifiable.

Assuming that *krāṇá-* is fundamentally patientive, the only reasonable explanation for this would be to assume an inherited stative (**kré*); however given the problematic nature of the attested forms of *krāṇá-* I hesitate to make such an assumption.

There are several other participial stems which show unexpectedly patientive semantics in some or all forms: *añjāná-*, *dádihāna-*, *tanvāná-*, *iyāná-*, *riṇāná-*. It might be possible that some of these reflect unattested stative stems (nasal statives in some instances), but with no positive evidence except the semantics of the participles themselves, this cannot be anything more than conjecture. Once the distinction between stative and present had begun to break down, at least in some verbs, and some stative and present participles either already were or had become identical (e.g. *índhāna-*, *hinvāná-* etc.), it would have been easy to extend this apparent lability (varying transitive or intransitive argument structure) to other present or aorist participles in *-āna-*, without any need for a diachronic or synchronic stative paradigm.

Accent

Kulikov (2006a, p.56–57) has argued for a “weak tendency to generalize the root accentuation” for stative participles, on the analogy of the common stative participles *śáyāna-* and *stávāna-*. This would explain the unexpected accent of *índhāna-*, *dú(g)hāna-* and *cítāna-*. However this weak tendency clearly did not extend to all stative participles, and moreover it does not follow that any participle unexpectedly accented on the root reflects a stative. This may simply be part of a tendency for participles (especially participles with present time reference) to generalize root accentuation. *índhāna-* is accented on the root whether stative or present, as are corresponding finite forms. The accent of the present participle *ínvant-* anticipates the reanalysis of this originally class 5 stem as a class 1 present; the denominative *ánniyant-* has an unexplained initial accent; perfects with present time reference often retract their accent onto the initial syllable (the first stage of reanalysis as a present). In some forms there is no good explanation for accentual variation, e.g. in *dyútāna-* beside *dyutāná-*.

Kulikov (2006a, p.58) even tries to argue for a semantic difference between stative and his ‘passive aorist’ participles, distinguished by accent. As evidence he contrasts the two

accentual variants of the root participle to $\sqrt{dṛś}$, translating *dṛśānā-* (ex. 4.62) “visible” but *dṛśāna-* (ex. 4.61) “appearing (lit. seen)”; however the text supports no such distinction.¹⁴¹

(4.61) *jígharmy agnīm havīṣā ghṛténa*
pratikṣiyántam bhúvanāni víśvā
prthúm tiraścā váyasā brhántam
vyáciṣṭham ánnai rabhasám dṛśānam (RV 2.10.4)

‘I sprinkle Agni with an oblation of ghee,
(Agni) who dwells with all beings,
broad and wide, high through power,
expansive, fierce through food (and highly) *visible*.’

(4.62) *dṛśānó rukmá urviyá vy àdyaut* (RV 10.45.8a)
‘(Highly) *visible* (like) a gold ornament he shines widely.’

On the other hand there does appear to be a semantic distinction between *yātāna-* and *yatānā-*. The former occurs twice, with the sense seen in ex. (4.63); on the other hand the single form of *yatānā-* (ex. 4.64) is semantically and syntactically more similar to some occurrences of the present participle, expressing a change of state, rather than a state itself, as the instrumental agent suggests.

(4.63) *hamśá iva śreṇísó yātānāḥ*
śukrá vásānāḥ sváravo na águḥ (RV 3.8.9ab)

‘Like geese *ordered* in rows
the post approach us, clothed in bright (raiment).’

(4.64) *pitúr ná putráḥ krátubhir yatānā*
á pavasva visé asyá ájītim (RV 9.97.30cd)

‘*Being ordered* by (our) intent like a son (by that) of his father,
flow for the clan, to keep it from conquest.’

The question is whether we are willing to assume the existence of a stative merely on the interpretation of two occurrences of a participle.¹⁴² In sum, while there does appear to be a tendency for stative participles to generalize root accentuation, this is simply part of a more general tendency found throughout the participial system, such that accentuation

¹⁴¹Indeed it could be argued that Kulikov’s ‘visible’ is a more appropriate gloss for a stative, and ‘seen’ for an aorist.

¹⁴²Even if we accept that, there is nothing obvious with which to connect the non-stative *yatānā-*.

cannot be used as evidence for a particular form being stative rather than, say, present, in the absence of any other evidence.

Conclusion

We have seen that the category of stative participles is, in its core membership, clearly distinct from that of the present participles and the perfect participles, yet in its more debatable members is actually very hard to distinguish from those categories. Forms like *dú(g)hāna-* and *gṛṇāná-* are unambiguously stative, patterning morphologically and functionally with attested finite stative stems. As I have argued above, there exists also a small group of stative participles, *idhāná-*, *suvāná-*, *hiyāná-* etc., which correspond functionally but not morphologically to attested finite stative stems, since the finite stem has been rebuilt as a nasal stem. Several other participles are ambiguous, since they are built to verbs in which the stative stem was merging with or being replaced by a present stem of similar morphology and identical semantics. Finally there are several participial stems which show unexpected patientive function in at least some of their forms, contrasting with the finite stems to which they appear to be built; some or all of these could reflect unattested stative stems, but there is no positive evidence in either direction. The final constituency, then, of the category of stative tense-aspect stem participles in the *Ṛgveda* must remain uncertain, which reflects the incipient obsolescence of this tense-aspect at this stage of the language.

4.9.2 Aorist participles

As discussed above (§1.4.4, p.20f.) aorist participles are relatively rare in the *Ṛgveda*, and almost entirely absent from later Sanskrit. In fact, aorist participles are even more rare than they are generally acknowledged to be, since our syntactic and semantic analysis of *Ṛgvedic* participles has shown that various forms traditionally listed under the category of aorist participles are better analysed in other ways. We have discussed many of these forms above, and the following list summarizes the forms which have been or should be reanalysed as not synchronically or diachronically aorist participles.¹⁴³

¹⁴³There are various other forms which have occasionally been labelled aorist participles by particular authors, unjustifiably and without general acceptance. For example Insler (1975, p.116) argued that *uttāná-* (and related Av. *ustāna-* in *ustāna.zastō*) is from a compounded aorist participle of \sqrt{tan} , PII **ut^s-tnāná-*, but all other

- Governing compounds: *kṛtát-*, *guhát-* and *vidát-* are found only in governing compounds and so, although synchronically they must be considered participial stems, they have a non-participial origin and function (see §4.2.2) and cannot therefore be used as evidence of aorist participles.
- Adverbs: the supposed aorist participle **tṛpánt-* is in fact an adverb *tṛpát* (see §4.5).
- Present tense-aspect stems: *kṛpamāṇa-*, *juṣámāṇa-* and *śuśánt-* are usually analysed as aorist participles, but they are best treated as built to present tense-aspect stems and hence are present participles. The former two are built to thematized aorist stems which are in the process of being reanalysed as present stems in the *Ṛgveda*.¹⁴⁴ Lubotsky (1997a, p.1426) lists the participle *śuśánt-* as a possible thematic aorist participle, but from a formal point of view it is the expected form of the present participle to the class 2 present *śvāsiti* ‘snorts’, while the usual present participle *śvasánt-* shows analogical levelling of the full grade root (Jamison, 1983b, p.7).
- Perfect tense-aspect stems: the frequent *mandāná-* is in fact a regular perfect middle participle from \sqrt{mad} ‘become exhilarated’ (Kümmel, 2000a, p.358) rather than an aorist participle from \sqrt{mand} ‘exhilarate’ (as still Lubotsky, 1997a, p.1035).
- Stative participles (§4.9.1): the following are stative participles at least in their patientive occurrences (the usually less common agentive occurrences must still be treated as aorist participles): *idhāná-*, *samarāṇá-*, *cítāna-*, *suvāná-*, *yujāná-*, *srjāná-*, *yātāna-* / *yatāná-*, and *dṛśāna-* / *dṛśāná-*.
- Caland adjectives (§4.6): *citánt-*, *juránt-*, *dhṛśánt-*, *śucánt-*, *tṛṣāṇá-*, *vipāná-*, *śvitāná-* and *piśāná-*.
- Nonce-formations (§4.8): **sthánt-*, *háyant-*, *huvánt-*, *adāná-*, *áacetāna-*, *ásridhāna-*, *nṛtāmāna-*.

authorities take it as a *-na-* adjective, e.g. Mayrhofer (EWA, v.1, p.213). Lubotsky (1997a, p.328) listed *udṛrat* at 4.2.7b as a participle to a reduplicated aorist stem, but it is in fact best taken as a subjunctive.

¹⁴⁴On *kṛpamāṇa-* see Jamison (1983a, p.56–57); *juṣámāṇa-* is best treated as a present participle, representing the reanalysis of the thematized root aorist as a present stem which takes off after the *Ṛgveda*, but is surely incipient in the *Ṛgveda* despite the (incidental?) lack of unambiguously present forms; the participle itself occurs at 4.23.1 beside the present participles *pībant-* and *uśāná-*, making its present sense clear.

- Synchronic nouns: *rīṣant-/rīṣant-* (p.230).

Once these spurious aorist participles are removed from consideration, we are left with less than fifty stems which can reasonably be considered aorist participles. There are fifteen active aorist participle stems, of which eight are hapax legomena: *ṛdhánt-* (x1), *kránt-* (x1), *gmánt-* (x3), *dyutánt-* (x3), *d(h)ákṣat-* (x4), *pánt-* (x2), *bhidánt-* (x1), *rudhánt-* (x1), *vidhánt-* (x30), *vṛdhánt-* (x6), *śiṣánt-* (x1), *sádant-* (x4), *sánant-* (x1), *prasákṣat-* (x1), *svanát-* (x1).

In addition there are thirty mediopassive participles, of which twelve are hapax legomena: *idhāná-* (x2), *krāṇá-* (x13), *guhāmāna-* (x1), *jásamāna-/dásamāna-* (x3), *juṣāṇá-* (x34), *dyútāna-/dyutāná-* (x9), *dhrṣámāṇa-* (x1), *nirṇijāná-* (x1), *nidāná-* (x1), *pṛcāná-* (x1), *prathāná-* (x2), *budhāná-* (x2), *bhiyāná-* (x3), *manāná-* (x1), *yuvāná-* (x2),¹⁴⁵ *yodhāná-* (x1), *yujāná-* (x14), *rucāná-* (x6), *úhāna-* (x2), *urāṇá-* (x8), *vṛdhāná-* (x8), *śúcāmāna-* (x1), *śubhāná-* (x2), *sacāná-* (x1), *prasaḥāná-* (x1), *srjāná-* (x2), *prastubhāná-* (x1), *sprdhāná-* (x1), *hiyāná-* (x8), *áhrayāṇa-* (x3).

The reason for the relative rarity of aorist participles is a matter of debate. It is usually assumed that the ability to form participles to aorist stems was inherited from PIE but lost due perhaps to functional competition from the perfect participle and/or absolute. However it is only in Ancient Greek, a language which thoroughly systematized aspectual distinctions in its verbal paradigm, that aorist participles are attested as a synchronically productive category. The assumption that aorist participles were a productive category in PIE rests on the common assumption that the Ancient Greek verbal system essentially reflects that of PIE. It could be, however, that the participial suffixes **-nt-* and **-mh₁no-* were originally specifically imperfective, and as such could not easily be used to derive participles from aorist stems. Alternative reconstructions of the PIE verbal system permit other explanations. For example following Willi's (2007) analysis of the PIE verb, the apparent aorist participles in Ṛgvedic Sanskrit could have originally been imperfective participles to roots which later got dragged into the 'aorist' category, ending up as an unproductive and functionally ambiguous category morphologically aligned with the aorist. This could explain

¹⁴⁵For *yuvāná-* as an aorist participle see Kümmel (2000a, p.400), contra the traditional interpretation as a root present participle (as e.g. Jamison, 1983a, p.174, fn.148).

the otherwise problematic fact that aorist participles can very commonly be interpreted imperfectively (cf. §3.5.3, p.155f.).

Active Aorist Participles

The active aorist participles must be considered separately from the mediopassive participles, since the two groups differ noticeably in frequency of occurrence, morphological regularity and syntactic regularity.

All active aorist participles are derivationally regular in that they all have attested corresponding finite active aorist forms, with the single exception of *dyutánt-* which occurs beside an *s*-aorist *ádyaut*; however even for this form the existence of an earlier root aorist is fairly certain (Narten, 1964, p.148).

The only two aorist participles to the distinctive *s*-aorists are *d(h)ákṣat-* and *sákṣat-*, briefly discussed above (p.160, with exx. 3.110, 3.111). Morphologically they have been analysed in various ways. Wackernagel-Debrunner (AiG, v.3, p.162 but apparently contradicted at p.262) considered *sákṣat-* an *s*-aorist participle but *d(h)ákṣat-* from a present stem *dhakṣ-*. Renou (1937) considered both secondary, derived from the aorist imperatives *dhákṣi* and *sákṣi*. However as discussed by Narten (1964, p.134) the non-ablauting suffix of *d(h)ákṣat-* and *prasákṣat-* is unexpected if the forms are recent or secondary; the analogy of a form like *tákṣat-* is not a particularly strong argument given the greater number of ablauting participles like *nákṣant-*, *rákṣant-*, *yákṣant-*.¹⁴⁶ The inherited acrostatic accent and non-ablauting suffix of the *s*-aorist participles suggests then that these participles are genuinely archaic, whether or not *s*-aorist participles were ever a regular or productive formation in PIE or PII. As we saw in chapter 3, despite being built to a clearly marked aorist stem, the participles appear to have imperfective aspectual semantics, showing the clear loss of genuine aorist semantics even with marked aorist participles.

All other active aorist participles are formed to root or thematic stems.¹⁴⁷ The only

¹⁴⁶Besides the occurrence of *sákṣat-* at 4.12.1 (ex. 3.111, p.160 above), there is one other possible example which, however, would have a full-grade suffix; in fact the form is best interpreted as a morphologically regular finite verbal form (or, as argued by Narten, 1964, p.266–267, a nonce-formation).

¹⁴⁷It is not always possible to tell the difference, and we generally rely on the existence of a finite thematic aorist stem to establish that a particular participle is thematic. For example *sánant-*, usually assumed to be a thematic aorist participle on the basis of the thematic aorist stem with which it is clearly associated in its one occurrence (7.52.1c), could alternatively reflect the expected but unattested class 9 present **sanā́ti* beside *sanóti*

common active aorist participle is the clearly lexicalized *vidhánt-* (cf. p.234 above). The most common non-lexicalized active aorist participle is *vṛdhánt-*, attested only six times. The next most common are *d(h)ákṣat-* and *sádant-*, occurring four times each, then *gmánt-* three times, *pánt-* twice, the others only once.¹⁴⁸ The active aorist participle is therefore a very rare and minor part of the RV verbal system, not at all in keeping with the importance of the finite active aorist, and considerably rarer than the mediopassive aorist participles, to be discussed below. Despite this, almost all active aorist participles are syntactically regular. They all have the argument structure expected from corresponding finite verbal forms, even showing parallel variation where finite forms vary; so for example *vṛdhánt-*, like corresponding finite forms, is found in both transitive (ex. 4.65) and intransitive (ex. 4.66) uses.

(4.65) *stútaś ca yás tvā várdhanti*
mahé rádhase nṛmṇáya
índra kārīṇaṃ vṛdhántaḥ (RV 8.2.29)

‘The praises which increase you,
to great generosity and manliness,
increasing (also) the praiser, O Indra...’

(4.66) *tám vṛdhántam márutam bhrájadṛṣṭim*
rudrásya sūnúṃ havásá vivāse (RV 6.66.11ab)

‘That *strong* Marut-car of sparkling spear,
the son of Rudra I would win with invocation.’

From a temporal-aspectual point of view the most clearly ‘aoristic’ of the aorist participles are all active, e.g. *gmánt-*, *kránt-* and *sádant-* discussed above (p.156f.). Despite their rarity, then, their morphological, syntactic and even partial semantic correspondence to the aorist system shows that although the active aorist participle may have been obsolescent in

to the set root \sqrt{san} ‘win’, or could in principle reflect a root aorist (for which there is no evidence). Under any analysis the accent of *sánant-* and the apparent corresponding finite form *sánema* is difficult to explain (cf. Dahl, 2010, p.336, fn.105). For this participle at least we have comparative evidence for its thematic status: the corresponding form in Avestan, which preserved better but not absolutely the paradigmatic distinction between thematic and athematic *-nt-* stems (Strunk, 1986, p.441–442), *hanaṇt-*, is clearly thematic.

¹⁴⁸Forms of the participle *pánt-* to $\sqrt{pā}$ ‘drink’ are somewhat difficult to distinguish from the problematic noun and/or adjective *pánta-* ‘drink(able)’. Following Oldenberg (Noten, v.1, p.122–123) and Lubotsky (1997a, p.868) I take the forms at 1.122.4b and 9.98.8b to *pánt-*, but the forms at 1.122.1a, 1.155.1a, 7.33.2b, 8.92.1a, 9.65.28–30c and 10.88.1a (all *pántam*) to *pánta-*, contra e.g. Grassmann (1873, p.800, 802, 806). On these forms see also Geldner (RV, ad locc.) and Renou (EVP, v.4, p.25; v.14, p.91).

mediopassive aorist than with active can be explained by assuming a degree of productivity on the part of the mediopassive aorist participle, which also explains its relative frequency in comparison to the active and the fact that few mediopassive aorist participles have attested corresponding finite stems.

Many mediopassive aorist participles which lack corresponding finite stems may have been formed on the basis of paradigmatic analogy, primarily with the perfect mediopassive. For example, on the analogy of pairs such as perfect *jujuṣāṇá-* : aorist *juṣāṇá-* and perfect *suṣvāṇá-* : stative *suvāṇá-* (perhaps assisted by the existence of the frequent *mandāná-*, morphologically a perfect participle to \sqrt{mad} but potentially confused with \sqrt{mand}), it could have been possible to back-form ‘aorist’ participles from perfect middle participles.¹⁴⁹

The hapax *píyāna-* (ex. 4.68) is best explained as analogical both formally and functionally on the perfect participle *pípyāna-/pípyānā-* (ex. 4.69).

(4.68) *yád īm ṛtásya páyasā píyāno*
náyann ṛtásya pathíbhī rájīṣṭhaiḥ (RV 1.79.3ab)

‘When, *swollen* with the milk of order
 (he came) leading (them) along the most straight paths of order.’

(4.69) *yáḥ suṣváyanta sudúghāḥ sudhārá*
abhí svéna páyasā pípyānāḥ (RV 7.36.6cd)

‘... (the rivers) who are fruitful, good givers of milk, of good streams,
swollen with their own milk.’

Analogy of this kind is the only viable explanation for those medial aorist participles which have no corresponding finite aorist stems, no evidence of a stative, and no obvious alternative explanation. The influence of the perfect on the creation of these ‘aorist’ participles is clear not only from its effect on the tense-aspect of some of these secondary forms, but also its influence on their argument structure.

¹⁴⁹This is the opposite of Jasanoff’s (1978, §71, p.81–82) argument that the productivity of perfect middle participles (and the perfect middle generally) originated in the reinterpretation of root aorist middle participles as unreduplicated perfect participles, leading to redetermination by reduplication, e.g. *jujuṣāṇá-* from *juṣāṇá-*, *tāṛṣāṇá-* from *ṛṣāṇá-*, *bubudhānā-* from *budhānā-*. Jasanoff also argues that the same process may underlie the parallel productivity of the perfect middle in Ancient Greek, e.g. *βεβλημένος* from an originally stative aorist *βλήμενος*, the punctual aorist participle being due to the later systematization of the aspectual oppositions present—aorist—perfect. Functionally and paradigmatically, however, it makes more sense to assume that the problematic mediopassive aorist participles are the secondary creations.

The participle *vṛdhāná-* is the only medial aorist form of $\sqrt{vṛdh}$ attested in the RV. Functionally it is usually intransitive, meaning ‘strengthened, increased’; once it appears with *tanvām* ‘self’, which could support an agentive-reflexive interpretation ‘strengthening oneself’, although *tanvām* could be interpreted as an accusative of respect to an intransitive participle. A secondary finite medial aorist has no obvious analogical support, but the existence of the (secondary) medial perfect with both transitive and intransitive argument structure provides support both formally and functionally for the medial aorist participle. The fact that the medial perfect can occur with both transitive and intransitive function can be explained by a series of analogical developments affecting the perfect system (described by Kümmel, 2000a, p.469–473): firstly the originally intransitive active perfect is medialized, then the active adopts the agentive sense found in the active present, finally the medial perfect optionally adopts an agentive-reflexive sense in opposition to the active. It is this variation, which develops specifically in the medial perfect, which is transferred to the analogical aorist participle when it is created on the basis of the perfect. Likewise two instances of the participle *sṛjāná-* are agentive which again is unexpected until we look to the perfect where the middle can be agentive or patientive (although agentive perfect participles are not attested until after the RV). Similarly *juṣāná-* at 10.6.4a is patientive (cf. Renou EVP, v.14, p.67); this could follow *jujuṣāná-* at 4.34.3c (taken as passive by Geldner and Renou, but not mentioned by Kümmel, 2000a).

In other cases the variable argument structure of some aorist participles cannot be explained purely on the basis of the perfect, but may be based on the apparent variation in forms where the stative and mediopassive aorist participles were identical. For example *prathāná-* ‘spreading’ (e.g. 6.64.3b) is found in both agentive-transitive and fientive-intransitive uses, while the corresponding perfect middle is only intransitive. However the transitive use of *prathāná-* can easily derive analogically from the apparent labiality of the *idhāná-*, *yujāná-* type.

Other morphologically isolated mediopassive aorist participles which could have been formed on the basis of the perfect include e.g. *spṛdhāná-*, used as an epithet of Indra at 3.31.4a, beside the perfect *pasṛdhāná-*; *dyutāná-/dyútāna-* is probably secondary on

the perfect participle *didyutānā-* since the only old stems to this root are all active;¹⁵⁰ *prasaḥānā-* may have been influenced by the (rebuilt) perfect participle *sāsaḥānā-*, or may represent an analogical shortening of the opaque reduplicated stem *sāh-*.

Once forms such as *vṛdhānā-* and *dyutānā-* had been created alongside inherited participles like *idhānā-* and *yujānā-*, the formation of mediopassive participles from the verbal root may have become productive in itself. This may explain, for example, the isolated *sacānā-* which cannot easily be connected to the perfect due to its full-grade root, but could have been created alongside *sahānā-*, *prathānā-* etc.¹⁵¹ The unexpected medial diathesis of *bhiyānā-* ‘fearing’ beside the common active aorist (*abhema* etc.) may have been supported by this productive analogical derivational pattern, expected **bháyant-* being perhaps dispreferred due to its similarity to the finite present *bháyate*.

Conclusion

The rarity of aorist participles makes them hard to assess as a category, but we have seen that there is a clear difference between active aorist participles and medial aorist participles, the former being rarer but in general more regular and representing the remains of an inherited category, while the latter are a functionally ambiguous and derivationally problematic collection of forms some of which are undoubtedly inherited, but several of which are analogical creations whose functionality is as much influenced by the perfect and stative as by the aorist itself. Given the rarity of aorist participles already in both early Sanskrit and early Avestan, it can be assumed that this was not a fully living category even in Proto-Indo-Iranian.¹⁵² Whether this was due to the loss of a productive formation of participles to aorist stems, or whether aorist participles were never a productive category in PII or PIE depends, as discussed above, on one’s view of the PIE verbal system, and is

¹⁵⁰The original aorist participle is *dyutánt-*, preserved in the compound *dyutád-yāman-* ‘whose way is bright’ at 5.80.1a, 6.49.4c and 10.93.12b, and also later *dyutád-dyu-* (MS). Analogical influence on \sqrt{dyut} is also commonly assumed from semantically similar roots such as \sqrt{ruc} ‘shine’, with which it may have had a suppletive relationship; cf. Jamison (1983a, p.59–60, 128), Schaefer (1994, p.137), Kümmel (2000a, p.250–252).

¹⁵¹The only form possibly corresponding to *sacānā-* is an apparent root aorist optative *sacīmáhi* (post-RV) but Narten (1964, p.262) considers this a Neubildung. Evidence for a root aorist comes from Old Avestan (*scantū*) and Greek (*ἔσπετο, σπέσθαι*); however the Old Avestan evidence is scanty and Kümmel (2000a, p.540, fn.1106) notes that the Greek aorist could be an inner-Greek innovation. Functionally *sacānā-* itself is indistinguishable from the present participle, cf. exx. (3.101,3.102), p.158.

¹⁵²On the aorist participles attested in Avestan see fn.61, p.21 above.

beyond the scope of this thesis.

4.10 Productive Categories

As we have seen in the previous section, some participial categories appear to have been somewhat productive in separation from any strictly verbal derivation from a pre-existing finite verb stem. In the case of a productive category of participles the basis of the productivity must be other participles of the same apparent morphological category and possibly phonological shape. Although strictly we cannot call such derivation verbal, it is still participial in the sense that participles are generated on the basis of other participles, and indeed functionally such forms are no less participles than those which are derived synchronically from an existing verbal stem.

Besides the aorist middle, there are a few other categories where participial productivity has been or should be assumed. The perfect middle participle is often assumed to have been productive (e.g. Jasanoff, 1978), since participles are often the most common or only form of the perfect middle of a root attested in the RV. However Kümmel (2000a, p.91–94) does not mention the influence of the participle in his account of the development and extension of the perfect middle, considering the frequency of the perfect middle participle unrelated. In fact the perfect middle itself is productive as a verbal stem, and there is no reason to suppose that this began in the participle, as may have been the case at least partially in Ancient Greek (Tucker, 1981, p.18).¹⁵³

The acrostatic present participles from reduplicated perfects like *dīdhyat-* to \sqrt{dhi} ‘think’ are somewhat productive in the sense that it is often the participle which appears first (e.g. in the earlier layers of the *Ṛgveda*), and finite present forms only later (late or post-RV); this may partly be due to the preference for a non-ablauting suffix (i.e. here replacing *-váms-*), as with the spread of *-(m)āna-* in other categories. However this is only found with stative-perfect stems, and so must be largely influenced by semantic considerations.¹⁵⁴ These

¹⁵³In accounting for the existence of perfect middle participles in the absence of corresponding finite forms in the *Ṛgveda*, Kümmel (2000a, p.91–92, 201) simply refers to the use of the medial participle suffix in place of the active (the “Phänomen der „Diathesenindifferenz“”) on which see p.18.

¹⁵⁴This therefore contrasts with the wholesale replacement of **-uos-* by *-nt-* as the perfect active participial suffix in Aeolic Greek (for the inscriptional attestations see Blümel, 1982, p.228), which can be analysed as merely a paradigmatic simplification.

stative-perfects stems were morphologically perfect but semantically equivalent to presents, owing to the loss of the original anterior aspect, and they were ultimately reanalysed as presents because their inherited stative-present sense could no longer be reconciled with their perfect morphology.

It seems, then, that the active perfect participle suffix *-vāms-*, whether it expressed a combination of present time and anterior aspect reference or only the latter, was not felt capable of expressing present time and/or imperfective aspect, and was thus replaced by the more semantically appropriate *-nt-* suffix. This suggests that the participial suffixes were becoming associated with particular tense-aspect properties, and that therefore this information was not supplied exclusively by the verbal stem. This may contribute to the explanation of the frequent imperfective use of aorist participles, on the assumption that the suffixes were largely associated with present tense-aspect rather than the aorist, due to the rarity of the latter.

One odd and minor pattern, for which I have no explanation, involves negated participles in *-yamāna-*, several of which are isolated within their paradigm. So *ákṣīyamāṇa-* ‘undiminishing’ and *átapyamāna-* ‘unsuffering’ correspond to finite passive stems, but there are no positive participles in the RV at least; even more problematically *áchidyamāna-* and *áhiṃsyamāna-* have no corresponding passive stems.¹⁵⁵ Could these have been formed as metrical variants of negated *-tá-*adjectives (e.g. *átapta-*)?

4.11 Functional Complementarity

Although we have drawn a strict line between tense-aspect stem participles and non-participial nouns and adjectives, there is some evidence that this distinction was not maintained absolutely in the *Ṛgveda*. According to Kümmel (2000a, p.185–189) the perfect of \sqrt{jan} was originally (and still is) agentive, the patientive middle being a secondary development in opposition to the active. While there are 35 finite forms of the active perfect in the RV, there are no examples of the participle (*prajajñivāms-* belongs to $\sqrt{jñā}$), and the participle is absent from later Vedic also. At the same time Kümmel notes the semantic

¹⁵⁵The positive counterpart of RV *ákṣīyamāṇa-* and Av. *ajīamna-* is however attested in the OP noun *jīyamna-* ‘end’. Even so the survival of only the negative in both *Ṛgvedic* and Avestan is hard to account for.

tives than as participles. As we have seen, it may even be that some forms in $-(m)\bar{a}na-$, e.g. $tṛṣāṇá-$, $vipānā-$, $śvitānā-$ are likewise to be so classified, at least synchronically, although this suffix is not usually associated with the Caland system.

We have seen that several forms traditionally assigned to the category of participles are in fact attested only as adverbs (e.g. $tṛpát$), while participles proper are never used as adverbs. This is just one of the ways in which participles and other adjectives differ in their derivational possibilities, and provides an unambiguous means of synchronically distinguishing participles from adjectives. The restriction on secondary derivation from tense-aspect stem participles, at least synchronically, is parallel. This evidence is particularly useful in identifying lexicalized participles, which although diachronically participial, synchronically can be used as adverbs ($dravát$) and can for example form comparative and superlative derivatives ($vidúṣṭara-$). By combining syntactic, semantic, and morphological evidence such as this we have been able to identify a large number of lexicalized participles, several of which have not been previously recognized. We have also attempted to delineate the category of nonce-formations within the category of participles, an inherently difficult task given that one is always dealing with hapax legomena.

We have also seen the somewhat ambiguous status of negated participles in relation to tense-aspect participles as a whole, some undeniably participial but most basically adjectival, representing their inherited status as non-participial derivatives.

Furthermore we have been able to reconsider the constituency of the two most problematic and controversial sets of tense-aspect stem participles, the stative and aorist. The category of stative participles has been seen to be larger than traditionally thought, partly due to the obscuring of the morphological relation to the stative of the participles concerned (by the development of the nasal stative), partly by distinguishing homophonous participles such as stative $idhānā-$ 'kindled' from aorist $idhānā-$ 'kindling', and partly by proposing unattested stative stems where the evidence of the participle is sufficiently strong to permit this. In contrast the category of aorist participles has been shown to be considerably smaller than traditionally thought, since many forms commonly attributed to the aorist are better analysed as e.g. Caland adjectives or stative participles. Despite its rarity and apparent obsolescence, there is however evidence for a small degree of productivity in the medial

aoist participle.

In this chapter, then, we have considered the most difficult forms in and around the participial system, primarily in the unclear hinterland just beyond the category of tense-aspect stem participles proper. Despite the impossibility of fully explaining every difficult form, we have been able to establish a greater certainty in this area, and clearer dividing lines between what is and is not a participle, and between the different tense-aspect stem categories of participle. As in the case of *janitī-*, which may be functionally equivalent to a perfect participle of \sqrt{jan} , it appears that strict distinctions between categories did not always exist even synchronically at the time of the *R̥gveda*, but what divisions there were have become more clear through the study undertaken here.

Chapter 5

Conclusion

We have reached the end of our investigation into tense-aspect stem participles in the *Ṛgveda*, and we are now in a position to begin, at least, to draw some conclusions. In order to bring together all the various subjects and lines of argument made throughout this work, we will structure our discussion after the pattern of the questions raised at the end of our introduction (§1.8, p.36).

5.1 The Category of Tense-Aspect Stem Participles

The subject of this work has been tense-aspect stem participles in the *Ṛgveda*. As discussed in the introduction, this category can be defined morphologically with relative ease and with reference to a single morphological characteristic, but its functional unity is less immediately obvious. In previous chapters I have presented evidence that certain functionally divergent forms, or sets of forms, should be synchronically separated from an otherwise relatively functionally coherent category of tense-aspect stem participles. In this section we will reconsider how the evidence from our syntactic and semantic investigations contributes as a whole to our understanding of the functional coherence of the category (or lack thereof).

5.1.1 Coherence of the category

Syntactically and semantically the most significant division within the category is that between lexicalized and non-lexicalized participles. We have seen (§2.11.4, §4.7) that from a

functional point of view lexicalized participles cannot really be treated as synchronic participles, although morphologically they usually cannot be distinguished from them. Lexicalized participles are restricted in the extent to which they can share the argument structure of the verbal stem to which they appear to be built, and they are also restricted in terms of their semantic range, being found only in purely nominal or adjectival functions typical of their new lexicalized word-class rather than the wider semantic range of participles proper. This division cuts across the tense-aspect stem categories, and has no morphological marking. In fact we have seen that there appear to be some forms, such as *sunvánt-* (p.58f.), *stuvánt-* and *grṇánt-* (p.233), which represent two distinct lexemes, one a synchronic participle derived regularly from a verbal tense-aspect stem, and the other a synchronic noun with no functional correspondence to the participial system. The same is potentially true of negated participles (§4.4), which usually pattern as adjectival secondary derivatives from participles, but occasionally function as synchronically negative participles; with this subcategory no single form is clearly attested in both functions, but this is likely due to their rarity.

At the same time this major division between lexicalized and non-lexicalized participles is not black and white but has, like most categorial divisions, a grey middle-ground. In contrast to clearly lexicalized forms such as *dāśvāṃs-*, *rīṣant-/rīṣant-* or *dviṣánt-* (pp.229–231), forms such as *śáṃsant-* (p.233) or *anūcānā-* (p.236) cannot be definitively assigned to either category. The process of lexicalization is a gradual one, and so it can be no surprise that some forms are less clearly lexicalized than others.

Besides this major dichotomy within the (morphological) category of tense-aspect stem participles, in other respects the category as a whole is relatively functionally coherent, with only minor quantitative distinctions between the different sub-categories (such as the different tense-aspect stems) in terms of functional range. For example the difficult set of nonce and possibly nonce participles (i.e. the participial nonce-formations, §4.8.2), where one might expect to find considerable functional deviance, is in fact relatively regular in terms of syntax and semantics, showing that these morphologically problematic forms were created and employed within the context of a functionally clear category of tense-aspect stem participles. Another area where morphological irregularity is overridden by syntactic and semantic coherence to the participial category is that of the productive mediopassive

aorists (§4.9.2). Moreover we have observed some natural syntactic and semantic differences between the different tense-aspects, and even between different case forms of participles, but these involve minor quantitative variations within a relatively well-defined category. Examples of these differences are the inherent semantic restrictions on stative participles (§3.5.2), or the considerably greater frequency and range of contextual adverbial semantics found with nominative participles as opposed to other case forms (§3.4.11). These differences may be described in terms of slightly differing positions on the cline of verbality, e.g. the stative may be considered a relatively less verbal category than dynamic verbal stems; but nevertheless these differing positions all sit within the single coherent category of tense-aspect stem participles.

What we see, then, is a relatively coherent category, but one which can only be defined in terms of syntax and semantics, rather than morphology, containing only a subset of the forms which morphologically could be considered tense-aspect stem derivatives, and including certain forms which are morphologically more problematic.

5.1.2 The tense-aspect stem

What, then, is the significance of the tense-aspect stem? If only the majority of the functional category of participles can be derived with ease from a verbal tense-aspect stem, while many forms apparently derived from a tense-aspect stem are not synchronic participles, were we wrong to use this morphological feature as a defining characteristic of the category under discussion? Is the tense-aspect stem incidental to the category as a whole?

This latter question must ultimately be answered in the negative, both synchronically and diachronically, although the details differ somewhat from these two perspectives. Synchronically there is no necessary reason why a particular morphological feature, such as a tense-aspect stem, should have a single function: in principle it could have been that the appearance of the tense-aspect stem in the participles was synchronically unrelated and incidental to its function and appearance in the finite verb system. We discussed above the fact that the tense-aspect properties of the imperfect may not be easily unified with those of the finite present, at least synchronically (p.150). However we have also seen that there is a considerable degree of semantic correspondence between, for example, the present

participles and the finite present tense-aspect (*ibid.*). This correspondence may not be precise but is good enough that we cannot seriously reject any synchronic connection between the two. Moreover nearly all synchronic participles can be derived from attested or reconstructable finite tense-aspect stems, and those few which cannot, e.g. the productive mediopassive aorists or certain participial nonce-formations, were still created on the basis of forms which could be so derived and consequently were created within a category whose morphology fundamentally depends on a tense-aspect stem.

The problem of lexicalized participles in this context is a synchronic problem with a diachronic explanation. By definition lexicalized participles are words which at one point in the past were synchronically regular participles but which have undergone a particular idiosyncratic semantic development which has separated them from the synchronic system of verbal derivation.¹ Diachronically, then, lexicalized participles do not constitute any problem to the function of the tense-aspect stem in the participial system. Synchronically the situation is slightly more complicated.

There is a natural tendency in languages for morphology to become fossilized, and hence to reflect a somewhat more archaic stage of the language than current usage.² Morphological recategorization is dependent on semantic change and can lag behind it. Morphological categories can be understood as abstract projections of the syntax and semantics of particular words, e.g. the morpheme *-si* is analysed as 2sg. simply because that is how words containing that morpheme function, not because of any inherent value in the form of the suffix itself. If the phonological form of the morpheme changes (e.g. apocope *-si* > *-s*) its categorial status remains as long as it retains its former function. Even if the morpheme becomes phonologically null, we might say it is still present (as $-\emptyset$) as long as the resulting word form retains its former function. But if the function of a morpheme, or rather the function of a set of words sharing the same morpheme changes, i.e. its semantics change or it is semantically reanalysed, then the morphological category of the morpheme can change.

¹A detailed explanation of the processes by which participles may have become lexicalized is beyond the scope of this thesis. Ultimately every word has its own history, but in this respect at least history tends to repeat itself. Most commonly participles are lexicalized as nouns, so it is highly likely that the possibility of using participles as NPs (a possibility shared with other adjectives, cf. §2.6.3) somehow facilitated lexicalization. For participles lexicalized as adjectives (e.g. *árhant-*, p.231), an entirely separate process must be envisaged.

²Cf. the discussion in §3.5.

Secondarily the phonological form of the morpheme may or may not be analogically altered in some way to reflect the new function; what is important is that function (semantics and as far as is relevant syntax) is always ahead of morphology.

In the same way finite present stems in the *Ṛgveda* are analysed as such because that is their function, and to the extent that their functionality can be broken down and assigned to particular morphemes it may be reasonable to analyse the ‘tense-aspect stem’ markers as representing the present tense-aspect. The fact that there are a set of around ten different but synchronically isofunctional present tense-aspect stem formations, from which different verbs arbitrarily select one or more, is a morphological fossilization of an earlier stage of the language where these different suffixes had distinct functions. This is an example of a functional merger of morphologically distinct categories; it is equally possible to have functional splits of a single morphological category. This is certainly the case with the finite imperfect and present in Classical Sanskrit, if not already in Vedic (§3.5.1). The question is whether or to what extent this happened also with tense-aspect stem participles.

5.1.3 The participial tense-aspect stem

Although it is not conclusive, there is evidence that tense-aspect participles constituted a distinct functional category in the *Ṛgveda* which was evolving under the influence of but not identically to the finite tense-aspect system. The apparent obsolescence of the aorist participle in contrast to the productive finite aorist is a clear example of the evolution of the tense-aspect participial system in distinction from the finite system. At a slightly later stage of the language precisely the same process is seen in the loss of the perfect participle while the finite perfect survived. At the same time the finite verbal system had changed and was changing, and the participial system was in no way constrained to follow. The functional split of the present and imperfect, for example, produced a functionally distinct tense(-aspect) category, the imperfect, for which there did not exist functionally corresponding participles; again, the independence of the participial system is seen in the fact that no category of ‘imperfect participles’ was created.³

³In contrast the lack of imperfect participles in Ancient Greek has an entirely different explanation, namely that the present and imperfect still shared the same aspectual reference, and since Greek participles expressed purely aspect the present participle corresponded functionally to both present and imperfect.

The tense-aspect participles were evolving somewhat separately from the finite verbal system, but they were not evolving in isolation from one another. What we have seen in the *Ṛgveda* is the beginnings of a development of a three-way tense distinction in the participial system, or rather a reorganization of existing participial stems along these lines. We see this in the loss of the aorist participle, leaving a single participial formation expressing past time (i.e. the perfect participle) mirroring the single participial formation expressing relative present time (the present participle) and the incipient future participle expressing relative future time.⁴ It is likewise reflected in the substitution of the perfect suffix *-vámṣ-* by the present suffix *-nt-* in several stative perfects, showing that the active perfect participle suffix was synchronically being restricted to the expression of relative past time; in this the participial system anticipates the same development in the finite system.

The systematic independence of the participial system from that of the finite verb is seen also in the correlation of certain participles to tense-aspect stems which either differ in form or do not exist in the finite system. So for example *idhāná-* is, in most of its occurrences, synchronically a stative participle even though the synchronic stative in the finite system has a nasal infix (§4.9.1, p.248); similarly *yujāná-* patterns synchronically as a stative although no finite stative is attested, which as discussed above may be because the corresponding finite stem has undergone a semantic development from passive to middle, isolating the participle (p.250, fn.139). Another such instance is the occasional use of *siñcánt-* as the synchronic participle corresponding to the unaccusative stem *sicyáte* (p.244).

The common tendency, found in most recent works on the *Ṛgvedic* verbal system, to treat participles as semantically identical to equivalent finite forms, although based on the correct intuition that participles are fundamentally verb forms, is wrong in so far as it does not recognize the independence of the participial category within the verbal system. The change from aspect to tense distinction in the participial system created a major systematic division between participles and finite verbs, and undoubtedly contributed to their contrasting fates: the impoverishment of the participial system with the loss of aorist and ultimately perfect participles beside the survival of all finite inherited tenses long enough to be codified into Classical Sanskrit.

⁴Cf. p.150 and §3.6.3, p.180.

Conclusion

Tense-aspect stem participles therefore do form a coherent synchronic category which is developing somewhat in parallel to and somewhat separately from the finite tense-aspect system. The coherence of the category is not affected by the existence of a large group of lexicalized participles, which show identical morphology but no longer necessarily pattern with the rest of the category in terms of syntactic and semantic functionality. We can see in the development of lexicalized participles another example of a functional split of a single morphological category, or rather a series of splits whereby each lexicalized participle separated independently from the tense-aspect participial system due to its own idiosyncratic semantic development.⁵ At a later date the loss of the perfect participle was probably occasioned by its functional replacement by the absolutive (Tikkanen, 1987, p.109–113), but at this stage of the language there is no evidence for any systematic connection between the absolutive and the system of tense-aspect participles.

5.1.4 Participles within the verbal and nominal systems

In discussing the category of tense-aspect stem participles in itself we have necessarily had to compare it to other categories, both verbal and nominal, bordering it. In this section we will develop these observations more fully in an attempt to understand the position of tense-aspect stem participles within the verbal and nominal systems of Ṛgvedic Sanskrit as a whole.

Participles Within the Verbal System

I have argued throughout this thesis that tense-aspect stem participles should be treated as inflectional verb forms, rather than as verbal derivatives, since, for example, they accurately preserve the argument structure of corresponding (inflectional) finite verbs (§2.11). At the same time, however, we have had to recognise a semantic difference between the tense-aspect stems as utilized in the participial system and as utilized in the finite verbal system. This is not problematic for an inflectional analysis of participles, since the present tense-aspect

⁵Indeed lexicalized participles do not constitute a single coherent functional category, but are simply the set of words which independently became disjoined from the synchronic category of tense-aspect stem participles.

stem may display distinct semantics even in two finite stems, the present and imperfect, which are derived from it. What it does suggest, as argued above, is that tense-aspect stem participles formed a distinct and coherent sub-category within the inflectional verbal system.

From a functional point of view, we have seen that participles share the majority of their syntactic capabilities with adjectives (§2.13), but that their functional range extends somewhat beyond that of non-verbal adjectives, and that participles even seem to be in the process of developing further verbal functionality (e.g. the development of periphrasis, §2.10.1). They are therefore not so much verbal adjectives as *adjectival verbs*, verb forms which are morphologically and functionally parallel to adjectives. In their adjectival functionality and morphology tense-aspect stem participles can be seen as somewhat ‘less verbal’ than finite verbs in terms of the cline of verbality, but they are still clearly within the verbal system and if anything appear to be extending their functional range in the ‘more verbal’ direction (cf. §5.3 below).

Participles are usually said to pattern with non-indicative finite verbs in expressing aspect but not tense; however we have argued that this may not in fact be true, rather participles appear to be developing the ability to express relative tense just as finite indicative verbs forms can. Their differing from finite indicative (and non-indicative) verbs forms is rather in that they cannot stand alone in a clause without a finite verb and hence can usually only express tense and/or aspect in relation to the other verb form, not absolutely.⁶ In this way participles are dependent, subordinate verb forms, and this again can be understood as a reflection of their less prototypically verbal nature.

Participles within the Nominal System

The position of tense-aspect stem participles with respect to the nominal system of Ṛgvedic Sanskrit is somewhat more complicated in so far as there is a wide range of nominal and adjectival formations to which the participles may stand in a particular relation, in contrast to the verbal system where there is one major category (finite verbs) with which participles have to do.

⁶The only partial exception to this is participles expressing contingency (§3.4.10, p.143).

The first observation must be that although tense-aspect stem participles share a considerable functional range with adjectives, they can be employed in ways that other adjectives cannot, and cannot be used in certain ways that other adjectives can.⁷ Their close relation to the nominal system is seen also in the fact that lexicalized participles become synchronic adjectives or nouns (rather than, say, finite verbs).

It is a relatively controversial question as to what extent tense-aspect stem participles constitute a distinct nominal category as they do a verbal category. It is often argued that as adjectives with verbal features they are not qualitatively different from various other categories of nouns and adjectives which also display features which could be called ‘verbal’. Most obvious in this respect is the *-tá-* adjective, which at a later stage of the language was undeniably integrated into the verbal system, and even in the *R̥gveda* appears to be more verbal than many other adjectives (§4.11).

We also saw above that there may be functional complementarity between participles and other adjectives/nouns to such an extent that the participle is blocked by the equivalent nominal formation. Various other adjectives, which were not integrated into the verbal system at a later date, are likewise considered relatively ‘verbal’ in the *R̥gveda*, e.g. adjectives in *-ú-* like *tanú-*. There are even different ways to be verbal. While the *-tá-* adjective is a resultative formation which does not necessarily reflect the argument structure of the base verb, several other nouns and adjectives are found with ‘verbal government’, i.e. governing objects in the same way as finite verbal forms and tense-aspect stem participles.⁸

Taking an accusative ‘object’ need not in principle be a verbal rather than nominal feature, but sharing the argument structure of finite verb forms, such that e.g. a derivative from a verb of ruling would govern a genitive while derivatives to most other transitive verbs take accusatives, is undeniably a ‘verbal’ feature.⁹

⁷E.g. the fact that the a.sg.nt. cannot be used as an adverb (§4.5).

⁸Whitney (1896, p.90–91) lists the following nominal/adjectival suffixes which sometimes appear capable of governing objects: *-u-* (to desiderative stems), *-ín-* (often from verbal roots but also from nominal stems), *-aka-* (late), *-tr-*, the verbal root in compound, the superlative stem, *-i-* (often suffixed to reduplicated stems), *-uka-* (frequent in the Brāhmaṇas), and occasionally *-a-*, *-atnu-* (a participial derivative, see p.195), *-atha-*, *-ana-*, *-ani-*, *-ti-*, *-ván-*, *-snu-*. Several of these are also so used in Avestan: the reduplicated stem plus *-i-* (*caxri-* at Y.34.7 even governs a double accusative), *-tar-*, nouns in *-ti-*, *-θa-* (*duuaēθa-* at Y.32.16), the superlative in *-išta-*, adjectives in *-ša-* to reduplicated desiderative stems, and root nouns/adjectives (usually in compound); others forms which have been so analysed in Avestan need not be, e.g. the agent noun in *-mi-*, *dāmi-* at Y.31.7, Y.45.7 (Humbach, 1991, ad loc.).

⁹On the formalization of transitive adjectives in LFG see Mittendorf and Sadler (2008), Al Sharifi and Sadler

The apparent analogical influences between the participial system and the adjectival Caland system which may have supported the creation of Caland-type adjectives in *-āna-* also shows the close relationship between the participial and adjectival systems.

From the point of view of the nominal system, there is no single syntactic or semantic feature which appears to necessarily set tense-aspect stem participles apart from other nouns and adjectives as qualitatively different, rather they simply display verbal syntax and semantics more consistently and to a greater degree than various other ‘verbal’ adjectives and nouns. However this quantitative difference in ‘verbality’ reflects the qualitative difference alluded to above. While nominal formations such as those in *-tá-*, *-ú-* or *-tṛ-* are to be analysed as ‘verbal’ nouns or adjectives, tense-aspect stem participles are, in contrast, *adjectival verbs*. There is naturally considerable syntactic and semantic overlap between verbal adjectives and adjectival verbs, and it is even possible for one to develop into or be reanalysed as another diachronically (as with the *-tá-* adjective and originally, perhaps, with the tense-aspect stem participles themselves), but from a synchronic point of view there is a clear difference in terms of derivation and ‘core’ properties. While verbal adjectives are fundamentally adjectives which, for one reason or another, may display some verbal features, tense-aspect stem participles are fundamentally verbs which consistently display as many prototypically verbal features as possible given their adjectival morphology.

We see, then, that tense-aspect stem participles, while being superficially similar to various adjectives and nouns which display some ‘verbal’ characteristics, are fundamentally distinct from them in being first and foremost a verbal rather than nominal formation, a verbal formation which due to the particular properties of its inflectional derivation produces morphologically adjectival verbs.

5.1.5 Participles within the syntactic and semantic systems

We have seen that tense-aspect stem participles in the *R̥gveda* have primarily two possible syntactic functions in a clause, either as an adnominal adjunct (ADJ) or an adverbial clausal open adjunct (XADJ). Participles functioning as adnominal adjuncts can be understood as reduced relative clauses, and indeed our LFG formalization of adnominal participles makes

(2009), Vincent and Börjars (2010).

this explicit (§2.6.2). Thus an adnominal participle such as *trāyamāṇa-* ‘who protects (us)’ at 7.35.10a (ex. 2.94, p.90) is the semantic equivalent of *yás trāyate* ‘id.’. At the same time adverbial participial clauses are likewise similar, if not equivalent, to subordinate clauses of various kinds. In the same way that adverbial participles can express temporal relations and more semantically specific relations such as manner, cause or purpose, so these same functions can be expressed by subordinate clauses. Viti’s (2007) discussion of the functions of Vedic subordinate clauses distinguishes various types which all have parallels in the adverbial functions of participles: temporal, conditional, causal, purposive, concessive, and completive clauses. We have even seen the direct influence of temporal subordinate clauses on participial clauses in the irregular addition of *yád* ‘when’ to participles expressing contingency (exx. 3.78, 3.79, p.144).

However participles are not simply identical to subordinate clauses of different kinds. Syntactically participial clauses are considerably further integrated into the matrix clause; they are further desententialized. One consequence of this is that participial clauses can be discontinuous within the matrix clause, whereas this is prohibited with subordinate clauses. Likewise subordinate clauses tend either to precede or to follow the whole matrix clause, whereas participial clauses appear within the matrix clause. In many ways, then, the use of a participial clause is more flexible than the use of a full-blown subordinate clause: it permits the same meaning to be expressed but without the syntactic baggage, as it were, of a full subordinate clause. But at the same time participial clauses are semantically less specified: they lack the subordinator which permits explicit distinction between different types of subordinate clause, and as we have seen it is often difficult to define precisely the contextual function of a particular participial clause. Participial clauses and subordinate clauses were therefore two distinct strategies for conveying the same kinds of meanings, the former perhaps preferred where the precise semantic relation between clauses did not need to be made explicit or where a qualification or addition needed to be made without interrupting the matrix clause too significantly. Whether there is any direct evidence within the texts for why one type of clause was chosen over another in any given instance is a question for future research; but given their near functional identity it is likely that metrical and poetic reasons may be as significant as purely linguistic explanations.

The position occupied by the tense-aspect stem participles in the syntactic and semantic system of Ṛgvedic Sanskrit was marginally shared with the absolutive, which was briefly discussed above (§2.1, p.37). Although not sharing the semantic range of the participles, the absolutives could, like the participles, express the equivalent of a temporal subordinate clause. In the *Ṛgveda* they are sufficiently rare to be considered marginal, but the later productivity of the past absolutive may have contributed to the loss of the perfect participle, which as we saw was itself relatively more restricted semantically than the present participle and was largely used to express temporal relations. What this shows is that despite the relative impoverishment of the participial system in later Sanskrit, the area of the syntactic system inhabited by them in Ṛgvedic Sanskrit was not eliminated or necessarily reduced, but remained a major part of Sanskrit syntax throughout the history of the language, only in the Classical period inhabited not by a range of tense-aspect stem participles but (primarily) by the present participle and the past absolutive.

5.2 Participles in Proto-Indo-European

As was discussed briefly in chapter 1, the status, function and even existence of tense-aspect stem participles as a coherent category in PIE has been the subject of considerable debate. When talking about a reconstructed language it may never be possible to fully resolve all the questions surrounding any category, however it is certainly possible to make some small steps towards the resolution of particular problems.

5.2.1 Clausal syntax

The syntactic and semantic employment of tense-aspect stem participles in the *Ṛgveda* matches very closely the employment of tense-aspect stem participles in Ancient Greek (cf. p.124). This suggests a common inheritance, at the least of a functional range which could easily have been extended in parallel directions by the two languages independently. But as we have noted it is usually assumed that participles in PIE were somewhat less verbal and correspondingly more adjectival, because they are more restricted syntactically and semantically in the oldest texts of most other Indo-European languages.

In two respects, however, old Indo-Iranian and Ancient Greek are notably different from other Indo-European languages. Firstly, excluding Anatolian which is assumed to have split off from Proto-Indo-European at a relatively early date, so early that it may be valid to speak of post-Anatolian PIE as a distinct entity, all other Indo-European languages are substantially attested only after they had already come into contact with and their literature had been influenced by either Ancient Greek (Latin, Gothic, Slavic etc.), Indo-Iranian (Armenian, Tocharian) or Latin which was itself influenced by Greek (North-West Germanic, Celtic).¹⁰ The value of these languages is therefore somewhat diminished in terms of permitting reconstruction of syntactic and semantic features, which can more easily be influenced by external linguistic forces than can, for example, morphology. Thus the employment of participles in Latin or Old Church Slavonic in adverbial functions parallel to those attested in Ancient Greek and Sanskrit is sometimes assumed to represent Greek influence; but on the other hand it cannot be proven that such employments are not a common inheritance of these languages as well. Old Indo-Iranian and Ancient Greek are therefore the only two Indo-European languages (excluding Anatolian languages) which have not to our knowledge suffered significant linguistic and/or literary influence from another structurally similar (Indo-European) language prior to their first (literary) attestation.

Secondly, old Indo-Iranian and Ancient Greek are two of the only Indo-European languages whose oldest surviving major texts are original compositions in verse.¹¹ It should not be a surprise nor should it prejudice our analysis of its linguistic reality if the wide-ranging functional employment of participles is found primarily in poetic or literary texts. As we saw above, participial clauses can be semantically and syntactically more vague than functionally equivalent subordinate clauses, a fact which is likely to favour the use of the latter in factual or plain prose texts but not in verse or literary prose. Moreover poetry tends towards a greater avoidance of function words than prose language, favouring the

¹⁰There is a wealth of literature on the position of Anatolian in respect to the other Indo-European languages, and whether the term Indo-Hittite should be reserved for a putative ancestor of Anatolian on the one hand and other Indo-European languages on the other. See e.g. Sturtevant (1926, 1929, 1939, 1962), Cowgill (1975) and Lehrman (1996, 1998, 2001) for Indo-Hittite, alternative approaches by Meillet (1931), Kammenhuber (1961), Meid (1975, 1990), and in particular Melchert (forthcoming a); more generally on the dialectology of Indo-European Ringe et al. (2002) and Nakhleh et al. (2005).

¹¹Ignoring the Mycenaean Greek texts, which due to their functional administrative nature tell us relatively little about syntax.

use of more syntactically integrated clauses. This does not mean that the ways in which participles are used in the *Ṛgveda* and Homer is somehow non-standard; rather it must be understood as an entirely valid, grammatical part of the language which is simply more appropriate in some literary or linguistic contexts than in others.

Principles of historical reconstruction therefore compel us to assume that in Proto-Indo-European, at least in the stage immediately prior to the split of Indo-Iranian and Greek (but probably also earlier), tense-aspect stem participles could be used in most if not all of the ways in which they are used in the *Ṛgveda* and the Homeric epics.

5.2.2 Argument structure

The argument structure contrast between the Hittite *-nt-* participle and tense-aspect stem participles in other Indo-European languages has been discussed above (p.185f.). We have seen that in fact the evidence for traces of an original ergative or patientive ‘orientation’ of participles outside Hittite is considerably weaker than widely assumed, and in particular that there is no good evidence for this in Sanskrit. This does not mean that participles in early PIE (i.e. in the stage before Anatolian split off) were not patientive just as they are in Hittite, but it means that we cannot be certain either way. Since there would have been little basis on which to reanalyse an accusative construction as an ergative one it is likely either that later PIE reanalysed the ergative participle as commonly assumed, or that the participles in early PIE could be employed in either way depending on the context, and that Hittite generalized in a different direction from the other Indo-European languages. Whatever the early PIE situation, all the evidence points to the fact that tense-aspect stem participles were consistently accusative in agreement in the stage of the language after the loss of Anatolian (and possibly Tocharian).

5.2.3 Analysis

But in what way can we really talk about tense-aspect stem participles in PIE, and what do we mean by the term? The question of how adjectives came to be formed from verbal tense-aspect stems has two possible answers: we are either dealing with originally adjectival formations, attached perhaps to verbal roots, which became secondarily associated with the

verbal system and which were subsequently formed to verbal tense-aspect stems (or perhaps rather into which tense-aspect stem markers began to be inserted),¹² or we are dealing with an originally verbal stem, the same tense-aspect stems found in finite verbs, to which an adjectival derivative could be formed. The former possibility is widely assumed, but there seems no strong evidence pointing to this conclusion. Even if it is assumed, contra the above discussion, that tense-aspect stem participles in PIE were functionally restricted to a considerably greater degree than in R̥gvedic Sanskrit and Ancient Greek, this does not mean that PIE tense-aspect stem participles must necessarily be an adjectival formation secondarily associated with the verbal system. The category of participles in typological literature, as we have seen (§1.6), is in principle used for adjectival derivatives of verbs which display *only* adjectival (i.e. adnominal) functions. Moreover even in Hittite, which arguably might preserve archaic aspects of the formation, the participial suffix attaches not exclusively to verbal roots, but to all kinds of verbal stems, including the derivative stems such as denominative, causative, iterative, which are the cognates of certain present tense-aspect stems of other Indo-European languages.¹³ Internal reconstruction aside, at the earliest securely reconstructable stage the participial suffixes *-nt-, *-mh₁no- and *-u_os- could freely attach to verbal stems, even before some of these developed into tense-aspect stems, and this function must be considered separate from adjectival uses of these suffixes, if any. The simplest assumption, then, is that tense-aspect stem participles in PIE were adjectival derivatives from verbal stems, if not in origin then at least in the earliest synchronic stage we are capable of recovering.

I discussed above (p.213) the ablaut of tense-aspect stem participles in PIE, in particular the ablaut of participles in *-nt-, which has often been argued to be amphidynamic in contrast to the largely hysterodynamic ablaut in attested languages. As I argued above, the evidence rather suggests that it was Caland adjectives in PIE which had amphidynamic ablaut, while there is no good evidence for tense-aspect stem participles not sharing the ablaut patterns of the stems from which they are derived. However if an original adjectival

¹²Parallel to the secondary insertion of tense-aspect stems into root derivatives such as the -tá- adjective in Sanskrit, e.g. *jahitá-*, *dattá-* (p.12 above).

¹³E.g. *šarninkant-* to the nasal-infix stem *šarni(n)k-* ‘compensate’, related to the root seen in *šarku-* ‘eminent’: Friedrich (1960, §169–196, p.37–62) gives examples of participles to all Hittite stem types.

formation as the basis of secondary tense-aspect participles is sought, Caland adjectives in **-nt-* are the obvious candidate for the present (and aorist) active, and might imply a shift of ablaut pattern from amphidynamic to that of the verbal stem (i.e. hysterodynamic or acrostatic) if or when such adjectives became associated with particular verbal paradigms.

The original tense and aspect properties of the different participles depends fundamentally on one's reconstruction of the PIE verbal system. If a basically aspectual system is assumed, as found in Homeric Greek, then the conclusion naturally follows that tense-aspect stem participles should have been fundamentally aspectual as in Ancient Greek. The existence of three participial suffixes and their slightly odd distribution is not easy to reconcile with such an aspectual system, however, although it does not obviously suggest an alternative possibility. Why should the perfect participle (active) have its own suffix in contrast to the present and aorist? The suffix **-mh₁no-* seems to be the specific participial suffix of the mediopassive, but at what stage did diathesis develop in the verbal system and where did it come from? The contrast between **-nt-* and **-u_os-* cannot be easily reconciled with a three-way aspect system, but could be reconciled with a present—past tense distinction. This might explain the lack of aorist participles in most old Indo-European languages, but would require us to analyse the PIE perfect as at least partially expressing past tense; it would be equally difficult to suppose, within a relatively traditional view of the PIE verbal system, that **-u_os-* and hence the perfect expressed perfective aspect. On an alternative view of the PIE verbal system such as that of Willi (2007), the two suffixes could be aligned rather with a two-way distinction between present and stative stems, at least prior to the association between stative and middle which left **-mh₁no-* as the basic stative participle suffix. In discussing the development of tense distinction in the participial system of the *Ṛgveda*, I assumed an aspectual system for the pre-RV verb system, since this remains the most widely accepted analysis of the PIE verb, but alternative systems in PIE would of course require alternative processes of development in the daughter languages. As long as the PIE verbal system remains controversial, so the status of participles within that system will remain uncertain.

Finally on PIE participles, we have seen some particular features of secondary derivation from participles in PIE which are not preserved entirely without change in *Ṛgvedic Sanskrit*.

In particular the derivation of negated adjectives from participial stems is partially obscured by the more recent development of actual participial negation by means of the negative prefix (§4.4); other patterns of secondary derivation attributable to PIE are not continued as productive processes in Sanskrit, the only productive derivation being from lexicalized participles (§4.3.2).

Altogether, then, we have seen that the majority view of the participial system in PIE as less verbal than in the daughter languages is not necessarily supported by the evidence of the *Ṛgveda* and other early Indo-European languages; but many questions remain about the exact function and status of tense-aspect stem participles in Proto-Indo-European, the answers to which are beyond the scope of this thesis.

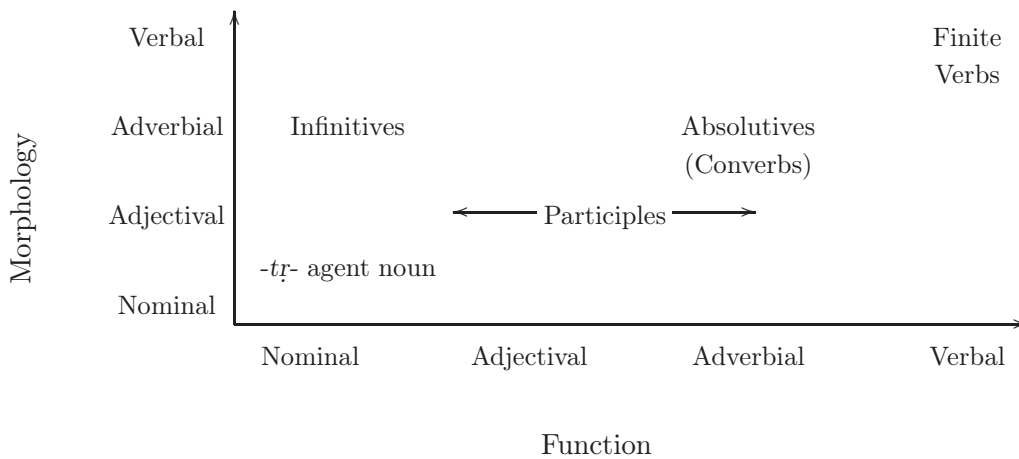
5.3 Participles in a Typological Perspective

As discussed in chapter 1 typologies of non-finite verbal systems struggle to adequately define the status of formations such as the tense-aspect stem participles in Ṛgvedic Sanskrit. Participles of this type cut across definitional boundaries: on the one hand their morphology is adjectival rather than adverbial, but on the other they display both adjectival (adnominal) and adverbial functionality.

For the purposes of a typological definition morphology is clearly inadequate as the only means of distinguishing and defining linguistic categories, due to the potential for wide variation cross-linguistically. Morphological categories are not necessarily cross-linguistically valid, whereas syntactic and semantic categories are, at least to an extent. In some languages non-finite verbal forms distinguish adjectival and adverbial functional categories morphologically; however this is not the case in the *Ṛgveda*. Not only are tense-aspect stem participles found in both adjectival and adverbial functions, but it is not even clear precisely where the dividing line between adjectival and adverbial functionality should be drawn. Most or all adjectives can be used in what technically must be treated as adverbial functions, namely the expression of manner and attendant circumstance. Moreover some syntactic uses of participles, namely the absolute and completive uses, can be and have been analysed as either adjectival or adverbial uses.

Nevertheless, assuming that categorization is not based on absolute, distinct categories but on relative positioning on a continuum, it might be possible to draw a matrix (fig. 5.1) illustrating the position of R̥gvedic participles in relation to other members of the verbal system in terms of the relative verbality or nominality of both morphological and functional features.¹⁴ The clines in both respects are roughly divided into four areas which roughly correspond to the four types of verb form assumed in typological literature: nominal verb or verbal noun, adjectival verb or verbal adjective, adverbial verb or verbal adverb, and finite verb.¹⁵

Figure 5.1: The R̥gvedic verbal system



In fig. (5.1) the vertical position of participles reflects their adjectival morphology, in the adjectival region of the morphological spectrum. The converbs (absolutives) are morphologically less nominal and consequently more verbal, while finite verbs are naturally most verbal in terms of morphology. In terms of syntax and semantics, participles are one

¹⁴Rather than thinking of one ‘cline of verbality’ (cf. p.6 above), we must recognize multiple clines of verbality, one morphological, one syntactic, one semantic and so on. A single cline merges all these distinct clines into one monolithic whole, but by considering some separately it is possible to make finer distinctions between categories. In keeping with the tradition of non-finite verbal typologies, I am distinguishing morphology but treating syntax and semantics under the single heading of ‘function’.

¹⁵I have distinguished these four categories because of their (entirely justifiable) use in non-finite verbal typology, notwithstanding e.g. Baker’s (2003) claim that cross-linguistically only the categories of noun, adjective and verb can be considered universal. I have also chosen to keep the position of ‘adverbial’ the same on both axes, although it is admittedly difficult (though not impossible) to justify the position of adverbs as morphologically between adjectives and verbs, at least in most Indo-European languages. Note also that closed functional categories such as adpositions are irrelevant to this kind of typology as they have no productivity.

of the most wide-ranging categories, including and extending from the functional range of adjectives to the verbal end of adverbial functionality. It would be possible even to distinguish different positions within the participial area: nominative participles used adverbially would tend to be at the functionally ‘verbal’ end of the spectrum, particularly those expressing contextual semantics at the higher end of the gradient of informativeness; likewise periphrastic uses of participles would be further towards the ‘verbal’ end of the horizontal axis, while completive uses of participles would be at the ‘nominal’ end of the spectrum.

If we attempt to apply such a diagram to multiple languages for the purposes of establishing typological patterns, the rough categorial distinctions are harder to establish absolutely. We have to admit a degree of relativity as to what constitutes a verbal or nominal feature, at least morphologically. For example in Semitic languages finite verbs as well as nouns distinguish gender, such that gender cannot be considered a specifically verbal or nominal feature, whereas in ancient Indo-European languages gender distinction is usually confined to the nominal system.¹⁶ This is only a minor example: there are many languages where traditionally ‘verbal’ features like tense, aspect and mood are marked not on verbs but on nouns.¹⁷ The problem with many attempts to define converbs and participles as typological categories on morphological bases is that this cross-linguistic relativity has been ignored. In a language like R̥gvedic Sanskrit it may be valid to distinguish nominal and verbal morphology on the grounds that finite verbs distinguish person but not gender while nouns distinguish the latter but not the former. But such specific features will not necessarily be relevant for another language. If however we assume that it is possible to distinguish different types of morphology according to language-specific criteria in at least most languages, then a typological category of e.g. participles which are inflectional verb forms displaying non-verbal morphology can in principle still be defined.

From the functional side, while basic categories of nominal and verbal syntax and semantics may be relatively valid cross-linguistically, the (approximate) dividing lines on the continuum will vary from language to language. For example in Sanskrit the distinction between noun and adjective is relatively unclear compared, say, with English, and in addition

¹⁶But not, of course, in several modern Indo-European languages, e.g. Russian and other Slavic languages.

¹⁷On this see e.g. Evans (2003), Nordlinger and Sadler (2004a,b).

the functional range of adjectives extends beyond that of some other languages.

If we accept the relativity inherent in cross-linguistic comparisons, it may be possible to compare the relative position of verb forms from different languages on a graph of the type seen in fig. (5.1). On such a matrix the common three way division of the non-finite verbal system into verbal noun, adjective and adverb can be seen to correspond to positions on the linear function $y = x$; i.e. a masdar is a morphologically and functionally nominal verb form, a participle is a morphologically and functionally adjectival verb form, and a converb is a morphologically and functionally adverbial verb form, with the final position taken by the finite verb. The problem with this one-dimensional treatment of the verbal system is that it fails to take into account the other possibilities, such as Sanskrit participles: adjectival verbs forms with (often) adverbial syntax and semantics.¹⁸ If we assume a broad four-way division of both morphology and functionality (into verbal, adverbial, adjectival and nominal), we will have in principle twelve approximate prototypical categories of verb form that could be found cross-linguistically. Moreover the dividing line between finite and non-finite can be seen to break down into relative degrees of ‘finiteness’, assuming that ‘fully’ finite corresponds to the position of prototypical finite verbs at the top right of the graph.

This more complex way of looking at the typology of verbal systems potentially permits the distinction between finite and non-finite to be broken down into a more relative distinction of verbal and nominal features.¹⁹ This permits problematic categories to be more easily analysed: for example infinitives, hard to analyse within a one-dimensional framework due to the fact that verbal nouns already occupy the ‘nominal’ slot (cf. Ylikoski, 2003, p.196–198), can receive a more appropriate analysis as morphologically adverbial verb forms with nominal syntax and semantics.²⁰ Similarly the Aramaic ‘active participle’ functions

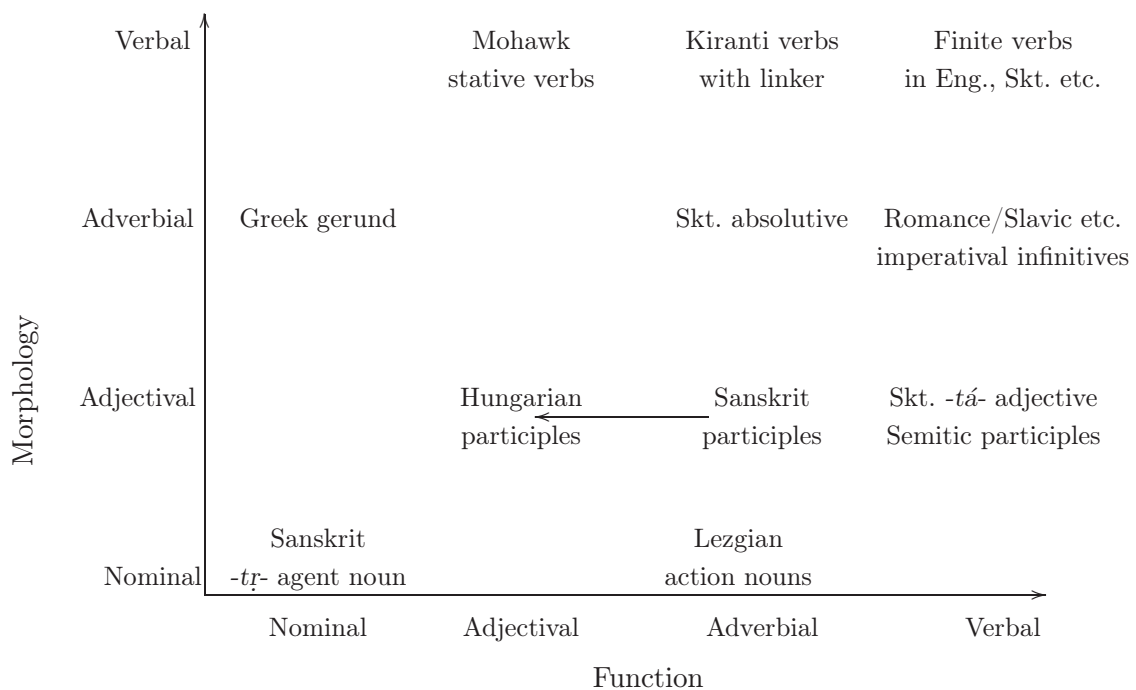
¹⁸As Evans (2004, p.709) notes “it is an interesting typological fact about language that in practice morphological and syntactic criteria usually converge to define the same class, but nonetheless there are various cases where words may be morphologically in one class and syntactically in another. . .”.

¹⁹Nevertheless it would still be possible to maintain a clear definitional distinction between finite and non-finite if desired. For example a purely morphological or syntactic distinction could be maintained; more specifically for example the time-relational approach to finiteness proposed by Klein (2006) could be integrated into this typology by taking his temporal-semantic definition of finiteness as a property of the rightmost subdivision of the x-axis.

²⁰Infinitives of course vary considerably cross-linguistically, and here I am thinking primarily of infinitives of the Sanskrit and Ancient Greek type which do not decline and hence can be called morphologically adverbial. The functional employment of infinitives is also typologically difficult and may vary even within languages: they

as a finite verb, but morphologically lacks the person specification typical of finite verbs in Aramaic; morphologically it could therefore be treated as adjectival.²¹ This is exactly the same as the Classical Sanskrit use of the *-tá-* adjective as a finite verb. What we have seen in the tense-aspect stem participles of Sanskrit is a formation with adjectival morphology but both adjectival and adverbial functionality. Fig. (5.2) shows a typology matrix for all possible types of verbal form, based on the approximate four-way division of the cline of verbality utilized thus far.²²

Figure 5.2: Verbal system typology matrix



Although this two-dimensional approach to the verbal system is clearly preferable to

can be considered nominal in so far as they function like objects e.g. in complement clauses, but this could also be considered an adverbial use. The Ancient Greek articular infinitive or gerund is, at least, an uncontroversial example of a morphologically adverbial verb form used nominally. Sanskrit and Greek infinitives can also be used as the equivalent of finite verbs, usually imperatives.

²¹Aramaic participles cannot distinguish the absolute, construct and emphatic states found with other adjectives and nouns, but this is probably a pragmatic restriction.

²²On Kiranti finite verbs with linkers see Ebert (2008b, p.76–79) and cf. Ebert (2008a, p.23); on action nouns used adverbially in Lezgian see Ylikoski (2003, p.194); on Hungarian participles cf. p.32 above; on Mohawk stative verbs see Baker (2003, p.249–250, 257–263). I have not been able to identify forms to fill all twelve possible areas on the matrix, but I see no reason why such forms should not exist.

the one-dimensional approach common in typological and other literature, even this is too simplistic. To start with, the supposed four-way division of the verbality cline could be broken down much further. In terms of morphology we could distinguish (at least) full verbal marking, reduced verbal marking, no marking (adverbial), reduced adjectival marking, adjectival marking and nominal marking. Syntactically and semantically we could distinguish (at least) main clause predication, subordinate clause predication, reduced subordinate clause predication, non-clausal adjunct, adjectival adjunct and nominal adjunct (vel sim.). As noted above more than two dimensions could be distinguished, e.g. semantics and syntax could be given their own axes so that even more fine-grained distinctions could be made. For example it is not certain that Kiranti finite verbs, which have converb-like subordinate functions when appearing with a linker suffix, can really be treated as functionally adverbial rather than verbal: these subordinate clause verbs seem to occupy an area of the x-axis between prototypically verbal and prototypically adverbial. Likewise Kalinina (2001) quoted by Nikolaeva (2007, p.3) discusses verbal forms which function as the primary (or only) predicate of a clause but show reduced tense marking and reduced verbal agreement, i.e. somewhere between fully verbal and fully adverbial on the y-axis.

Moreover, not all languages distinguish morphological and functional verbality evenly or to the same extent.²³ Korean adjectives differ morphologically from verbs only marginally, while it has been argued that in Quechua there is no distinction between nouns and adjectives. Strongly isolating languages have little or no morphology: Vietnamese and Classical Chinese are languages where there is no morphological distinction between word-classes because there is almost no morphology; in contrast Tagalog and Salish distinguish verbs and nouns morphologically but arguably in these languages there is no *syntactic* distinction between word classes. These facts cannot easily be represented on a matrix such as that given above, but they can be reconciled with it. For every language the gradients of the axes will vary (and need not be constant): in Vietnamese the morphology axis simply has a gradient of zero over its entire extent, i.e. the matrix is effectively one-dimensional, whereas in Quechua the gradient between noun and adjective on the morphology axis may be very shallow or non-existent but the gradient between noun-adjective and the verb is

²³On the following see e.g. Lehmann and Moravcsik (2004) and Evans (2004).

steeper.²⁴ For the most part these complicated problems can be ignored by simply stating that the matrix is not to scale; in fact scale can only be attributed to the matrix on a language-specific basis.

Nevertheless our somewhat simplified analysis of verbal typology is an advance on previous work. In terms of the typological position of the Ṛgvedic tense-aspect stem participles and parallel categories in other languages, we need no longer say that these forms constitute a problem for categorization, which they must do in a one-dimensional framework. Rather participles like those found in the *Ṛgveda* fill a specific area in the typological matrix of verbal systems, an area which functionally is relatively wide in extent, covering prototypically adjectival and adverbial syntax and semantics, but morphologically is more restricted to purely adjectival morphology.

5.4 Conclusion

The basic facts concerning the use of tense-aspect stem participles in Ṛgvedic Sanskrit have been known for a long time, but the details have never been clearly investigated or explicated. I hope that this work has begun, at least, to address this gap.

I have considered in detail the distinct syntactic employments of tense-aspect stem participles, and by utilizing the descriptive framework of LFG have been able to elucidate covert syntactic distinctions which cannot otherwise be clearly distinguished. I have also considered in detail the contextual semantics of adverbially used participles, and analysed these diverse functions in terms of a unified continuum of adverbial expression. My semantic investigation of participles has also allowed me to reconsider their position within the tense-aspect system of the language, in particular in relation to finite verbs within this system, and I have shown that tense-aspect stem participles cannot be considered semantically identical to finite verbs in this respect, but rather that different participles correlate with or differ from the tense-aspect semantics of corresponding finite verbs to different degrees. The recognition of this fact must be carried over into more general treatments of verbal tense-aspect and of individual verbal stem categories, where previously the tendency has

²⁴This can be conceived by thinking of the matrix as three-dimensional.

been to assume an identity between participles and finite verbs wherever possible.

While recognizing the independence of the participial system within the wider verbal system, I have also stressed their verbal nature and categorial status as verb forms, more specifically as *adjectival verbs*. It is in this way that tense-aspect stem participles are distinct from the functionally similar set of verbal adjectives.

My investigation has also permitted a more precise definition of the membership of the category of tense-aspect stem participles in Ṛgvedic Sanskrit, and of the membership of the different tense-aspect stem participles therein. In particular Caland adjectives, adverbs and lexicalized participles have been distinguished as synchronically and in some cases also diachronically distinct categories. The unclear and hitherto inadequately treated categories of aorist and stative participles have likewise been more precisely defined, with spurious forms discarded.

As indirect requirements or consequences of my investigation I have made advances in several other areas: a new non-transformational but theoretically based treatment of Ṛgvedic word order, improved analyses of the semantics of particular verbal tense-aspect stems, and a more sophisticated method of understanding the typology of verbal systems and in particular non-finite verb forms.

I cannot claim to have exhausted the scope for the study of participles: there is much still to be understood. The syntactic and semantic multivalency of tense-aspect stem participles makes them difficult to fully grasp, to completely understand both in individual occurrences and as a whole category. It is also what makes them particularly interesting and deserving of detailed study, both now and in the future.

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