

Object-Language and Metalanguage in Sanskrit Grammatical Texts

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1 Introduction

A particular view of Pāṇini's *Aṣṭādhyāyī* is expressed in the following statement:

The *A.* is an ingenious device, a *yantra*, designed to reproduce the language of the *śiṣṭas* in a step-by-step rule-governed method. In fact, the *A.* may be regarded as an algorithm, a problem-solving procedure. The problem each time is the derivation of word [sic] ready for use in a sentence.

Joshi & Roodbergen (1991: 15)

According to this view, which is held by numerous scholars, the *Aṣṭādhyāyī* can be compared to a 'black box' or computer program which takes some form of input and automatically produces an output without any further intervention. Such a conception is related to the theory that Pāṇini's rules are formulated in a systematically formalised manner which necessitated the creation of a new artificial language. The new language, though based on Sanskrit, is taken to embody an ontological separation whereby it does not adhere to the principles of structure and interpretation that characterise non-technical Sanskrit. This separation is in accordance with the tenets of modern linguistics, which seeks to describe a given natural language by means of a rigorously specified metalanguage. Formalisation is valued by modern scholars as a method of facilitating generality and eliminating ambiguity. Hence, it is pleasing to see such concerns shared by a fellow linguist of over two millenia ago.

In this study, I shall argue that this view of the *Aṣṭādhyāyī* is not supported by the empirical facts. My arguments will be based on an investigation of certain aspects of Pāṇini's metagrammar, by which I mean the syntactic and semantic structure of the language in which the rules of the *Aṣṭādhyāyī* have been written. I will deal with internal evidence from the grammar, with the commentaries of Kātyāyana and Patañjali, and with the analyses of modern scholars. Although each of these aspects has individually been the subject of fascinating debate, I will try to avoid straying too far from the main topic. In section 2, I present a brief account of the development of linguistic thought in India. Pāṇini cannot be viewed as an ahistorical genius who created a grammatical system *ab nihilo*; rather, he must be regarded as the most important figure in a tradition which evolved before and after him, and which coincided with linguistic research in other disciplines. It will be shown in section 3 that Pāṇini's metalanguage must

be viewed as a variety of Sanskrit, though modified in certain respects that indicate a trend towards artificiality and formalism. Unless it is accepted that Pāṇini's rules can be interpreted in a similar way to statements of the ordinary non-technical language, their meaning cannot be arrived at. In section 4, I discuss some other conceptions of metalanguage that have been proposed in connection with the *Aṣṭādhyāyī*. In section 5, I briefly describe the relevance of these conclusions to the debate on the nature of Pāṇini's grammatical system. Section 6 contains a short conclusion.

2 The Historical Context of the *Aṣṭādhyāyī*

It is well-known that the linguistic concerns of the *Aṣṭādhyāyī* are not wholly novel, but rather reflect the development of an awareness of language that can be traced back to the earliest known Sanskrit texts. In the *R̥gveda* Sarasvatī, the goddess of speech, is revered, and an entire hymn (RV 10.12) is devoted to *vāc* itself. Another hymn (RV 10.71) alludes to the first revelation of language to humans and describes the linguistic nature of ritual. Staal (1975) finds that the metaphors used by the R̥gvedic seers to describe the process of divinely inspired composition are conventionalised to the extent that they can justly be called the “first technical or semi-technical vocabulary” of Indian culture (p. 319). From this auspicious beginning, the study of language developed into a variety of disciplines, many of which attained a degree of linguistic sophistication that would not be matched in the West for two thousand years. The reasons for this flourishing are of course complex. Meenakshi (2002) lists a number of contributing factors: the Indic peoples' contact with the indigenous peoples of the Indian Subcontinent, the emergence of dialectal variation and then Prakrit languages within the Indic speech community, and the awareness of diachronic change resulting in the unintelligibility of the oldest (and most sacred) Vedic texts. Houben (2002) emphasises the role of the last factor, and compares the Indian case with other cultures where the need to maintain the integrity of revered texts also encouraged the pursuit of linguistic study.¹

The creation of the *Padapāṭha* from the continuous *saṃhitā* texts proba-

¹Of course, this does not explain the unique status of the Indian linguistic tradition. The other cultures mentioned by Houben (Hebrew, Arab and Greek-Latin) did not come close to that of India with regard to linguistic sophistication, in spite of contact with other languages and the desire to preserve their sacred texts. Some authors have drawn a direct line from the distinctive apparatus of Indian ritual texts to the techniques of *vyākaraṇa*, though thi has been debated (see below).

bly constituted the first works of methodological linguistic analysis in India.² The theoretical apparatus required for the resolution of the discrete words of the *Padapāṭha* into continuous speech was set down in the *Prātiśākhya* texts. In keeping with their restricted function, these texts focused mainly on phonological issues relating to individual words and their combination, within the finite corpus of the Vedic texts. Of the six *Vedāṅgas* (“limbs of the Veda”) whose main function was to preserve the understanding of the Vedic language and texts, at least three dealt with domains which would today be considered linguistic. Besides *vyākaraṇa* or grammar, which will be discussed at length in this paper, these are *śikṣā* (phonetics)³ and *nirvacana* or *nirukta* (commonly translated as “etymology”⁴). The relative chronology of these disciplines is not precisely known;⁵ however, it is clear that they were generally viewed as existing in parallel and as studying complementary subjects. Pāṇini does not analyse phonetic or semantic concepts, though such an analysis is clearly presupposed by the grammar on both terminological and functional levels. The various linguistic *Vedāṅgas* informed each other in various ways – Pāṇini uses a number of phonetic terms known from *prātiśākhya* texts (see section 3.3), and Patañjali frequently uses *nirvacana* analysis in his arguments in the *Mahābhāṣya*.⁶

In addition, there are similarities between the structural techniques used in the composition of the *Aṣṭādhyāyī* and those used in the ritual *Śrauta-Sūtras*. Both are composed in the concise *sūtra* style, and both make use of *paribhāṣā* rules as well as some form of *anuvṛtti* and *adhikāra* headings, although Pāṇini applies these techniques far more rigorously than the authors of the ritual *Sūtras*. Renou (1941–42) investigates in detail the technical and lexical connections between the grammatical and ritual traditions, and concludes that what parallels do exist can best be explained by citing a shared cultural and linguistic context, and a shared concern with the effi-

²According to Staal (1989: 39), the earliest *Padapāṭha*, that of the *Sāmaveda*, was composed around 1,000 BC.

³See Deshpande (1997: 31–59) on the phonetic theories of the *prātiśākhya* and *śikṣā* traditions.

⁴Though cf. Kahrs (1998: 24–25) on the dangers of imposing a diachronic dimension on this interpretation.

⁵On the arguments pertaining to the relative chronology of Pāṇini and Yāska (author of the *Nirukta*), see Cardona (1976a: 270–73). Deshpande (1997: 38) observes that though the *prātiśākhya* tradition precedes Pāṇini, all extant works bear the marks of post-Pāṇinian modification. The *śikṣā* texts are considered to be younger than the *Prātiśākhyas*, but here also the chronology is uncertain.

⁶Cf. also Kahrs’s (1998: 14) remark that “Patañjali clearly attaches great importance to the *Nirukta*. In particular, the *Nirukta* plays a considerable role throughout the *Paspaśāhnika*, the introductory chapter of the *Mahābhāṣya*.”

cient oral transmission of long and complex texts. Cardona (1970) endorses this conservative position.

Pāṇini certainly had predecessors in the field of *vyākaraṇa* – indeed, he names 10 individuals in the *Aṣṭādhyāyī* who are generally held to be grammarians. When these *pūrvācāryas* are mentioned, the intention seems to be to record a variant dialectal usage observed by the grammarian in question (Cardona 1976a: 146). However, it is doubtful that any known extant grammatical work can be attributed to a pre-Pāṇinian author.⁷ We can safely assume that Pāṇini borrowed from his predecessors in terms of theory and terminology, but he did so in a selective way. In some cases he recorded the opinions of his predecessors and adopted their theories, and in others he did not.

Deshpande (1998) describes how a growing respect for the received texts characterised the post-Pāṇinian commentarial tradition. In the *Mahābhāṣya*, we see that Kātyāyana and Patañjali are often willing to dispute the formulation of or even the necessity for rules they deem flawed or redundant, although they respect Pāṇini as a great teacher (*ācārya*). However, in the subsequent tradition, the triad of Pāṇini, Kātyāyana and Patañjali were raised to the status of *munis* or *ṛṣis*, comparable to the mythical composers of the Vedas.⁸ In keeping with Patañjali’s statement that “the rules are like Vedic statements”,⁹ the texts of the *Aṣṭādhyāyī* and *Mahābhāṣya* came to be viewed as divinely inspired artefacts which were not to be questioned. This shift coincided with the loss of Sanskrit as a first language. Later grammarians were described as *lakṣaṇaikacakṣuṣka*, attending only to the grammatical rules as stated, as opposed to their predecessors who were *lakṣyaikacakṣuṣka* and attended only to ordinary usage as the basis for the justification of the rules.

The reverence in which the *Aṣṭādhyāyī* and *Mahābhāṣya* came to be held most likely ensured the accurate transmission of these texts, but it may also have hindered the progress of linguistic theory. Instead of creating new theories of grammar, later grammarians were restricted to interpreting the old theories, leading to the composition of extensive expository commentaries and the interpretive *paribhāṣā* collections.¹⁰ Instead, refinements in syntac-

⁷Cf. Cardona (1976a: 146–153). Cardona (1999) does not introduce any new material in connection with this issue, so I assume that the situation is unchanged.

⁸Cf. Deshpande (1998: 8): “The status of *muni* or *ṛṣi* elevates a person out of the level of being a normal human being into something supernormal.”

⁹MBh I.37.4 *chandovat sūtrāṇi bhavanti* |

¹⁰Some later grammarians did attempt to compose new grammars, but none of these can be viewed as advancements on Pāṇini’s achievement.

tic theory could only supplement the statements of the *sūtras* to explain them and fill in gaps in their application. This has been the practice of the commentators and the compilers of *paribhāṣā* texts.¹¹ The most significant achievements in later linguistic thought were in the field of philosophy and semantics, in particular the work of the great ‘philosopher-grammarians’ Bhartṛhari.¹²

I have recounted these familiar facts because it is important to keep in mind the context of the composition of the *Aṣṭādhyāyī*. Pāṇini did not work in an intellectual vacuum, and the *Aṣṭādhyāyī* has not been formulated as a fully closed axiomatic system. Rather, it must be viewed as a (particularly brilliant) stage in the development of Indian linguistic thought – like all scientific works, it is marked by its time and place.¹³ That it probably represents the pinnacle of *vyākaraṇa* does not necessarily mean that it is perfect, but rather that the circumstances of history diverted the subsequent study of grammar in an orthogonal direction.

3 Some Aspects of the Metalanguage in the *Aṣṭādhyāyī*

The language used in Pāṇini’s *sūtras* is highly idiosyncratic. It is unlikely that any native Sanskrit speaker would be able to understand the sense of rules such as A 1.2.1 *gāṅkuṭādibhyo ’ññin nit* or A 6.1.77 *iko yaṅ aci* without some training in *vyākaraṇa*.¹⁴ It is true that other rules, such

¹¹On the manner in which the *paribhāṣās* advance Pāṇini’s theory, see Wujastyk (1983).

¹²See Iyer (1969) for a thorough account of Bhartṛhari’s linguistic philosophy as set out in the *Vākya-padīya*.

¹³I therefore agree with the general thrust of Houben (2003: 158–165), viz. that the *Aṣṭādhyāyī* is not a machine-like formal system of the kind that might be most desirable for the modern scientific mind. It is clearly unproductive to ask what Pāṇini would have made of a statement such as the following, taken from Petersen’s (2003: 119–20) set-theoretic demonstration that the *Śivasūtras* are optimally constructed:

Definition 12.2.1 A well-formed *Śivasūtra*-alphabet (short S-alphabet) is a triple $\mathcal{A}, \Sigma, <$ consisting of a finite alphabet \mathcal{A} and a finite set of markers Σ (such that $\mathcal{A} \cap \Sigma = \emptyset$), and a total order $<$ on $\mathcal{A} \cup \Sigma$.

The example I have chosen may seem extreme, but my point is not: that we can find such results in Pāṇini does not entail that he did so too. Nevertheless, the very fact that Pāṇini’s work can fruitfully be studied within frameworks he could never have envisaged is good reason not to underestimate the sophistication and rigour of his system.

¹⁴A 1.2.1 teaches that after the root *gāñ* (substituted for *iñ* ‘to go’ in certain circumstances) and after the group of roots headed by *kuṭ* ‘to become crooked’, suffixes not marked with an *anubandha* \tilde{N} or \dot{N} are considered as marked with \tilde{N} . A 6.1.77 teaches

as A 1.1.8 *mukhanāsikāvacaṇo ’nunāsikaḥ* “a speech-sound spoken through the mouth and nose is called *anunāsikaḥ*” could be understood by a layman with a little interpretive effort, but such rules are in the minority.¹⁵ Patañjali states that mere recitation of rules is insufficient for the purpose of grammar (viz. the explanation of language use), as terms such as *vṛddhi*, *āT* and *aiC* are meaningless unless explained; what is needed is reasoned explanation (*vyākhyāna*) of the rules by giving example and counterexample, and by supplying the context necessary to understand Pāṇini’s condensed *sūtras*.¹⁶ This is how students of the *Aṣṭādhyāyī* were taught in his day, and have been ever since. It is certainly not my purpose to provide such explanation here – even if I were granted enough space for such an undertaking, others have already done it far better than I ever could.¹⁷ Rather, I will investigate some aspects of Pāṇini’s usage that bear on the matter at hand.

3.1 The use of case-endings

The Sanskrit of the *Aṣṭādhyāyī* (for it is certainly a variety of Sanskrit) is a composite of common (*laukika*) usage, specialised usage of common terms, borrowings from other fields of learning, and novel syntactic and lexical elements coined either by Pāṇini or by pre-Pāṇinian grammarians. One of the most striking innovations of Pāṇini’s syntax is the use to which he puts the nominal case endings of the colloquial language. The special roles played by the genitive, locative and ablative inflections in the *Aṣṭādhyāyī* are stated by *paribhāṣā* rules A 1.1.49, A 1.1.66 and A 1.1.67 respectively.

A 1.1.49 *ṣaṣṭhī sthāneyogā* “The sixth (genitive) ending signifies the relation of being in the place (*sthāna*) (for which the element in the nominative is taught)”

The exact translation of this rule remains controversial; I have favoured what I hope to be a relatively non-divisive interpretation, at the risk of

that *i*, *u*, *r* and *l* are replaced by *y*, *v*, *r* and *l* when a vowel follows (see section 3.1 below).

¹⁵It is not just Pāṇini’s use of syntax and vocabulary that causes problems for the non-grammarians, but also his extensive use of *anuvṛtti*.

¹⁶MBh I.12.24–26 *parihṛtam etat tad eva sūtram vigṛhītam vyākhyānam bhavātī | nanu coktam na kevalāni carcāpadāni vyākhyānam vṛddhiḥ āt aij īti kiṃ tarhi udāharaṇam pratyudāharaṇam vākyādhyāhāra ity etat samuditam vyākhyānam bhavātī |*

¹⁷Scharfe (1971) presents a grammar of “Pāṇini’s metalanguage”, emphasising the aspects that diverge from non-technical Sanskrit. However, it has been criticised on both theoretical and implementational grounds (e.g. by Cardona 1973 and Paik 1973). Cardona (1997: 13–74) gives a more orthodox exposition of Pāṇini’s technical language within the context of a detailed general introduction to the *Aṣṭādhyāyī*.

some looseness. From the time of the *Mahābhāṣya*, the meaning of the constituent *sthāneyogā* has been debated; Patañjali himself offers no fewer than four distinct syntactic analyses (both as *bahuvrīhi* compound and as two-word phrase).¹⁸ Furthermore, the commentators debated at length the nature of the *sthānasambandha* and the meaning of the word *sthāna* itself.¹⁹ In spite of all this disagreement, the intent of the rule is quite straightforward – it teaches a particular purpose of the genitive in the context of substitution operations, whereby the element marked with the genitive is the substituend (*sthānin* ‘place-holder’) which is to be replaced by the substitute (*ādeśa*, ‘instruction’). Taking the commentators’ favoured example, A 2.4.52 *aster bhūh*, we can see that it teaches the substitution of the verbal root *bhū* for the root *as* (denoted by a quotation of its third-person singular present form *asti*) in a particular context – that context is provided by the construal of the term *ārdhadhātuke* “where the question is of an *ārdhadhātuka* suffix” by *anuvṛtti* from A 2.4.35 *ārdhadhātuke*.²⁰ Hence in the derivation of the infinitive of *as*, the root itself must be replaced by *bhū* to allow the affixation of the *ārdhadhātuka* suffix *-tumUN*²¹, yielding *bhavitum*. We do not have **astum* or **asitum*.

A 1.1.66 *tasminn iti nirdiṣṭe pūrvasya* “When an element is mentioned in the locative, (the operation taught is performed) on the preceding item.”

A 1.1.67 *tasmād ity ūttarasya* “When an element (is mentioned)

¹⁸MBh. I.118.6–7 and I.119.1–3; Kahrs (1998: ch. 5) provides a comprehensive study of the commentarial literature on A 1.1.49. That the debate on this rule is far from dead is clear from the difference in the following two modern translations/interpretations: “(a word ending in) the sixth case ending is to be connected with (the word) *sthāne* ‘in the place’.” (Joshi & Roodbergen 1991: 63); “By A 1.1.49. . . a genitive (*ṣaṣṭhī*) not susceptible of a single interpretation in its context is understood to designate one relation (*yoga*) in particular: ‘in place of’ (*sthāneyogā*).” (Cardona 1997: 52). Though the ultimate intention of the rule is understood similarly, there is a significant difference in the rendering of the compound *sthāneyogā*. Joshi & Roodbergen’s version (similar to that of Scharfe 1971: 33) has the advantage of explaining the irregular presence of the locative form *sthāne* inside a compound – as a quotation form, it is in a sense fossilised; on the other hand, Cardona’s version is in keeping with the commentators’ understanding of the rule right back to Patañjali.

¹⁹In particular, the commentators were concerned about the implications of substitution for the principle that words and their relation with their meanings are eternal.

²⁰By A 3.4.113 *tiṅśit sārva dhātukam* and A 3.4.114 *ārdhadhātukaṃ śeṣaḥ*, the *ārdhadhātuka* suffixes are defined (in opposition to *sārva dhātuka* suffixes) as those verbal suffixes which are neither finite (*tiṅ*) nor marked with an *anubandha Ś*.

²¹This suffix is taught by five rules in a variety of meanings: A 3.3.10, A 3.3.158, A 3.3.167, A 3.4.65 and A 3.4.66.

in the ablative, (the operation taught is performed) on the following item.”

Again, the intention of these *paribhāṣā* rules is rather straightforward, yet they have been the subject of some disputation. Firstly, the meanings of the forms *tasminn iti* and *tasmād iti* have been debated. Renou (1955: 118) saw here examples of direct quotation similar to those found (by him) in *taddhita* rules such as A 4.2.57 *tad asyāṃ praharaṇam iti krīḍāyāṃ nah;*²² hence the first half of A 1.1.66 would mean “where an element is mentioned such that there is the meaning of ‘in it’.” Scharfe (1971: 45) identifies *tasminn iti* and *tasmād iti* as instances of ‘quasi-quotation’ in the sense of Quine (1951: 33–37). What he means is that *tad* in *tasmin* and *tasmād* functions as a sort of variable for which any suitable linguistic form can be substituted,²³ and *tasmin* and *tasmād* are ‘quasi-quotations’ denoting not specific linguistic forms, but type of forms, viz. those ending in locative and ablative inflections.²⁴ This importation of anachronistic theoretical baggage is probably unnecessary; yet, strikingly, Scharfe’s suggested translation of the first parts of the *sūtras* is far from exotic, e.g. “When something is enounced in the locative. . .” for A 1.1.66.

The orthodox Pāṇinīya interpretation of *tasminn iti* (and analogously *tasmād iti*) is given by the *Kāśikā-Vṛtti* on A 1.1.66: *tasminn iti saptam-yarthanirdeśe. . .* Cardona (1973: 216, fn. 25) understands this as follows: “According to the *Kāśikā*, then, *tasminn iti* refers to what is denoted (*artha*) by any locative form (*tasmin*, loc. sg. of *tad* used as a variable).” And what is denoted by a locative form is the locus (by A 2.3.36 *saptamy adhikaraṇa ca*). Whilst implicitly rejecting the quotational analysis proposed by Renou and Scharfe, Joshi & Roodbergen (1991) do not adopt Cardona’s position

²²On this usage of *iti*, Renou writes (p. 117–8): “La particule *iti* figure dans plusieurs emplois nettement délimités. D’abord au terme de brèves phrases nominales qui donnent, sous forme de discours direct, le champ d’emploi d’un suffixe.” Problematically, *iti* does not appear in the majority of *taddhita* rules where similar considerations might favour it (as admitted by Renou, p. 119), and Cardona (1976a: 203) criticises the position that *iti* identifies direct quotation in the *Aṣṭādhyāyī*. Rather, *iti* generally serves to indicate that a term denotes its colloquial meaning, contra A 1.1.68 *svaṃ rūpaṃ śabdasyāśabdasamjñā* (see below). In practice, the difference between saying “X occurs where there is occasion to state ‘Y’” and “X occurs in the meaning of Y” seems insignificant. The ramifications of the distinction belong to the technical workings of the grammar.

²³In standard quotation, substitution or quantification into a quotational context is impossible (cf. Davidson 1979: 77–78) – “‘*vyākaraṇa*’ has four syllables” does not entail either “the Indian science of grammar’ has four syllables” or $\exists x(x \text{ has four syllables})$.

²⁴Hence, Scharfe writes (p. 45): “Pāṇini used the inflected forms of the pronoun in these two *sūtras* only to denote the case in which they appear.”

either (p. 118): “Accordingly, the expression *tasminn iti* refers to what is denoted by *tasmin*, namely, any locative form.” Both these views rest on a common interpretation of the role of *iti* in the context of grammatical rules – although linguistic forms mentioned in *sūtras* usually denote those words having the same form (by A 1.1.68 *svaṃ rūpaṃ śabdasyāśabdasaṃjñā*), a form followed by *iti* does not denote a word, but rather the meaning denoted by the associated word when uttered in a colloquial context.²⁵ As Kātyāyana puts it, “Use of *iti* is for the purpose of mentioning the meaning (and not the word).”²⁶ Accordingly, the sense of *tasminn iti* is “the meaning of *tasmin*”. Where Cardona disagrees with Joshi and Roodbergen is the precise meaning of *tasmin*. For Cardona, it is the meaning of the locative ending, i.e. any locus; for Joshi and Roodbergen it is any word taking a locative ending. Interestingly, Joshi and Roodbergen’s analysis is quite close to one of Quinean quasi-quotation; *tasminn iti* is shorthand for all nominals with locative endings. Cardona’s analysis is not quasi-quotational; he does not hold that the *artha* of *tasminn iti* is linguistic. On the other hand, in his translation of A 1.1.66 as “(A locus) stated by a locative form. . .” (Cardona 1976a: 335, note 217), he shows himself unwilling to surrender completely the capacity to denote linguistic forms.²⁷ To take this debate further would lead us into very murky areas, and it is unclear that it would be at all productive. I hope that I have shown that the various accounts which have been presented in the literature suffer at the very least from a lack of clarity regarding theoretical issues that the authors in question may deem self-evident.

Scholars have also debated the meaning of the second parts of A 1.1.66 and A 1.1.67, i.e. *pūrvasya* and *ūttarasya*. Scharfe (1971) states that these genitive forms are of the kind taught by A 1.1.49, i.e. substitutional genitives. It follows that the purpose of these rules is to teach the substitution of elements preceding an element denoted by a locative form and following an element denoted by an ablative form.²⁸ This is inspired by a discussion in

²⁵My wording is based on the interpretation of A 1.1.68 proposed by Candotti (2004), which I will discuss below.

²⁶*Vārttika* 3 on A 1.1.44: *itikaraṇo ’rthanirdésārthaḥ* (MBh I.102.3).

²⁷More recently, Cardona (1997: 53) writes: “According to A 1.1.66, the referent of a term **X-loc** (*tasminniti nirdiṣṭe*) is understood to be a right context such that something applies to what precedes (*pūrvasya* [*kāryam*]).” (Cardona’s emphasis and suppletion) Whether this constitutes a U-turn on Cardona’s part is unclear, as it is in the context of an introduction to the *Aṣṭādhyāyī* and does not engage with the literature.

²⁸Cf. Scharfe (1971: 45): “In Pāṇ I 1 66 *tasminn iti nirdiṣṭe pūrvasya* and Pāṇ I 1 67 *tasmād ity ūttarasya* Pāṇini teaches the values of his technical locatives and ablatives: ‘When something is enounced in the locative, [the grammatical substitution takes the

the *Mahābhāṣya* where it is suggested that *ṣaṣṭhī* be read into A 1.1.66 and A 1.1.67 in order to account for some rules where a substitutional genitive is required but not given in the text.²⁹ Scharfe suggests that instead of supplying the additional word *ṣaṣṭhī*, we can interpret *pūrvasya* and *ūttarasya* in accordance with A 1.1.49.³⁰ As Cardona (1974: 314–324) demonstrates, this analysis causes far more problems than it solves,³¹ and though it appears a few times in the *Mahābhāṣya*, it is cited only “as a counsel of desperation” (p. 320).

Rather, the genitive forms in A 1.1.66 and A 1.1.67 are to be construed with the word *kārya* ‘what is to be done’, i.e. the operation at hand in the rules where locative and ablative forms occur.³² The rules then teach that the operation applies to the element immediately preceding that denoted by a locative form and/or to the element immediately following that denoted by an ablative form. This is in harmony with the initial translation I provided. Scharfe (1971: 38) criticises this solution on the basis that the suppletion of *kāryam* is “arbitrary”: “it does not occur in any preceding rule, from where it could be taken to ‘continue’.” As Cardona (1974: 314) observes, the suppletion is facilitated by the way in which *paribhāṣā* rules function in the grammar. *Paribhāṣās* are to be interpreted in conjunction with the rules where they apply; there is little sense in considering a *paribhāṣā* on its

place] of the foregoing’ and ‘When something is [enounced] in the ablative, [the substitution takes the place] of the following.’ ” (Scharfe’s suppletions)

²⁹Cf. *Vārttikas* 14–17 and the *Bhāṣya* thereon (MBh I.174.6–I.175.18). In fact, this discussion is mainly dedicated to the problems associated with this approach, and with various attempts to solve them. The word *ṣaṣṭhī* is construed by means of a rather surprising ‘frog’s-leap’ (*maṇḍūkagati*) *anuvṛtti* from A 1.1.49. That is, however, the least of the problems with this interpretation.

³⁰“To me a metalinguistic genitive after I 1 49 looks best for I 1 66 + 67, but this is not the place to go into so complex a problem.” (Scharfe 1971: 38)

³¹For example, if (as Scharfe 1971: 38, fn. 40 suggests), A 1.1.66 and A 1.1.67 apply even to affixation rules, and affixation is then treated as substitution for zero, there is an undesirable interaction with the principle of *sthānivadbhāva* “treatment of the substitute like the original”.

³²KV on A 1.1.66 *tasminn iti saptamyarthanirdeśe pūrvasya kāryam bhavati nottarasya |*

own.³³ In this context, the construal of *kārya* is only natural.³⁴

It is clear from even a brief perusal of the *Aṣṭādhyāyī* that not every instance of a genitive, locative, ablative ending is governed by A 1.1.49, A 1.1.66 and A 1.1.67. All three case endings appear in a variety of senses that reflect their usage in non-technical Sanskrit:

1. *Other uses of the genitive:*

A 1.1.16 *sambuddhau śākalyasyetāv anārṣe* “According to Śākalya, an *o* caused by a *sambuddhi* ending is called *pragrhya* before *iti* in the *padapātha*.”³⁵

A 6.4.89 *ūd upadhāyā gohaḥ (77 aci)* “*ū* is substituted for the penultimate (*upadhā*) sound of the root *goh* when a (suffix beginning with a) vowel immediately follows.”

A 6.1.71 *hrasvasya piti kṛti tuk* “The augment *tUK* is added to a short vowel (*hrasva*) before a *kṛt* suffix marked with the *anubandha P*.”

A 6.4.1 *aṅgasya* “(Operations taught in subsequent rules) apply to a pre-suffixal base.”

A 4.1.92 *tasyāpatyam* “(The *taddhita* suffixes *aN*, *Nya*, *aÑ*,

³³Two famous non-Pāṇinian *paribhāṣās* illustrate how this works:

yathoddeśaṃ saṃjñāparibhāṣam “Names and *paribhāṣās* are understood just where they are taught” (PBhŚ p. 1, *Paribhāṣā* 2)

kāryakālaṃ saṃjñāparibhāṣam “Names and *paribhāṣās* are drawn to the rules where they are required” (PBhŚ p. 1, *Paribhāṣā* 3).

The distinction between these two principles is lessened by the suggestion of Nāgeśa that even on the first *yathoddeśa* view, understanding of a *paribhāṣā* (or *saṃjñā*) at the place it is taught involves conjoining the various other rules where it may apply (PBhŚ p. 2 *ke cit tu paribhāṣāviṣaye tasmīn ityādivākyaṛthabodhe saptamīrdeśādi kve 'ti paryālocanāyāṃ sakalatattadvidhyupasthitau sakalatattatsaṃskārāya gunabhedam parikalpyai 'kavākyatayai 'va nīyamaḥ*). One important difference is the effect on rule-ordering, as these *paribhāṣās* can be invoked to license the movement of rules within the grammar. Benson (2002) describes some of the resulting commentarial discussion.

³⁴The position of Joshi & Roodbergen (1991: 118–119) on this issue is not clear to me, and appears contradictory: “The genitive *pūrvasya*, like *uttarasya* in P. 1.1.67, deals with substitution. Therefore, wherever P. 1.1.66 and 67 become applicable, *pūrvasya* and *uttarasya* become qualifiers of genitive terms there. . . But in P. 1.1.66 and 67 the genitives *pūrvasya* and *uttarasya* are ordinary genitives in connection with which we supply the phrase *kāryam bhavati* ‘the grammatical operation is to be applied (to the immediately preceding or following item)’.” It may be that the authors are drawing an implicit distinction between *kāryakāla* and *yathoddeśa* interpretations of these rules.

³⁵Joshi & Roodbergen (1991: 20–22) argue that A 1.1.16 should be divided into two rules *sambuddhau śākalasya* and *itāv anārṣe*; the details are not relevant to the issue at hand.

naṅ and *snaṅ*)³⁶ are added to a word in the sense of ‘its descendant’.”

A 3.2.8 *gapoṣṭak* (1 *karmani* 3 *anupasarge*) “The affix *ṬaK* occurs after the verbal roots *gau* and *pā* when used without a preposition, in conjunction with a *karman*.” Here, we have the use of a genitive where an ablative would be expected.³⁷

All these *sūtras* contain genitive forms which do not admit of interpretation by A 1.1.49. Rather, the genitive case endings in question denote a variety of different relations. This is in accordance with the multifaceted use of the genitive in colloquial Sanskrit. A 2.3.50 *ṣaṣṭhī śeṣe* teaches that the genitive expresses “the rest”, i.e. those relations not expressed by the other case endings. Patañjali points out that there are one hundred meanings for the genitive, and they can all apply when a genitive form is uttered.³⁸ Indeed the use of the partitive genitive in A 6.4.89 and of the possessive genitive in A 4.1.92 is well-known from non-technical Sanskrit. The naturalness of the use of *śākalasya* in A 1.1.16 (and similar use in other rules where Pāṇini notes dialectal variety) is elicited by Cardona’s (1997: 44) suppletion of the term *mantena*. The use of the genitive form *hrasvasya* in A 6.1.71 is, strictly speaking, a technical one, in that it is governed by the *paribhāṣā* A 1.1.46 *ādyantau ṭakitau* (“Elements marked with the *anubandhas* *Ṭ* and *K* are the initial and final constituents respectively of the items for which they are taught”). Given this explicit statement of the function of *Ṭit*- and *Kit*- elements, the convention taught by A 1.1.49 does not have scope to apply. In A 6.4.1, the genitive form *aṅgasya* expresses a rather non-specific relation; as an *adhikāra* rule,

³⁶Taught by A 4.1.83–87.

³⁷According to Joshi & Roodbergen (1991: 120), this usage is confined to the third *adhyāya*, where it is relatively frequent. They hypothesise that “Possibly, in older strata of the language the dual genitive and ablative forms were identical.” I am not in a position to judge this suggestion, but a quick consultation of Szemerényi (1996) and Whitney (1889) does not find any supporting historical evidence. Rather, the use of the genitive may be licensed by the fact that the *adhikāra* A 3.1.2 *paraś ca* has already stated that suffixes (A 3.1.1 *pratyaye*) always follow the verbal root or nominal stem with regard to which they are taught, and the use of the ablative to teach the linear order of elements is therefore not strictly necessary. Alternatively, there may be some relevance in Speijer’s (1886) observations that the genitive case sometimes had an ablative-like function in conjunction with certain verbs and in the sense of temporal anteriority (§125–128); also, that the preposition *paścāt* ‘after’ subcategorises for a genitive form (§175).

³⁸MBh I.118.10–11 *ekaśataṃ ṣaṣṭhyarthā yāvanto vā te sarve ṣaṣṭhyām uccāritāyām prāpnvanti* |

it is construed with all subsequent rules up to the end of the seventh *adhyāya*, and the relation of *aṅga* to the elements taught varies from rule to rule. In some rules, *aṅgasya* is coreferential with a substitutonal genitive, e.g. A 6.4.35 *śā hau*; in many others, it is coreferential with a partitive genitive, e.g. A 6.4.89. In yet others, it is coreferential with forms taking endings other than the genitive, and the ending of *aṅga* itself is understood to change by *vipariṇāma*; e.g. *aṅgebhyaḥ* is to be read in A 6.4.101 *hujhalbhyo her dhīh* “The ending *-hi* is replaced by *-dhi* after the root *hu* and after roots that end with consonants other than semivowels and nasals”. The use of the genitive in a directional sense in A 3.2.8 seems anomalous, but it is in keeping with the very flexible use of the case ending (see also footnote 37).

2. *Other uses of the locative:*

A 1.2.49 *luk taddhitaluki* (48 *strī(-pratyayasya) upasarjanasya*) “When there is *luk*-deletion of a *taddhita* suffix, then there is also *luk*-deletion of the feminine suffix of the subordinate (*upasarjana*) constituent.”

A 2.3.60 *dvitīyā brāhmaṇe* (52 *karmaṇi* 58 *divas tadarthasya*) “In the *Brāhmaṇas*, the accusative ending is used to express the *karman* of the verb *div* in the abovementioned sense.”³⁹

The *Aṣṭādhyāyī* contains rules teaching the main uses of the locative.⁴⁰ A 2.3.36 *saptamy adhikaraṇe ca* teaches the use of the locative to express a location (*adhikaraṇa*, defined by A 1.4.45). This is what we have in locatives of domain (*viśayasaptamī*) such as *brāhmaṇe* in A 2.3.60. Pāṇini frequently uses the analogous term *chandasi* to state that certain linguistic phenomena pertain to the Vedic language. A 2.3.37 *yasya ca bhāvena bhāvalakṣaṇam* provides for the use of the locative after a noun referring to an individual whose action characterises another action; this is the rule that derives locative absolute constructions. Hence *taddhitaluki* in A 1.2.49 means ‘when there is *luk*-deletion of a *taddhita* suffix’. Again, this use of the locative is frequent in the *Aṣṭādhyāyī*, occurring even in A 1.1.66 itself (*nirdiṣṭe*). These are not the only kinds of non-1.1.66 locatives in the *Aṣṭādhyāyī*.

³⁹i.e. in the sense of dealing in a transaction or staking in gambling, by A 2.3.57 *vyavahrpaṇoḥ samarthayoḥ*.

⁴⁰The locative is also taught by a few minor rules, e.g. A 2.3.43-45, but these do not bear on its use in grammatical *sūtras*.

For example, *sambuddhau* in A 1.1.16 is understood by the tradition to be a locative signifying a condition (*nimittasaptamā*).⁴¹ In the section headed by A 3.1.92 *tatropapadaṃ saptamāstham* (continuing up until A 3.4.117), the locative is used to denote an *upapada*, an element occurring in conjunction with a verb; hence A 3.3.157 *icchārtheṣu liṅloṭau*, which teaches the use of the conditional and imperative endings after a verbal root used in conjunction with a verb meaning ‘to desire’.

3. *Other uses of the ablative:*

A 1.4.80 *te prāg dhātoḥ* “These (i.e. the preverbal items given the names *upasarga* and *gati* by the preceding *sūtras*) occur before the verbal root.”

A 6.1.135 *suṭ kāt pūrvah* “*sUṭ* occurs before *k* (of certain verbs under certain conditions, as specified in the subsequent rules).”

A 3.1.29 *ṛter īyañi* “The affix *-īyañ* follows the root *ṛtI*.”

Sūtras A 1.4.80 and A 6.1.135 show the ablative used with the prepositions *prāk* and *pūrvah*, as is common in colloquial Sanskrit. This use is licensed by A 2.3.29 *anyārādītararttedikśabdāñcūttarapadājāhiyukte*, which teaches the ablative (*pañcamā*, continued from A 2.3.28) after various words, including direction words (*dikśabda*). The ablative form *ṛter* in A 3.1.29 would initially appear to be within the interpretative scope of A 1.1.67.⁴² However, A 1.1.67 requires that the operation in question apply to a following element (an *uttaram*), and in the case of suffixation to a verbal root, there is no pre-existing element to which the operation can apply. Cardona (1974) therefore argues that in affixation rules inside the scope of A 3.1.2 *paraś ca*, ablative forms are to be construed with the preposition *paraḥ*.

In view of the above examples, it is clear that the restrictive functions Pāṇini teaches for the genitive, locative and ablative case endings in A 1.1.49, A 1.1.66 and A 1.1.67 do not apply to all instances of those cases. Furthermore, they are not always employed when there might be the opportunity to do so.⁴³ It is therefore natural to ask whether there is an underlying principle that determines the scope of these rules.

⁴¹Cf. KV on A 1.1.16 *sambuddhinimitto ya okāraḥ* . . .

⁴²Indeed, this is the view presented in the *Mahābhāṣya*. See Cardona (1974: 324) for a discussion.

⁴³Though in these cases, there is usually a valid reason for the non-use of the case endings; cf. Scharfe (1971: 46–47), Cardona (1973: 221).

Scharfe (1971) argues that the genitive, locative and ablative cases are always used metalinguistically (i.e. with the function that Pāṇini teaches for them) in connection with terms belonging to the technical language of the grammar. On the other hand, words belonging to colloquial Sanskrit are inflected in accordance with non-technical usage.⁴⁴ Unfortunately for Scharfe, such a strict distinction is not supported by the facts. There are numerous rules where technical terms are inflected in a non-technical sense – for example, the many instances of partitive genitives such as *gohaḥ* in A 6.4.89 and *bhasya* in A 7.1.88, as well as expressions such as *matau* ‘in the sense of *-matI*’ in A 4.4.136 and A 5.2.59. He is forced to regard such usages as mistakes on Pāṇini’s part.⁴⁵ Furthermore, normal Sanskrit words that have been adopted by Pāṇini for special purposes show no regularity in their inflection – the locative *dvigau* in A 6.2.12 means ‘in a *dvigu*-compound’, but the ablative *dvigoḥ* in A 4.1.21 means ‘after a *dvigu*-compound’.

The view held by the traditional commentators is essentially the opposite of Scharfe’s. For Patañjali in particular, there is no difference between the way case endings are interpreted in the grammar and in daily life. I shall first summarise his comments on A 1.1.49. The first *Vārttika* on this rule states that its function, like that of any *paribhāṣā* rule, is to impose a restriction (*niyama*); in this case, the relation denoted by the genitive case is restricted to that characterised by the *sthāna*.⁴⁶ Patañjali comments that the genitive case can have a hundred possible meanings, and a restriction should be made so that genitive forms in grammar express the substitution relation (the *sthāneyoga*).⁴⁷ Kātyāyana then observes that there is the danger of over-application in the case of genitives such as the partitive.⁴⁸ In response, Kātyāyana points out that the restriction is only needed where there is doubt regarding the proper relation to be understood, and where we have partitive genitives and the like, no such doubt arises.⁴⁹ Patañjali, as is his wont on such occasions, states that the fundamental principle is one that is known from daily life:

⁴⁴“It is hardly surprising, that words quoted or borrowed from the object language are used in their usual way, with the cases and case values of Sanskrit.” (p. 34)

⁴⁵“These few non-technical cases of metalinguistic terms are best regarded as slips, violating the style and system of the metalanguage.” (p. 34)

⁴⁶*Vārttika* 1 on A 1.1.49: *ṣaṣṭhyāḥ sthāneyogavacanam niyamārtham* (MBh I.118.9).

⁴⁷MBh I.118.10–12 *ekaśatam ṣaṣṭhyarthā yāvanto vā te sarve ṣaṣṭhyām uccāritāyām prāpnuvanti | iṣyate ca vyākaraṇe yā ṣaṣṭhī sā sthāneyogaiva syād iti tac cāntareṇa yatnam na sidhyati. . .*

⁴⁸*Vārttika* 2 on A 1.1.49: *avayavaṣaṣṭhyādiṣv atiprasaṅgaḥ sāso goha iti* (MBh I.118.14).

⁴⁹*Vārttika* 3 on A 1.1.49: *avayavaṣaṣṭhyādīnām cāprāptir yogasyāsaṃdigdhatvāt* (MBh I.118.18).

When, in the world, somebody asks somebody: ‘I am going to another village, please point out the way to me’, the other one tells him: ‘at that place you must turn right, at that place you must turn left’. Having determined that there is no doubt regarding a path going transversely there, he does not point this out. In the same way here, too, there is a restriction where there is doubt, but in the case of genitives such as the partitive, there is no doubt.⁵⁰

Hence A 1.1.49 is only to apply where it is not clear how a genitive form is to be interpreted. Kātyāyana appears content with this solution, as his fourth and final *vārttika* concerns a proposal to mark those genitives which are to be interpreted as substitutional; this is merely a suggestion of an alternative approach to the problem, and does not bear on the function of A 1.1.49 itself. Now Patañjali takes the issue further, and decides that the restriction is unnecessary because any doubt that occurs can be resolved through reasoned explanation, in accordance with the common principle that “there is understanding of a particular (option) by means of reasoned explanation, for (a rule) is not a non-rule because of doubt”.⁵¹ He goes on to state that the purpose of the rule is in fact to remove the need for the *paribhāṣā* “substitutes replace that which is enunciated”.⁵² While it is doubtful that Pāṇini expressly intended A 1.1.49 to account for this *paribhāṣā*,⁵³ it is striking that Patañjali in effect considers the interpretation of the genitive in its substitutional sense so obvious and natural that no explicit statement of a special function or even a restriction must be made. The substitutional genitive (construed with *sthāne*) is of course a usage belonging to colloquial Sanskrit.

⁵⁰MBh I.118.21–24 *loke kaṃcīt kaścīt pṛcchati grāmāntaraṃ gamiṣyāmi panthānaṃ me bhavān upadiṣtv iti | sa tasmā ācaṣṭe | amuṣmīn avakāṣe hastadakṣiṇo grahītavyo ’muṣmīn avakāṣe hastavāma iti | yas tatra tīryakpatho bhavati na tasmīn saṃdeha iti kṛtvā nāsāv upadiṣyate | evam ihāpi saṃdehe niyamo na cāvayavaṣaṣṭhyādiṣu saṃdehaḥ ||*

⁵¹MBh I.119.23–25 *saṃdehamātram etad bhavati sarvasaṃdeheṣu cedam upatiṣṭhate vyākhyānato viśeṣapratipattir na hi saṃdehād alakṣaṇam iti*. This principle is *Paribhāṣā* 1 in the PBhŚ.

⁵²MBh I.119.27–28 *kiṃ kṛtaṃ bhavati | nirdiṣyamānasyādeśā bhavanti eṣā paribhāṣā na kartavyā bhavati*. The *paribhāṣā nirdiṣyamānasyādeśā bhavanti* is *Paribhāṣā* 12 in the PBhŚ.

⁵³Cf. Kahrs (1998: 234): “It is evident that you could get the usage of the *sthānaṣaṣṭhī* from the Sanskrit language itself, but other interpretations of the genitive also apply in the *Aṣṭādhyāyī*, so it is perfectly possible that Pāṇini formulated the rule to clarify this situation.”

Turning to A 1.1.66 and A 1.1.67, we can see that the interpretative process involved is similar. As noted earlier, A 2.3.36 teaches the use of the locative to denote a location. Cardona (1974: 312) quotes Patañjali to the effect that “there can be only one locative relation between one linguistic item and another: they are contiguous.”⁵⁴ Similarly, where we have the use of an ablative, A 2.3.29 licenses the construal of a directional preposition. Yet doubt remains regarding the requisite linear order, and for this reason a restriction must be made by means of *paribhāṣās*.⁵⁵ Once again, Patañjali comments that the situation is familiar from daily life (in this case, from colloquial Sanskrit):

When the *sūtras tasminn...* and *tasmād...* are uttered, this undertaking has the purpose of (imposing) a restriction on the lack of distinction between the relations of *pūrva* (‘before’) and *uttara* (‘after’). (Just as in) *grāme devadattaḥ*, there is doubt (as to whether we should have) *pūrva* or *para* (i.e. whether Devadatta is in front of or behind the village). (And just as in) *grāmād devadattaḥ*, there is doubt (as to whether we should have) *pūrva* or *para*. Similarly also here (in the case of) *iko yaṇ aci*.⁵⁶

The above discussion of Pāṇini’s use of the case endings has been rather long, but I think that it has also been useful in illustrating some key points. Firstly, as Cardona (1976a: 202) observes, A 1.1.49, A 1.1.66 and A1.1.67 involve “no departure from the Sanskrit described in the grammar.” This is perhaps a slight overstatement, as Pāṇini does impose a restriction that

⁵⁴MBh III.5.9–10 *śabdasya ca śabdena ko ’nyo ’bhisambandho bhavitum arhaty anyad ata upaśleṣāt*. In fact, *vārttika* 1 on A 1.1.66–67 *nirdiṣṭagrahaṇam ānantaryārtham* suggests that the purpose of the word *nirdiṣṭe* is to state that the phenomenon in question is *ānantarya* ‘immediate sequence’. Joshi & Roodbergen (1991: 119) claim that this is an instance of over-interpretation; “Actually, we arrive at the sense of *ānantarya* in connection with *pūrva* (and *uttara*) by exercising our common sense. If, for instance, the word *pūrva* in P. 1.1.68 [sic] would refer to just any preceding *ik*-vowel, then P. 6.1.77 would be without any purpose.” Cf. perhaps also MBh I.119.23 *aster bhūr bhavatīti saṃdehaḥ sthāne ’nantare samīpa iti* “In the case of *aster bhūh*, there is doubt (regarding the relation) whether it is in the *sthāna*, in the adjacency, or in the nearness.” The latter two relations might be considered locational relations, in which case a restriction (or the application of reasoned explanation) would be useful.

⁵⁵*Vārttika* 2 on A 1.1.66–67: *tasmimṣ tasmād iti pūrvottarayor yogayor aviśeṣān niyamārthaṃ vacanaṃ dadhyudakaṃ pacaty odanam* (MBh I.172.19–20).

⁵⁶MBh I.172.21–23 *tasmimṣtasmād iti pūrvottarayor yogayor aviśeṣān niyamārtho ’ayam ārambhaḥ | grāme devadattaḥ | pūrvaḥ para iti saṃdehaḥ | grāmād devadattaḥ | pūrvaḥ para iti saṃdehaḥ | evam ihāphīko yaṇ aci |*

is not observed in ordinary Sanskrit. The crucial issue, though, is that the nature of this restriction does not transgress the boundaries of the ordinary language – it does not lead to ungrammaticality in that language. Secondly, we have seen that for commenators such as Kātyāyana and Patañjali, the language of grammar is to be interpreted in the same way as colloquial language; in fact, the languages are the same. Thirdly, it has been shown that the syntax of case endings is ambiguous in the *Aṣṭādhyāyī*. The meaning of a case ending in a given context is not identifiable without an interpretive effort.

3.2 The purpose of A 1.1.68 *svaṃ rūpaṃ śabdasyāśabdasamjñā*

A 1.1.68 reads *svaṃ rūpaṃ śabdasyāśabdasamjñā*. By the time of the author of the *Vākyapadīya-Vṛtti*, this rule was already the subject of great debate – he writes that “regarding the *sūtra svaṃ rūpaṃ śabdasya...*, the tradition of the circles of the grammarians is very varied.”⁵⁷ In modern times too, there has been no general consensus on the meaning of the rule. A survey of the different translations which have been proposed serves to illustrate the main points of agreement and disagreement:

Böhtlingk (1887): “Unter einem in den Sūtra vorkommenden Worte ist nur eben dieses Wort in seiner lautlichen Erscheinung (nicht etwa die Synonyme oder Unterbegriffe) gemeint; ist aber das Wort ein grammatisch-technisches, so ist nicht dieses Wort selbst gemeint, sondern das, was es bezeichnet.”⁵⁸

Brough (1951: 28): “A word (in a grammatical rule) which is not a technical term denotes its own form.”

Scharfe (1971: 40): “The own form of the speech sound (as used in a grammatical rule) [is meant] except if it is a name of speech sounds.”

Joshi & Roodbergen (1991: 121): “(When a metalinguistic item is mentioned in a rule for purposes of grammatical operation,

⁵⁷VPVṛ I, p. 72 on VP I.69–70 *svaṃ rūpaṃ śabdasyeti bahuvikalpo vaiyākaraṇādhi-karaṇe svāgamaḥ*. I shall not discuss the controversial question of whether the author of the *Vākyapadīya-Vṛtti* is Bhartṛhari or in fact another; for critical summaries of the main arguments on both sides, see Iyer (1969: 16–36), Cardona (1999: 250–265) and Houben (2003: 144–157).

⁵⁸“A word appearing in a *sūtra* is intended in the sense of its phonetic form (not that of its synonyms or hyponyms); but if the word is a technical one in the grammar, it is not intended in the sense of the word itself, but rather what it denotes.”

then) the own (phonetic) form of the meta-linguistic item (is to be understood), with the exception of a technical name for the meta-linguistic item.”

Cardona (1997: 14): “A linguistic element’s own form (*svaṃ rūpam*) is understood to refer to that element (*śabdasya [saṃjñā]* ‘[name] of a speech unit’) itself, not to signify the meaning of the term, unless the element in question is a technical term of grammar.”

It is apparent that there is agreement regarding the proper domain of A 1.1.68: it pertains to the role played by the words used in grammatical rules. It is in the very nature of grammar that it analyses the units of language. Hence, the rules of the *Aṣṭādhyāyī* teach operations on words, not on the things that the words denote when they are used in the world. A 4.2.33 *agner dhak* does not teach that the suffix *-DHaK* is used after a fire, but after the word *agni*. On the other hand, many words appearing in the *sūtras* do not denote themselves. For example, *ādaic* in A 1.1.1 *vṛddhir ādaic* denotes the set of speech-sounds {*ā ai au*} for which the name *vṛddhi* is taught; *vṛddhi* (and likewise *guṇa*) in A 1.1.3 *iko guṇavṛddhī* denotes the meaning taught for it by A 1.1.1, i.e. {*ā ai au*}; *rājā* in A 2.4.23 *sabhā rājāmanuṣyapūrvā* denotes synonyms of the word *rājan* but not the word *rājan* itself,⁵⁹ and of course, very many words are used in the *Aṣṭādhyāyī* just as they would be used in the world, e.g. *brāhmaṇa*, *śūdra*, *pūrvā*, *na*, *sahetā*, and so on. From our discussion of the interpretation of case endings in the previous section, we might expect that Pāṇini formulated A 1.1.68 to remove doubt where it exists regarding the proper denotation of terms. This is essentially what he has done.

I shall not delve too deep into the controversies surrounding A 1.1.68. In a recent dissertation, Candotti (2004) has comprehensively examined the metasemantic system of the *Aṣṭādhyāyī* and its interpretation by both traditional and modern commentators.⁶⁰ My exposition of the rule will draw substantially from her conclusions.

The rule naturally divides into two parts, *svaṃ rūpam śabdasya* and *aśabdasaṃjñā*; as it is usually understood, the latter part expresses a restriction on the application of the former. The first part has been variously interpreted as “the own (phonetic) form of a word (is meant/taught/operated

⁵⁹This rule teaches that *tatpuruṣa* compounds ending in *sabhā* (‘court’) are neuter if the penultimate constituent is a synonym of *rājan* or a word denoting a non-human. Hence, the compound *īśvarasabham* ‘the lord’s court’ is neuter; but *rājasabhā* is feminine.

⁶⁰See also Scharfe (1989) and Cardona (1997: xxiv–xxvii) for some recent debate on the rule.

on)” (as in the translations by Böhtlingk, Brough, Scharfe and by Joshi and Roodbergen) and as “the own (phonetic) form is (the name) of the word” (in Cardona’s translation). Candotti favours the latter interpretation; she writes (p. 266): “A 1 1 68 nous dit que, chaque fois que nous voulons signifier un certains élément linguistique dans la grammaire, il est suffisant de prendre la forme de cet élément et de l’utiliser pour signifier l’élément lui-même.”⁶¹ This requires the construal of a word such as *saṃjñā* or *grāhaka* in A 1.1.68 and the subsequent rules up to A 1.1.72, but this does not exceed the interpretative effort that is necessary for understanding many Pāṇinian rules. This view is supported by certain comments of Patañjali; the *Bhāṣya* on A 1.1.62 paraphrases A 1.1.68 as *svaṃ rūpaṃ śabdasya saṃjñā bhavati*, and gives *hanter api hantiḥ saṃjñā bhaviṣyati* as an instance of its application.⁶²

The precise nature of the restriction imposed by *aśabdasaṃjñā* has also been disputed. It has frequently been understood to mean “except for a technical term (of the grammar)” – this is the position taken by Böhtlingk, Brough and Joshi and Roodbergen. The idea is that where Pāṇini has taught a technical meaning for a term in the grammar, or where an undefined word is to be understood in a technical way, that term does not denote its own form but rather its technical meaning. Hence, when *vṛddhi* is used in A 1.1.3, it denotes the sounds taught by A 1.1.1 because it is a technical term or *saṃjñā*. However, there are a number of problems with this account. Pāṇini uses the term *śabdasaṃjñā* in two other rules where the term can only be translated as “name of a linguistic item”. For example, A 7.3.67 *vaco śabdasaṃjñāyām* teaches that a palatal sound of the root *vac* is not replaced by a guttural before the suffix *-NyaT*, so long as the resulting word is not a *śabdasaṃjñā*.⁶³ Hence *vācyā* ‘what is to be said’, but *vākya* ‘sentence, utterance’.

Furthermore, the translation of *saṃjñā* as ‘technical term’ is not consistent with Pāṇini’s use of the word, and reflects a use introduced by later commentators (cf. Candotti 2004: ch. 2–3). As shown by Palsule (1966), a wide range of words were recognised by Pāṇini as being *saṃjñā*, and he made no provision that such words be restricted to Śāstric usage. Some examples of *saṃjñā* terms given in the commentaries to illustrate various

⁶¹“A 1.1.68 tells us that whenever we want to denote a certain element in the grammar, it is sufficient to take the form of that element and to use that to signify the element itself.”

⁶²MBh I.163.15–16 *svaṃ rūpaṃ śabdasyāśabdasaṃjñā iti vacanāt svaṃ rūpaṃ śabdasya saṃjñā bhavatīti hanter api hantiḥ saṃjñā bhaviṣyati ||*

⁶³The other rule is A 8.3.86 *abhiniṣaḥ stanaḥ śabdasaṃjñāyām*.

rules are the following: *devadatta* (A 6.2.18), *unmattagaṅgam* (‘where the Gaṅgā is wild’, a place name; A 2.1.21), *saptarṣayaḥ* (the constellation *Ursa Major*; A 2.1.50), *druṇasaḥ* (‘tree-nosed’, when used as a proper name; A 5.4.118), *prāsaḥ* (‘that which is thrown’, a dart; A 3.3.19), *dantāvala* (‘possessing teeth or tusks’, an elephant; A 5.2.113). It is thus not the case that *saṃjñā* means ‘technical name’ or even ‘name’ in Pāṇini’s rules; Palsule (1966: 65) concludes that *saṃjñā* words are “with exception of words like *avaṭṭā*,⁶⁴ to use an expression of the later grammarians, *yogarūḍha*- words, words whose etymological meaning is restricted by convention.” Candotti (2004: 50) argues that there is no reason for the term *saṃjñā* not to denote wholly unanalysable words as well, given that the defining characteristic of a *saṃjñā* is that its meaning is determined by convention. This makes sense if we are to consider unanalysable technical terms such as *bha* and *ghu* to be *saṃjñā*. This broad sense of *saṃjñā* was soon lost, however; by the time of Patañjali it had the meaning ‘proper name imposed by convention’, and by the time of Bharṭṛhari it had been specialised so as to mean just ‘technical name’ (Candotti 2004: ch. 3).

On this basis, we can reconstruct the meaning of A 1.1.68 as “Words are named by their own forms in grammatical rules, unless they are conventional terms for linguistic items.” Candotti (2004: ch. 12) argues that those terms whose semantics are not conventional are quotation forms (*anukaraṇa*). Quotation forms are by definition anything but arbitrary – “*agni*” can refer only to the word *agni*, and not to any other.⁶⁵ Unfortunately, this seems to have the consequence of making at least one part of the *sūtra* redundant, as it now means “Words are named by their own forms in grammatical rules, unless they are named by their own forms.”

Candotti’s interpretation has the advantage of being consistent with a unified theory of denotation in grammatical rules which is directly supported by the writings of Bharṭṛhari, and at least suggested by Patañjali. The essence of this theory is that words belonging to the grammar interact with the words of the spoken language inside the grammar, though they exist on different levels. Words denoted by the forms mentioned in operational rules

⁶⁴These are words taught by A 5.3.31–33 which are “of an obscure nature” (Palsule 1966: 63) in that they are not analysable by the grammar and appear to be borrowings from non-Indo-Aryan languages. They nonetheless have the status of *saṃjñā* according to Pāṇini’s rules. Similarly, the *unādi* words, which tradition also considers to be *saṃjñā* words.

⁶⁵“Le rapport entre l’*anukaraṇa agni* et l’ensemble des objets qu’il représente (les occurrences d’*agni* dans la langue commune) n’est pas arbitraire, il est iconique.” (Candotti 2004: 367)

name the words in the object-language which possess the same form (by A 1.1.68), except in those cases where a different form has been taught for them.⁶⁶ However, forms mentioned in *saṃjñāsūtras* denote words belonging to the grammar, and such *sūtras* have the function of creating naming relations between items of the metalanguage. Ogawa (2001), on the basis of the *Vākyapadīya* discussion in VP 1.60–68, comes to a similar conclusion; he writes (p. 536): “A 1.1.68 never describes the self-referring nature of the linguistic item, which nature is not determined without the conceptual discrimination between a linguistic item and its form; rather, it makes use of such a nature for building a bridge between the grammar and the practical use of the linguistic item.” Whether Pāṇini himself had such a theory of denotation in mind is unclear; Candotti (2004: 368) states that it is at the very least compatible with Pāṇini’s rules, though that is by no means conclusive evidence.

The *Mahābhāṣya* discussion on A 1.1.68 is of great interest. The first four *Vārttikas* question whether there is in fact any need for this rule to be stated. *Vārttika* 1 states: “Since a meaning is understood by means of a word and since this is impossible, the statement *svaṃ rūpam* has the purpose of prohibiting the (understanding of) the name of (words expressing) the meaning.”⁶⁷ In the first half of this statement, Kātyāyana dismisses immediately the concern that words in grammar might denote their meanings, and states that the purpose of their rule is to prevent them denoting synonyms; for example, in A 4.2.33 we do not want *agni* to denote all words meaning fire, such as *pāvaka*. Patañjali comments:

We understand a meaning by means of a spoken word: for example if we say ‘bring the cow’ or ‘eat the yoghurt’, an object is brought or an object is eaten. But since the meaning is not possible – here in grammar we cannot apply the operation to the meaning. In the rule *agner dhak*, we cannot add the suffix *-DHaK* after the embers. Since a meaning is understood via a word, when the meaning is impossible, there is a risk of having

⁶⁶Regarding the term *agni* in A 4.2.33, Candotti writes (p. 301): “A 1.1.68 nous dit qu’*agni*¹, signifiant sa forme propre *agni*², es posé comme équivalent d’*agni*³ qui est le nom d’*agni*⁴ de la langue objet de la grammaire, c’est à dire de la langue commune.” Cf. VP I.61 *agnīśabdā tathāivāyam agnīśabdanibandhanaḥ agnīśrutyaīti saṃbandham agnīśabdābhīdhayayā* “In the same way [as terms like *vṛddhi* convey what has been taught for them, VP I.60], the word *agni*, based on the word[-form] *agni*, enters into a [name-named] relation with the word *agni* conveyed by the word *agni*.”

⁶⁷*Vārttika* 1 on A 1.1.68: *śabdenārthagater arthasyāsaṃbhavāt tadvācīnaḥ saṃjñāpratīṣedhārtham svamrūpavacanam* (MBh I.175.25).

the suffix after all the words having this meaning. But we want it to occur only after that (word which is stated), and this does not happen without effort. Hence ‘the statement *svaṃ rūpam* has the purpose of prohibiting the (understanding of) the name of (words expressing) the meaning’. This is stated for such a purpose.⁶⁸

The second *Vārttika* states that there is no danger of unwanted denotation of synonyms, as the form of a word is understood before its meaning and the meaning is thus avoided.⁶⁹ Patañjali comments:

Or rather this is not the purpose. For what reason? Because the understanding of the form precedes the meaning. The understanding of the form precedes that of the meaning. And the understanding of the form precedes for this reason: for every man that is called by a name, when he does not understand the name, says ‘What did you say?’ The understanding of the form precedes that of the meaning and here in grammar it is possible to apply the operation to the form and impossible to apply it to the meaning, thus the meaning is avoided.⁷⁰

In *Vārttika* 3, Kātyāyana turns his attention to the restriction *aśabdasaṃjñā*, and pronounces that too redundant, as the fact that *saṃjñās* denote other words is already known from the explicit statements of the relevant *saṃjñā-sūtras*.⁷¹ In *Vārttika* 4, Kātyāyana preemptively dismisses the suggestion that the purpose of the rule might be to account for *saṃjñās* such as *mantra*⁷² on the basis that the correct denotation is obtained through

⁶⁸MBh I.175.26–I.176.3 *śabdenoccaritenārtho gamyate | gām ānaya dadhy aśānety artha ānīyate ’rthaś ca bhujyate | arthasyāsambhavāt | iha vyākaraṇe ’rthe kāryasyāsambhavaḥ | agner dhak iti na śakyate ’ngārebhyaḥ paro dhak kartum | śabdenārthagater arthasyāsambhavād yāvantas tadvācinaḥ śabdās tāvadbhyaḥ sarvebhya utpattiḥ prāpnoti | iṣyate ca tasmād eva syād iti | tac cāntareṇa yatnaṃ na sidhyatīti tadvācinaḥ saṃjñā-pratiśedhārthaṃ svamrūpavacanam | evamartham idam ucyate ||*

⁶⁹*Vārttika* 2 on A 1.1.68: *na vā śabdapūrvako hy arthe sampratyayas tasmād arthanivṛttiḥ* (MBh I.176.4).

⁷⁰MBh I.176.5–9 *na vā etat prayojanam asti | kiṃ karaṇam | śabdapūrvako hy arthe sampratyayaḥ | śabdapūrvako hy arthasya saṃpratyayaḥ | ātaś ca śabdapūrvako yo ’pi hy asāv āhūyate nāmnā | nāma yadānena nopalabdhaṃ bhavati tadā pṛcchati kiṃ bhavān āheti | śabdapūrvakaś cārthasya saṃpratyaya iha ca vyākaraṇe śabde kāryasya sambhavo ’rthe ’sambhavas tasmād arthanivṛttiḥ |*

⁷¹*Vārttika* 3 on A 1.1.68: *saṃjñāpratiśedhaś cānarthakyaṃ vacanaprāmāṇyāt* (MBh I.176.11).

⁷²Candotti (2004: 101) suggests that these are *saṃjñā* words which are not defined in the grammar.

the meaning of the rules where they are operated on.⁷³ Patañjali clarifies: “There will be understanding of the denotation through the meaning of the rule. When an operation is stated with regard to *mantra*, *ṛc* and *yajus*, it is impossible to apply it to the words *mantra*, *ṛc*, *yajus*; so there will be understanding of that meaning which is associated with *mantra* etc. through association.”⁷⁴

At this point, Kātyāyana seems to give up on rescuing the *sūtra*, and moves on to a proposal that words denoting their synonyms and hyponyms be given special *anubandhas*. *Vārttika* 5 states: “The *anubandha S* (must be taught) for the sake of *vr̥kṣa*, etc. (that denote) their species.”⁷⁵ The reference is to A 2.4.12 *vibhāṣā vr̥kṣasamṛgatṛṇadhānyavyañjanapaśuśakunyaśva-vaḍavapūrvāparādharrōttarāṇām*, which teaches that words denoting species of trees, animals, grasses, cereals, condiments, domestic animals and birds can optionally⁷⁶ be compounded in a singular *dvandva*, as well as teaching the irregular compounds *aśvavaḍava*, *pūrvāpara* and *adharōttara*. Here, *vr̥kṣa* (and likewise *mṛga*, etc.) denotes names of species of trees and not the word *vr̥kṣa* itself. Kātyāyana proposes that such words be marked with an *anubandha S*. In the subsequent *Vārttikas*, Kātyāyana proposes that words denoting both themselves and their synonyms be marked with *P*;⁷⁷ that words denoting their synonyms only be marked with *J*;⁷⁸ and that words denoting both themselves and their hyponyms be marked with *JH*.⁷⁹ The relation of these *Vārttikas* to the preceding discussion is not clear; it may be that they are intended to replace A 1.1.68 or to augment it, and both interpretations seem to appear in the commentaries (Candotti 2004: 103). Nonetheless, this is obviously an instance where Kātyāyana has identified an ambiguity in the syntax of Pāṇini’s system and has proposed a solution to remove that ambiguity.

One striking aspect of the *Mahābhāṣya* discussion is that the ‘special’ status of words in grammatical rules is deemed so obvious that there is no need to state it explicitly. The correct understanding of rules can be arrived at through a straightforward interpretative effort; in fact, the required effort

⁷³ *Vārttika* 4 on A 1.1.68: *mantrādyartham iti cec chāstrasāmarthyād arthagateḥ siddham* (MBh I.176.21).

⁷⁴ MBh I.176.22–24 *śāstrasya sāmartyād arthasya gatir bhaviṣyati | mantra ṛci yajuṣṭi yad ucyate mantraśabda ṛkśabde ca yajuṣśabde ca tasya kāryasya sambhavo nāstīti kṛtvā mantrādisahacarito yo ’rthas tasya gatir bhaviṣyati sāhacaryāt ||*

⁷⁵ *Vārttika* 5 on A 1.1.68 *sit tadviśeṣāṇām vr̥kṣādyartham* (MBh I.176.25).

⁷⁶ Kiparsky (1979) argues that *vibhāṣā* is used by Pāṇini to express a dispreferred option.

⁷⁷ *Vārttika* 6 on A 1.1.68: *pit paryāyavacanasya ca svādyartham* (MBh I.177.3).

⁷⁸ *Vārttika* 7 on A 1.1.68: *jit paryāyavacanasyaiva rājādyartham* (MBh I.177.7).

⁷⁹ *Vārttika* 8 on A 1.1.68: *jhit tasya ca tadviśeṣāṇām ca matsyādyartham* (MBh I.177.12).

is the same as that required in the world when somebody uses a name one does not understand. It can be concluded that in general, Kātyāyana and Patañjali viewed the difference between language in grammar and language in the world not as one of ontology, but simply one of context or usage. On the other hand, the sophisticated theory of denotation found in the *Vākya-padīya* recognises a clear distinction between the language of grammar and the language of the world, though Bhartṛhari too draws parallels between the methods for interpreting grammatical rules and worldly statements.

A 1.1.68 has inspired much philosophical theorising, probably more than any other Pāṇinian rule. *Vārttikas* 5–8 on this rule also demonstrate that the early commentators were willing to refine Pāṇini’s syntax where it was seen to exhibit ambiguity. If the progress of metalinguistic syntactic thought did not match the significant advances in metalinguistic semantic analysis, this may be due to the semi-religious status which Pāṇini’s text acquired in the eyes of later *Pāṇinīyas*, which prevented any modifications of the rules as they had been handed down. Semantics, on the other hand, is a science of interpretation, and progress in semantic theory is not dependent on changes in the text itself.⁸⁰

3.3 Pāṇini’s technical vocabulary

As was noted in the previous section, Pāṇini uses many words to specify the character of grammatical operations. These words can be distinguished from the words which denote the subjects of those operations. They are not all explicitly defined; many are unexplained in the grammar, whether they used in a specialised sense or in the same sense they have in the world. They constitute a heterogeneous group – we have monosyllabic artificial terms, *pratyāhāras*, words also occurring in normal Sanskrit but redefined by Pāṇini, and words occurring in their standard sense. Nonetheless, they can usefully be treated together as terms whose reference is not fixed by the quotational mechanism indicated by A 1.1.68. In each case, it is appropriate to ask why a particular term is used, why it denotes what it does, and whether it is used unambiguously in the grammar.⁸¹

The character of monosyllables such as *gha* and *ṭi* is straightforward.

⁸⁰Of course, this is merely an enabling factor; the achievements of Bhartṛhari were also due to the intellectual climate of contemporary India, which was highly conducive to semantic and philosophical debate (cf. Raja 1963).

⁸¹The last question is also pertinent in the case of quotational forms. If the word *karaṇa* appears in a rule, how are we to know that it does not teach an operation on the phonetic form *karaṇa*? Here also an interpretive process is required.

They have no meaning in colloquial Sanskrit, and their denotation is fixed by the relevant *saṃjñāsūtras*.⁸² There is no reason for thinking that these assignations are anything but arbitrary. In the case of *pratyāhāras* such as *aC* and *haL*, their denotation is fixed by the structure of the *Śivasūtras* and the rule A 1.1.71 *ādir antyena sahetā*. As for the *Śivasūtras*, their form was probably established for the purpose of facilitating optimally concise phonemic generalisations.⁸³

When we consider words that are used both in the grammar and in non-grammatical Sanskrit, things become less clear. An interpretative effort is often required to determine whether a word is used in its technical sense or its colloquial sense in a particular statement. The *sūtra* A 1.1.23 *bahugaṇavatudati saṃkhyā* teaches that the words *bahu* ('many'), *gaṇa* ('group') and words ending in the suffixes *-vatU* and *-Dati* are called *saṃkhyā*.⁸⁴ This is an ordinary Sanskrit word meaning 'number'. Terms called *saṃkhyā* are subject to certain processes of word-derivation. For example, A 5.3.42 *saṃkhyāyā vidhārthe dhā* teaches that the suffix *-dhā* follows a *saṃkhyā* word in the sense of manner; hence *bahudhā* ('in many ways'), *katidhā* ('in how many ways?'). Now ordinary number words are also subject to the derivational processes described in these rules; we have *ekadhā* ('in one way'), *dvidhā* ('in two ways') etc. It follows that these ordinary number words must also be called *saṃkhyā*, as is the case in colloquial Sanskrit, despite not being defined as such.

This issue is taken up in the *Mahābhāṣya* discussion on A 1.1.23. Kātyāyana worries that the numbers such as *eka* will not be included in the designation of *saṃkhyā* due to the non-artificiality (*akṛtrimatva*) of these meanings.⁸⁵ Patañjali explains the problem: there is a general principle in the world that when a term has both an ordinary and an artificially given meaning, the latter takes precedence.⁸⁶ He gives the following example:

In the world, if it is stated: 'bring Gopālaka!' or 'bring Kaṭa-

⁸²*Gha* is defined by A 1.1.22 *taraptamapau ghaḥ*, and *ṭi* by A 1.1.64 *aco 'tyādi ṭi*.

⁸³See Cardona (1969). Petersen (2003) has also demonstrated that the *Śivasūtras* themselves are optimally constructed in that no shorter ordering of sounds could produce the same generalisations.

⁸⁴Joshi & Roodbergen (1991: 29) argue that as this rule has been "badly phrased" and as the term *saṃkhyā* is only used in the *taddhita* section (which they consider an interpolation in its entirety), this rule was not written by Pāṇini. As my main interest here is the *Mahābhāṣya* commentary, the question of its status in the original text is not relevant.

⁸⁵*Vārttika* 3 on A 1.1.23: *itarathā hy asaṃpratyayo 'kṛtrimatvādyathā loke* (MBh I.80.11).

⁸⁶MBh I.80.13–14 *kṛtrimākṛtrimayoḥ kṛtrime kāryasaṃpratyayo bhavati yatha loke* |

jaka!’, those who have these names are brought, not those who protect the cows or were born on a mat.⁸⁷

By the same principle, once the name *saṃkhyā* has been assigned in a conventional way, it can no longer denote its ordinary meaning. Yet there is a (perhaps surprising) solution:

Things are not the same in grammar as in the world. Here there is understanding of both (meanings). This is also the case elsewhere, not necessarily just here. For example: in (A 1.4.49) *kartur īpsitatamaṃ karma* the name *karman* is artificial. But in the applications of *karman* there is understanding of both meanings. In (A 2.3.2) *karmaṇi dvitīyā* there is mention of the artificial (meaning); in (A 1.3.14) *kartari karmavyatihāre* there is mention of the non-artificial (meaning).⁸⁸

In A 2.3.2, the term *karman* is used in its technical sense of the patient *kāraka* relation (taught by A 1.4.49), but in A 1.3.14 it is used in its normal sense of ‘action’. Patañjali proceeds to note that the *kāraka* terms *karāṇa* and *adhikarāṇa* are also used in both *kr̥trima* and *akr̥trima* senses.⁸⁹ Cardona (1970: 197–198) remarks that many other terms are used in a similarly ambiguous fashion; for example, *vṛddhi* is used to refer to the sounds {*ā ai au*} in rules such as A 1.1.3, but means ‘interest charged on a loan’ in A 5.1.47. The fundamentally ambiguous nature of Pāṇini’s usage in this respect is brought out well by Kielhorn’s (1960: 47) translation of the *paribhāṣā ubhayagatir iha bhavati* (see footnote 88): “Here (in grammar a word) possesses both (its technical and its ordinary meaning; viz. sometimes both in one and the same place, sometimes only the one, and sometimes only the other).”

Pāṇini also uses a number of terms as if they have a specialised meaning, but without defining them. This raises the question of whether a systematic principle is adhered to in the definition of some terms and non-definition of others. One possibility is that Pāṇini only defined those terms which he did not borrow from previous scholars and which would therefore be

⁸⁷MBh I.80.14–16 *loke goplakam ānaya kaṭajakam ānayeti yasyaiṣā saṃjñā bhavati sa ānīyate na yo gāḥ pālayati yo vā kaṭe jātaḥ |*

⁸⁸MBh I.81.7–11 *na yathā loke tathā vyākaraṇe | ubhayagatīḥ punariha bhavati | anyatrāpi nāvaśyam ihaiva | tadyathā | kartur īpsitatamaṃ karma iti kr̥trimā karmasaṃjñā | karmapradeśeṣu cobhayagatir bhavati | karmaṇi dvitīyā iti kr̥trimasya grahaṇaṃ kartari karmavyatihāre ityākṛtrimasya.* The statement *ubhayagatir iha bhavati* is considered a *paribhāṣā* by the tradition; cf. PBhŚ, *Paribhāṣā* 9.

⁸⁹MBh I.81.11–16

unknown to the reader. This suggestion is, however, not tenable.⁹⁰ It is known that Pāṇini does define some borrowed terms.⁹¹ For example, the words *udātta*, *anudātta* and *svarita* denoting the different accents are known from pre-Pāṇinian phonetics, yet they are explained (without any change or restriction of meaning) in A 1.2.29–31. It is certainly not the case that Pāṇini provides definitions of all the phonetic/phonological terms he uses – *āsyaprayatna* (‘articulatory effort in the mouth’), and *oṣṭhya* (‘labial’) are among such undefined terms. A familiarity with phonetic theory is in fact a prerequisite for the study of the *Aṣṭādhyāyī*.⁹² Cardona (1997: 142) claims that Pāṇini provided definitions of the accents because of their use in the structure of the (originally accented) *Aṣṭādhyāyī* text; by A 1.3.11 *svaritenādhikāraḥ*, *adhikāra* headings are pronounced with a *svarita* vowel. Yet this only accounts for a single case, and does not explain why terms such as *hrasva*, *dīrgha* and *pluta* (denoting different vowel-lengths) are also taught (by A 1.2.27).

In view of these problems, it might seem tempting to conclude that Pāṇini chose his definitions in a rather haphazard way. Kiparsky (1979) rejects this possibility, and argues “that the *saṃjñā* rules are fully as systematic as the *vidhi* rules, and that they have been introduced for precise structural reasons, not copied arbitrarily from earlier grammatical works” (p. 209).⁹³ He posits a fundamental dichotomy between ‘theoretical terms’, which are those terms that Pāṇini defines, and ‘primitive terms’, which are the undefined terms known from other disciplines and from ordinary Sanskrit. These latter are “taken as the basic elements out of which the system of grammar is constructed” (p. 213); they are used in the definition of technical terms. For example, in A 1.1.60 *adarśanaṃ lopaḥ*, the technical term for phonetic zero

⁹⁰Meenakshi (2002) nonetheless endorses this principle: “These terms which are not explained by Pāṇini are supposed to be well known from the earlier texts. As such they can be understood without any further explanation.” (p. 237)

⁹¹Kiparsky (1979: 214) reports that Saroja Bhate’s 1970 thesis *Prepāṇinian Grammatical Elements in Pāṇini’s Aṣṭādhyāyī* lists 49 terms that are defined by Pāṇini despite being known from pre-Pāṇinian works and 64 terms that are unknown from pre-Pāṇinian works yet undefined by Pāṇini. Obviously the former statistic bears more weight, as we cannot know what terms were used in works that have been lost.

⁹²Cf. MBh I.208.19–20 *vyākaraṇaṃ nāmeyam uttarā vidyā | so ’sau chandaḥśāstreṣu abhivinīta upalabdhyāvagantuṃ sahate* “Grammar is a later science. He who is well-versed in the works of *chandas* can understand (it) through his knowledge.” Here Cardona (1997: 142) translates *chandaḥśāstrāṇi* as “works relative to Vedic texts” and notes that these include the *prātiśākhya* and *śikṣā* texts, while Joshi & Roodbergen (1993: 44) have “the treatises dealing with prosody (and phonetics)”.

⁹³It is worth noting that Kiparsky uses *saṃjñā* in the sense of ‘technical term of the grammar’.

(*lopa*) is defined in terms of the primitive term ‘non-seeing’ (*adarśanam*). Technical terms are restricted to what is *śiṣya* (‘to be taught’) in grammar, and concepts which do not reflect grammatically significant phenomena are not given definitions. Hence, Pāṇini does not define phonetic terms which are not used to define grammatical operations on *upadeśa* forms or ‘underlying representations’.⁹⁴ A 1.1.71 provides a schematic definition of the *pratyāhāras* because they are tools of the grammar. Additionally, features of nasality,⁹⁵ vowel-length⁹⁶ and accent⁹⁷ are defined because they condition grammatical operations.⁹⁸ Kiparsky outlines three important principles of the *saṃjñā* system:

1. *Systematicity*: Pāṇini recognises a strictly delimited domain as proper

⁹⁴On the term *upadeśa* see section 4 below.

⁹⁵Nasal vowels are given the name *anunāsika* by A 1.1.8 *mukhanāsikāvacanō ’nunāsikaḥ*. A 1.3.2 *upadeśe ’j anunāsika* it teaches the name *it* for nasalised vowels in *aupadeśika* forms.

⁹⁶A 1.2.27 *ūkālo ’j jhrasvadīrghapluṭaḥ* teaches the names *hrasva*, *dīrgha* and *pluta* for short, long and prolated vowels, respectively. The distinction between short and long vowels is phonemic in Sanskrit, in that it is sufficient to distinguish different word-forms. Kiparsky comments that prolated vowels do not appear in *aupadeśika* forms and play a marginal role in the grammar (p. 221–222, fn. 17); therefore they need not be given a technical name, but the word *pluta* is included here so that it can recur in A 1.2.28.

⁹⁷As mentioned above, A 1.2.29–31 teach the names *udātta*, *anudātta* and *svarita*. Kiparsky’s explanation for their inclusion is that *aupadeśika* forms such as *ásva* are accented, and accents also play a diacritical role in marking verbal roots and other elements. Joshi & Roodbergen (1993: 47) agree that this is the reason for the teaching of names for the accents: “The reason is that they belong to Pāṇini’s *upadeśa* system in which they serve as conditions for grammatical operations.”

⁹⁸Kiparsky mentions three phonetic categories for which Pāṇini has preserved pre-Pāṇinian terms: *mūrdhanya* (‘retroflex’), *oṣṭhya* (‘labial’) and *dantya* ‘dental’. As Cardona (1969: 23–24) observes, Pāṇini uses such older terminology when he cannot produce an equivalent *pratyāhāra* or *savarṇagrahaṇa*. For example, the term *oṣṭhya* is used in A 7.1.102 *udoṣṭhyapūrvasya* to denote all labial consonants. If Pāṇini had used *pU*, *v* would have been wrongly omitted. Kiparsky explains that such terms were “each used only once in a more or less *ad hoc* way where a suitable theoretical terms [sic] of grammar was not available” (p. 221). Given the systematic use of technical terms which Kiparsky ascribes to Pāṇini, it is odd that these terms (which certainly refer to significant properties of underlying forms) are not defined, also that Kiparsky seems willing to accept this inconsistency. The use of *dantya* in A 7.3.73 *lug vā duhadihalihaguhām ātmanepade dantye* has caused much confusion. It is assumed that Pāṇini avoided the use of the term *tU* in order to denote more than just the dental stops. However, the nature of that additional dental sound is unclear – the KV on this rule states that *v* is intended, Kiparsky (1979: 161–167) suggests that Pāṇini wished to include *r*, but both accounts have been rejected by Deshpande (1981), who is nonetheless unable to offer a satisfactory solution. Cardona (1999: 209) merely reports that he considers Deshpande’s refutation of Kiparsky to be correct.

to grammatical analysis. He defines all terms that fall within that domain, and does not define terms that fall outside it.

2. *Simplicity*: Pāṇini seeks to avoid providing redundant information.
3. *Consistency*: Once Pāṇini has introduced a technical term to denote a given concept, he does not use any other technical or primitive term to denote that concept.

Kiparsky’s analysis has much to recommend it, and does seem to account for a general trend in Pāṇini’s practice that is in need of explanation. Yet that is not to say that his analysis is unproblematic. As Kiparsky himself admits (p. 224–226), there are some important terms which Pāṇini would have been expected to define but does not, namely *vākya* (‘sentence’), *śabda* (‘linguistic item’) and the names for case endings *prathamā*, *dvitīyā*, etc.⁹⁹ On *vākya*, he suggests that the entire *Aṣṭādhyāyī* could be understood as an extensional definition of the term, as the grammar distinguishes sentences from non-sentences.¹⁰⁰ On *śabda*, he is forced to conclude that Pāṇini either considered the term to be outside the proper domain of grammar or was unable to formulate a definition of the term. Nor can he satisfactorily explain the non-definition of the names for case endings, though he mentions a suggestion of S. D. Joshi that they are not technical terms but rather stand for *prathamā vibhakti* and so on (p. 226).¹⁰¹

Furthermore, there are some theoretical flaws in Kiparsky’s proposal. He writes (p. 226): “What is truly remarkable is not that Pāṇini has had to take *vākya* and *śabda* as primitives and omitted to define the case terms, but that he has been able to reduce practically the whole theoretical edifice of grammar in a precise way to primitive terms, which can be understood outside of grammar.” He also compares the use of primitive metagrammatical terms such as *sthāna*, *ādeśa* and *vipratīṣedha* to the axiomatic symbols

⁹⁹See also footnote 98 on page 30.

¹⁰⁰Subsequent commentators also viewed this as a *lacuna* to be filled. Kātyāyana defines *vākya* as an expression consisting of a single finite verb accompanied by related indeclinables, verbal arguments and qualifying words: *Vārttika* 9 on A 2.1.1 states *ākhyātam sāvayakāra-kaviśeṣaṇam vākyam*, and *Vārttika* 10 on the same rule states *ekatīn* (MBh I.367.10 and 16). However, this definition is deficient, despite having been adopted by the tradition (Deshpande 1987).

¹⁰¹Of course, it would seem to violate the principle of systematicity were Pāṇini to use a non-technical formulation here. Cardona (1997: 38–39) remarks on this point that “It is reasonable to accept that Pāṇini took over these terms from an earlier grammatical tradition and that they were so well known that he could assume students of his grammar would understand them.” Kiparsky cannot accept this explanation as it is incompatible with his theory.

of generative grammar (p. 218). This comparison is not entirely cogent – the Pāṇinian terms he lists are used in *paribhāṣā* and *saṃjñā* rules alone, and Pāṇini is indeed justified in using non-technical terms as the foundation on which the technical system is constructed. However, the axiomatic terms of generative grammar that he refers to (the arrow, slash and dash) are in fact used in operational rules, and should more accurately be compared to terms such as *chandas*, *upadeśa*, *tatra* and *anapatya*. Modern axiomatic systems such as generative grammar seek to use a minimal number of primitive terms in the formulation of rules. Pāṇini clearly did not have such a goal, as the primitive terms he uses outnumber the technical terms.

On the whole, Pāṇini does adhere to Kiparsky’s three principles. Yet there is a further principle of formal systems which is neither mentioned by Kiparsky nor respected in the *Aṣṭādhyāyī*.¹⁰² It is a defining characteristic of a formal system that terms be used unambiguously, and that context play no role in their interpretation. This is why the minimal use of primitive terms is desirable. Clearly, this principle is not at play in the *Aṣṭādhyāyī* – it may be the case that once Pāṇini has defined a technical term, he generally does not use any synonymous terms, but as we have seen, he does not refrain from using technical terms in non-technical senses. No principle other than contextual interpretation can tell whether *karman* is used in a given rule to denote the patient of an action or to denote the action itself, nor indeed whether a given word is used as an *anukaraṇa* form or not. It therefore does not seem correct to characterise Pāṇini as a formal linguist in the modern sense.

As we have seen, Pāṇini’s technical vocabulary contains many words that also occur in non-technical Sanskrit. These words are known as *mahatyaḥ saṃjñāḥ* (‘long designations’). The question arises as to why he has used such borrowed terms in some cases, and used neologisms (*gha*, *ṭi*, etc.) in others, especially as the use of the former leads to ambiguities throughout the grammar. It is known that other grammarians used monosyllabic terminology more frequently than Pāṇini: for example, the *Jainendravākyakaraṇa* uses *ep* for *guṇa* and *aip* for *vṛddhi*, and Vopadeva uses *da* for *pada* and *li* for *prātipadika* (Cardona 1969: 28). For this reason, Cardona (1969: 30) describes Pāṇini as “conservative” in his use of traditional and derivationally transparent terminology. Kiparsky (1979: 210) takes a rather extreme position on this issue: “It would make no difference whatever for the operation

¹⁰²As well as its implicit role in underpinning Kiparsky’s account of the *saṃjñā* system, the claim that the *Aṣṭādhyāyī* is a truly formal system is at least once stated explicitly: it is described as “a formal theory of an empirical subject matter” (p. 215). As a linguist, Kiparsky is certainly aware of the precise meaning of ‘formal theory’.

of the grammar if, for example, all occurrences of *sārvadhātuka* were replaced by *aṅga* and simultaneously all occurrences of *aṅga* were replaced by *sārvadhātuka*. The etymological value of *sārvadhātuka*, and its parallelism with *ārdhadhātuka*, is never formally exploited in the system. . . In any case, such outside meanings [of *mahatyaḥ saṃjñāḥ*] have at most a mnemonic value and are strictly irrelevant within the theory.” This is certainly not the view of the commentators, and it is difficult to reconcile it with the empirical facts of the *Aṣṭādhyāyī*. While in many cases (such as *ārdhadhātuka* and *aṅga*) the non-technical meaning of terms is irrelevant, in others access to non-technical meanings is necessary for the correct application of rules. The term *saṃkhyā* must retain its ordinary denotation in addition to its taught meaning in order to license the derivation of correct forms such as *ekadhā*, etc.

The commentators often state that the fact that in certain cases where Pāṇini uses a *mahatī saṃjñā*, this is an indication that the non-technical meaning of the term is to be taken into account.¹⁰³ In the *Bhāṣya* discussion on A 1.1.23, after discussing the principle of *ubhayagatir iha bhavati*, Patañjali offers an alternative explanation of the dual denotation of *saṃkhyā*:¹⁰⁴

Or rather, the *saṃjñā* is created long. But the name *saṃjñā* is given to that than which there is nothing shorter. Why is this? Because the creation of *saṃjñās* is for the purpose of brevity. Where there is the creation of long *saṃjñās*, this is so that they may be known to be in accordance with their (analytical) meaning (*anvartha*). Numbers (*saṃkhyā*) are such that one counts

¹⁰³It is true that the commentators sometimes draw unusual conclusions from the use of *mahatyaḥ saṃjñāḥ*. In the *Bhāṣya* discussion on A 1.1.44 *na veti vibhāṣā*, Patañjali states that Pāṇini has used the long term *vibhāṣā* so that it can refer to two objects, namely *na* and *vā*: *tatra mahatyaḥ saṃjñāyāḥ karaṇa etat prayojanam ubhayoḥ saṃjñā yathā vijñāyeta neti ca veti ca* (MBh I.103.19–20). That others have sometimes overapplied this principle is not Pāṇini’s fault.

Within the framework of Bhartṛhari’s sophisticated metasemantic theory, it is held that the assignation of a given technical meaning to a *mahatī saṃjñā* is on the basis of its form alone (just as in the definition of artificial terms), but that from the ordinary meaning of the term, the reason for the its use can be inferred (VP II.371 *śāstre ’pi mahatī saṃjñā svarūpopanibandhanā | anumānam nimittasya saṃnidhāne pratīyate*). This is obviously an advance in terms of theoretical rigour, but it does not depart from the position that the ordinary meanings of *mahatyaḥ saṃjñāḥ* have a role to play in the grammar.

¹⁰⁴The suggestion of this alternative does not remove the need for the *ubhayagati*-principle, as the solution suggested here only applies to terms that simultaneously designate their technical and non-technical meanings and does not affect words such as *karman* that designate their technical meanings in one rule and their non-technical meanings in another.

with them (*saṃkhyāyate 'nayā*). One also counts with ‘one’, etc.¹⁰⁵

The statement *athavā... vijñāyeta* is a formula which Patañjali employs a number of times in the *Mahābhāṣya*. While his attribution to Pāṇini of a preference for terminological brevity may not be accurate,¹⁰⁶ it is hard to avoid the conclusion that Pāṇini sometimes does intend for analytical and colloquial meanings to affect the use of technical terms.¹⁰⁷ In fact, the manner in which Pāṇini mixes the technical and non-technical meanings of words is exactly what permits the use of *anvartha* interpretations in correctly applying the rules of the grammar.

3.4 Summary

The preceding sections have highlighted the fact that the language of Pāṇini’s rules is often ambiguous, and requires a level of active interpretation, just as the comprehension of ordinary language is dependent on factors of context and prior belief. Indeed, there is no sign that Pāṇini saw such ambiguity as undesirable. Where he valued a certain property of the grammar,

¹⁰⁵MBh I.81.26–29 *athavā mahatīyaṃ saṃjñā kriyate saṃjñā ca nāma yato na laghūyaḥ | kuta etat | laghvarthaṃ hi saṃjñākaraṇam | tatra mahatyāḥ saṃjñāyāḥ karaṇa etat prayojanam anvarthasaṃjñā yathā vijñāyeta | saṃkhyāyate 'nayā saṃkhyeti | ekādīkayā cāpi saṃkhyāyate ||*

¹⁰⁶It has often been observed that Pāṇini did not place a high value on short designations (e.g. Cardona 1969: 28–30). He retains terms such as *vṛddhi* where *aip* would have done just as well, and where the colloquial meaning of the word is not exploited. The oft-quoted aphorism that grammarians rejoice over the saving of half a mora as much as over the birth of a son (PBhŚ, *Paribhāṣā* 122 *ārdhamātrālāghavena putrotsavaṃ manyante vaiyākaraṇāḥ*) has no basis in Pāṇinian practice. Pāṇini is concerned with informational brevity of the sort that arises from generalisation and the elimination of redundancy. He does replace traditional terms for the tenses with the *lakāras* *IAṬ*, *IIṬ*, *IUṬ*, etc. because the structure of the terms captures the commonalities and differences in the behaviour of the tenses. Smith (1992) describes some cases where the desire for generalisation through the use of *anuvṛtti* prevails over other considerations of rule-ordering.

¹⁰⁷Another such case is that of *sarvanāman* (‘pronoun’), taught by A 1.1.27 to designate the words *sarva*, etc. (as listed in the *Gaṇapāṭha*). Kātyāyana states that an exception must be stated to the effect that such words are not treated as *sarvanāman* when used as names or as subordinate members of compounds (*Vārttika* 2 *saṃjñōpasarjanapratishedhaḥ*). Hence, the dative singular of *sarva* (‘every’) when used as a pronoun is *sarvasmai*; but when *sarva* is used as a name or in a compound such as *atisarva* (‘all-surpassing’), we have the standard nominal forms *sarvāya* and *atisarvāya*. Patañjali rescues the situation by invoking the formula *athavā mahatīyaṃ saṃjñā kriyate... vijñāyate* and pointing out that pronouns are such that they are names for everything (*sarveṣāṃ nāmānīti cātaḥ sarvanāmāni*) whereas names and subordinate members of compounds denote particulars (*saṃjñōpasarjane ca viśeṣe 'vatiṣṭhete*). (MBh I.80.27–I.81.3).

such as generality and the elimination of redundancy, he was highly capable of optimising that property. Moreover, certain operations exploit this inherent ambiguity, as in the case of the term *saṃkhyā*.

From a historical perspective, it seems likely that the *Aṣṭādhyāyī* did constitute an advance in the formalisation of grammar. In his *Nirukta*, Yāska defines a verb as that which denotes an action and a noun as that which denotes an object.¹⁰⁸ Pāṇini, on the other hand, does not use purely semantic definitions. A verbal root (*dhātu* is defined as being either one of the roots listed in the *Dhātupāṭha* or as the products of affixation by the derivational affixes taught in rules A 3.1.5–30.¹⁰⁹ A nominal base is defined as a meaningful element which is not a verb, affix or an item ending in an affix, or as the product of the *kṛt*, *taddhita* and *samāsa* derivational processes.¹¹⁰ Admittedly, the first definition of *prātipadika* in A 1.2.45 does contain a semantic factor, but this could be viewed as evidence that formalisation was an ongoing process. Pāṇini similarly defines the compound classes *bahuvrīhi*, etc. by referring to the rules that produce them, whereas some commentators provide semantic definitions (Cardona 1976a: 213). Deshpande (1991: 465) also perceives a trend towards formalisation in the formulation of Pāṇini’s *kāraṇa* rules: “One strongly feels that he is trying to bridge a gap between a set of preformal or culturally evident categorizations and a set of formal categorizations.” Pāṇini has conventionalised ellipsis (a phenomenon of natural language) in a generally systematic manner (Joshi & Bhate 1984). It should therefore not be concluded that Pāṇini was averse to formalisation. However, any desire for extensive formalisation would have come into conflict with other principles of the grammar, in particular the need for contextual interpretation of the rules. It is conceivable that post-Pāṇinian grammarians might have taken the process of formalisation even further (Kātyāyana’s *Vārttikas* 5–8 on A 1.1.68 are evidence of some willingness), but the radical textual modifications which would have been necessary may not have been deemed acceptable.

It was shown that the *saṃjñā*-system is well-principled in the sense that it obeys Kiparsky’s three principles of systematicity, simplicity and consistency; however, it does not possess the property of formality. A similar verdict applies to the quotational system underlied by A 1.1.68; this is not surprising, as it is an extension of the *saṃjñā*-system. Given the comple-

¹⁰⁸ *bhāvapradhānam ākhyātaṃ sattvapradhānāni nāmāni* (*Nirukta* 1.1, quoted by Deshpande 1991: 468). I am by no means suggesting that Yāska preceded Pāṇini; rather that Pāṇini’s theory constituted an advance on contemporary theories in terms of formalisation.

¹⁰⁹ A 1.3.1 *bhūvādayo dhātavaḥ*; A 3.1.32 *sanādyantā dhātavaḥ*.

¹¹⁰ A 1.2.45 *arthavad adhātur apratyayaḥ prātipadikam*; A 1.2.46 *kṛttaddhitaamāsās ca*.

mentary nature of the *paribhāṣā*- and *saṃjñā*-systems in the metagrammar, it is also salient to consider whether Pāṇini's use of the case endings adheres to the three principles proposed by Kiparsky. It can probably be stated that it is systematic – the functions taught by A 1.1.49, A 1.1.66 and A 1.1.67 certainly belong to the domain of grammar. Perhaps Pāṇini could have taught appropriate meanings for the other case endings, in particular the accusative and instrumental which are rarely used, but this is not a serious objection. Pāṇini's usage also respects simplicity, in that it removes the need for including *sthāne*, *pūrva* and *para* in hundreds of rules each. It is also consistent, in that Pāṇini almost never uses synonymous formulations (such as with *pūrva* or *para*), and only does so where it is unavoidable. Yet just as the use of case endings parallels the use of technical terms in the principles it obeys, there is also a parallel in that it does not conform to the principle of formality. A genitive, locative or ablative case ending can be interpreted in different ways, depending on the context.

In view of these considerations, the metalanguage of the *Aṣṭādhyāyī* cannot be considered to be a formal language. It seems more appropriate to describe it as a semi-formalised variety of a natural language (i.e. Sanskrit). Hence Cardona (1973: 218) is largely correct when he writes: "Sanskrit is the language used by Pāṇini in his grammar. The student of this grammar is assumed to know Sanskrit, to have a full knowledge of the uses accounted for by the rules noted." Without competence in the general interpretative processes of natural language (and, of course, a knowledge of Sanskrit), the grammar is not usable.

4 On the Use of the Term 'Metalanguage'

One of the first uses of the term 'metalanguage' in connection with the *Aṣṭādhyāyī* was in Staal (1961),¹¹¹ who wrote (p. 123) that "The technical terms belong to the metalanguage, otherwise consisting of the *paribhāṣā* rules which are rules of interpretation or rules which indicate how the rules of grammar have to be manipulated." The term thereafter entered common usage as a way to refer to the language of Pāṇini's rules, though often in a rather inexact way. In the same paper, Staal suggests that "The status of a *paribhāṣā* corresponds to the status of a metatheorem in modern logic" (also p. 123); however, the translation 'metarule' has found more widespread favour (possibly to avoid the theoretically loaded nature of 'metatheorem').

¹¹¹According to Staal (1975: 315), the term was also used in that year by Hartmut Scharfe in his *Die Logik im Mahābhāṣya*; I have not been able to consult this work.

The term ‘metalanguage’ was first used in the field of formal logic; it was introduced by Alfred Tarski in a 1933 Polish article called “The concept of truth in the languages of the deductive sciences”.¹¹² Tarski was motivated by the need to devise a theory of truth in a language which would not be susceptible to certain paradoxes, notably the famous Liar Paradox.¹¹³ He concluded that the solution was to formulate the theory of truth for a given language (the object-language; call it L_1) in terms of a second language (the metalanguage; call it L_2). The metalanguage would be capable of expressing facts about expressions of the object-language, but the converse would not apply. To express facts about L_2 , a third language (L_3) would be required; L_3 would then be a metalanguage whose object-language would be L_2 . Hence, it is false to say that one language is essentially a metalanguage, and that another is an object-language; the properties of being a metalanguage or an object-language are relational.

The clear distinctions that can be maintained between metalanguage and object-language in the analysis of formal languages do not hold up where natural languages are concerned. For every natural language can be used as its own metalanguage, and such use is so commonplace that we are barely aware of it. Any expression of English (for example) can be denoted by a term also belonging to the English language – we can frame the expression in quotation marks, or italicise it, or we can use a marked intonation, or we can say *that word* or *this sentence*. In (non-grammatical) Sanskrit, we can add the word *iti* after any expression. This characteristic of ‘universality’ led Tarski to reject natural languages as unsuitable for metalinguistic usage.

Although the opposition ‘metalanguage’/‘object-language’ clearly does not apply to the *Aṣṭādhyāyī* in its Tarskian sense, it seems appealing to use it in a broader sense of ‘language used for description’/‘language to be described’. Indeed, the early commentators were conscious of such an opposition. Kātyāyana distinguished between *lakṣaṇa* and *lakṣya* in this manner. *Vārttika* 14 in the *Paspaśāhnika* of the *Mahābhāṣya* proposes that the word *vyākaraṇa* means *lakṣyalakṣaṇe* ‘what is to be described and the description’;¹¹⁴ Patañjali explains that *lakṣya* means the words, and *lakṣaṇa* means the body of rules.¹¹⁵ It is not relevant that Patañjali ultimately

¹¹²*Pojecie prawdy w językach nauk dedukcyjnych*; Tarski (1956) is an English translation of an expanded German version which appeared in 1935 (see bibliography).

¹¹³Exemplified by the statement “This sentence is false”.

¹¹⁴*Vārttika* 14: *lakṣyalakṣaṇe vyākaraṇam* (MBh I.12.15). On the terms *lakṣya/lakṣaṇa* and their use in other disciplines, see Biardieu (1957) and Staal (1961).

¹¹⁵MBh I.12.17 *śabdo lakṣyaḥ sūtram lakṣaṇam* |

rejects this proposed interpretation of *vyākaraṇa*;¹¹⁶ the distinction between descriptum and description is not rejected. Pāṇini himself uses the term *upadeśa* to refer to the text of the *Aṣṭādhyāyī*.¹¹⁷ The *Kāśikā* glosses the word as *upadiśyate 'nena* “it is taught by that”; that is, the *upadeśa* is the instrument of teaching, the statements of the grammar.¹¹⁸ In the *Bhāṣya* discussion on A 1.1.22 *taraptamapau ghaḥ*, Patañjali states that the word *taraP* is *aupadeśika* (‘belonging to the *upadeśa*’), in recognition of the fact that words in the worldly language do not bear *anubandhas*:

Here in grammar whenever there is mention (of words) with *anubandhas*, the form is taken into account, as in ‘where this has that form (an operation applies)’. But there is no apprehension of a word unless there is usage (of it) in the world. Given that in worldly usage, there is no use of (words) with *anubandhas*, a second usage is considered. What is that? That which is called *upadeśa*.¹¹⁹

It was shown in section 3 that Patañjali viewed grammar as a distinct context of usage. As such, the language of grammar may (like any context) have particular conventions of interpretation without exceeding the bounds of the normal Sanskrit language. There is therefore no surprise in his characterisation of the *upadeśa* as a *dvitīyaḥ prayogaḥ*. On the other hand, it is impossible to ignore that the Sanskrit of the grammar is not identical to the ordinary language; in some cases, as Patañjali has pointed out, *na yathā loke tathā vyākaraṇe*. Patañjali is clearly aware that grammar contains items that are not used in the world, such as *taraP*. It would be surprising indeed if he did not notice this, given the preponderance of artificial forms in the *Aṣṭādhyāyī*.

Pāṇini’s metalanguage is the language he uses to formulate his rules. The syntax and semantics of this language (which provide the focus of the current study) can be called the metagrammar. Scharfe (1971) argues that Pāṇini treats his metalanguage and object-language as separate languages which are consistently distinguished and whose common origins play no role in the

¹¹⁶Patañjali comes to the conclusion that *vyākaraṇa* refers to the body of rules alone – MBh I.12.21 *atha vā punar astu sūtram* – and refutes the arguments against this position.

¹¹⁷Pāṇini uses *Upadeśa* 9 times in a technical sense to refer to the *sūtrapāṭha* and *dhātupāṭha*. Cf. Joshi & Roodbergen (1991: 29–31).

¹¹⁸KV on A 1.3.2: *upadiśyate 'nenety upade'saḥ = śāstravākyaṇi*

¹¹⁹MBh I.79.18–21 *iha hi vyākaraṇe sarveṣu eva sānubandhakagrahaṇeṣu rūpam āśriyate yatrāsyaitad rūpam iti | rūpanirgrahās ca śabdasya nāntareṇa laukikaṃ prayogam | tasmiṃś ca laukike prayoge sānubandhakānām prayogo nāstīti kṛtvā dvitīyaḥ prayoga upāsyate | ko 'sau | upadeśo nāma |*

interpretation and functioning of the grammar. He writes (p. 4): “That Pāṇini himself recognised two distinct language systems, will be proved by the description of his technical language (meta-language).” Now the word ‘language’ can be used in different ways. I have used phrases such as ‘the language of Pāṇini’s rules’ and ‘the language used in the *Aṣṭādhyāyī*’ at numerous points in this work. However, what Scharfe has in mind is an absolute distinction, such as might be recognised between a natural language and the logical language a formal syntactician uses to describe it.¹²⁰ Discussing the role of A 1.1.66, A 1.1.67 and A 1.1.49, he claims that “The meanings of the genitive, ablative and locative, though derived in some way from those these cases have in the object language, are so special and so technical, that new definitions were necessary” (p. 32). He also chides the commentators where they have neglected “the borderline between object language and metalanguage” (p. 4). It can be concluded from the discussion in section 3 that an absolute distinction of the kind that Scharfe posits is not tenable. If we view the metalanguage and object-language as fundamentally heterogeneous, then the rules cannot be interpreted properly. It is a sign of the weakness of Scharfe’s stance that he is forced to recognise inconsistencies and ‘slips’ in Pāṇini’s usage (see section 3.1 above).

The nature of the language used by Pāṇini has also been investigated by Frits Staal. Staal (1965: 165) characterises the function of A 1.1.68 as follows: “By means of this rule Pāṇini makes a distinction between the object language, to which Sanskrit forms which he describes belong, and the meta-language of description, to which not only technical terms belong, but also meta-rules such as the rule which lays down the distinction between object language and metalanguage.” This use of the term diverges from the sense in which I have used it. The conception of metalanguage assumed in the current work incorporates the entire corpus of Pāṇini’s rules, including words such as *chandas* and *pūrva*, which are not used to denote linguistic elements, as well as quotational forms, *saṃjñās* and *paribhāṣās*.¹²¹ The defining characteristic of a metalanguage is considered to be its function

¹²⁰Renou (1963: 198–199) reaches a similar conclusion, though he argues slightly differently: “Ce sont les *sū.* de Pāṇini. . . qui poussent au maximum le formalisme. L’occasion en était donnée par le fait que ces *sū.* décrivent eux-mêmes un état de langue: réfléchissant sur des données du langage, l’auteur avait à rendre cette réflexion en des termes qui se différencient autant que possible de l’usage linguistique qu’il expose: autrement dit, il lui fallait constituer une sorte de métalangue adaptée à un but précis.”

¹²¹This probably obfuscates the distinction between metalanguage (the language of operational rules) and meta-metalanguage (language used to describe the metalanguage, e.g. that of the *saṃjñāsutras* and the *paribhāṣās*), but in the context of the *Aṣṭādhyāyī*, as opposed to an axiomatic formal system, the distinction is not crucial.

(it is used to describe a language) rather than what its expressions denote. Of course, a metalanguage must be able to describe its object-language if it is to be suitable for the purpose.¹²² The difference in perspective becomes clear if we consider Staal’s working definitions of ‘metalanguage’ and ‘object-language’ (Staal 1975: 316–317): “An *object-language* is a language consisting of expressions which refer to non-linguistic objects. . . A *metalanguage* is a language consisting of expressions which refer to the expressions of an object-language.” As I emphasised earlier, the concepts of metalanguage and object-language are relational; in logic and linguistics, the term object-language is not used in the sense of “a language consisting of expressions which refer to non-linguistic objects.”¹²³ Furthermore, it makes no sense to suggest that a given rule is composed partly in the object language and partly in the metalanguage, but is to be interpreted as a unified whole.¹²⁴

The same author also characterises Pāṇini’s language as an ‘artificial’ language. Staal (1995: 78–79) provides a definition of this term: “I call *artificial* Sanskrit any artificial language intentionally created to deal with scientific problems or a scientific problem area and based upon, but deviating in some important respect or respects from ordinary, natural Sanskrit. By ‘deviation’ I don’t mean something relatively simple, like the introduction of neologisms or even symbols, but some kind of structural deviation, syntactic in a manner that will become clear later.” Given this definition, I agree that the language of the *Aṣṭādhyāyī* can usefully be described as artificial, or at least semi-artificial. It is distinctive in aspects of both lexicon and syntax. Staal writes elsewhere (Staal 1965: 168) that “Such expressions [as *aster bhūḥ*] are different from natural Sankrit and therefore artificial, but no more artificial than expressions such as ‘ $F(x) \supset G(x)$ ’.” I would argue that expressions such as *aster bhūḥ* are *less* artificial than ‘ $F(x) \supset G(x)$ ’, but Staal’s point is correct: to understand Pāṇini’s *sūtras*, one must be educated in the conventions and principles of the grammar, just as one must learn the conventions and principles of predicate logic to understand expressions of

¹²²It follows that metalanguages can be unsuitable. For example, propositional logic is very poor at describing most aspects of English.

¹²³Bertrand Russell did use the term ‘object-language’ with this meaning, but in an entirely different context and not in opposition to ‘metalanguage’.

¹²⁴It might be objected that cases of mixed multilingual quotation such as “He said that *Pāṇini est sage*” involve more than one language in a single sentence. I would argue that this example is a sentence of English, and that the phrase *Pāṇini est sage* has been incorporated into the English language through the mechanism of quotation, as indicated by the use of italic script. Otherwise the sentence would not be grammatical in any existing natural language. The issue is an interesting one, but this is not the appropriate place to investigate it further.

that language. However, Staal shares Scharfe’s view that an ontological threshold is crossed by Pāṇini in the statement of A 1.1.49, A 1.1.66 and A 1.1.67 (Staal 1995:106–107): “This is perhaps a natural move, as Cardona has emphasized. . . but in scientific terms a momentous step resulting in a metalanguage that is artificial. . . He [Pāṇini] created artificial constituents and a mechanism through which these constituents could be integrated into a new language, the metalanguage of his grammar. That metalanguage makes use of the case-endings of the object language, but their use is formalized.” I have already argued that the disjunction of the metalanguage from ordinary Sanskrit is not justified, and that the attribution of pervasive formality to Pāṇini is inaccurate.

In logic, the use of the same language as object-language and metalanguage is undesirable, as it leads to paradoxes. The Indian grammarians, on the other hand, were largely unconcerned with matters of truth and semantic contradiction.¹²⁵ As we have seen, the congruity of the metalanguage to the object-language is fundamental to the proper interpretation of the grammar. Now this is a contingent result of the fact that Sanskrit is both the object-language and metalanguage. If Pāṇini had taken it upon himself to write a grammar of another language on the same principles as the *Aṣṭādhyāyī*, he could have used the same Sanskrit metalanguage, with the exception of *anukarāṇa* forms denoting the forms of the object-language (though their use would still be conventionalised by A 1.1.68). The crucial contiguity is thus between the metalanguage and ordinary Sanskrit, which in the case at hand happens to be the object-language as well.

5 On the Nature of the *Aṣṭādhyāyī*

It is time to return to Joshi & Roodbergen’s (1991) description of the *Aṣṭādhyāyī* as “an ingenious device, a *yantra*, designed to reproduce the language of the *śiṣṭas* in a step-by-step rule-governed method.” We cannot of course be sure as to Pāṇini’s intention in composing his grammar, but it is doubtful that he shared the view propounded by Joshi and Roodbergen. In any case, commentators such as Kātyāyana and Patañjali certainly did not share this understanding. As a *yantra*-like algorithmic machine, the *Aṣṭādhyāyī* is quite imperfect. The same authors have in fact identified a large number

¹²⁵Cardona (1976b: 27) describes how a sentence such as *devadatto ’gninā puṣpāṇi sīncati* (“Devadatta pours fire on the flowers”) is acceptable to the grammarians, but not to others such as the Naiyāyikas. The Paradox of the Liar was indeed known to the Indians, but it was not associated with metalinguistic concepts; on Bhartṛhari’s solution to this paradox, see Houben (1995).

of inconsistencies which they view as pervading both the terminology and operation of the *Aṣṭādhyāyī* (e.g. Joshi & Roodbergen 1983). However, the conclusion they draw is that these inconsistencies are due to post-Pāṇinian interpolations on a massive scale (including the entirety of the *taddhita* and *samāsa* sections). They argue that to accept that Pāṇini tolerated major inconsistencies would “make him a bad theoretician and a destroyer of his own system” (Joshi & Roodbergen 1983: 93). I have not addressed the problems that Joshi and Roodbergen highlight, but I think that the analysis I have presented in this paper indicates that it is misleading to attribute to Pāṇini the desire to create a fully formal algorithmic system. It would be difficult to argue that rules such as A 1.4.105 *yuṣmady upapade samānādhiaraṇe sthāniny api madhyamaḥ* (where the use of a non-technical locative is considered a “slip” by Scharfe 1971: 34) are non-Pāṇinian, unless one adopts the *a priori* position that all slips are due to interpolation.

It is generally recognised that the *Aṣṭādhyāyī* provides a directed process of derivation which proceeds from non-linguistic input (the intended meaning) to output in the form of a grammatical Sanskrit sentence.¹²⁶ However, the system of rules is not deterministic, and a given meaning can be expressed by many different surface structures – as an active or passive sentence, for example, or as a nominal compound. This is as it should be, as in natural language there is not just one way to describe a given situation. The commentators recognised the role of *vivakṣā*, or intention to speak, as important in directing the derivational process.¹²⁷ In the *Mahābhāṣya*, *vivakṣā* is not always used in a consistent sense (Deshpande 1990), and it was liable to abuse by later commentators; nonetheless, it indicates a nascent awareness of a fundamental aspect of the *Aṣṭādhyāyī*. Houben (1999: 45) therefore proposes that the input required by the system of grammar be regarded as consisting of “semantic aspects or aspects concerning the referents (*artha*) of his [the user’s] statement, pragmatic aspects or aspects concerning the context (*prakaraṇa*) of his statement, and intentional aspects or aspects of his intention (*vivakṣā*).”

The role of intention reflects an indeterminacy in the grammar on a functional level. The ambiguous nature of Pāṇini’s metalanguage, on the other hand, leads to an indeterminacy on the formal level. There is not just one way to interpret the rules. These two indeterminacies are not of the same nature: while both *devadatta odanaṃ pacati* and *devadattenaudanaḥ pacyate* are both grammatical outputs, it is not equally correct to interpret

¹²⁶See e.g. Kiparsky & Staal (1969), Bronkhorst (1979), Deshpande (1990).

¹²⁷On the concept of *vivakṣā*, see Scharf (1995).

the rule *dvitīyā brāhmaṇe* as ‘In the *Brāhmaṇas...*’ and as ‘Before the word *brāhmaṇa...*’. Yet both indeterminacies must actively be resolved by the ‘user’ of the *Aṣṭādhyāyī* in order to produce an output; in both cases the human element in the system is of paramount importance.

6 Conclusion

I have argued that Pāṇini’s metalanguage, by which I mean the language in which his rules are written, can most accurately be characterised as a semi-formal and semi-artificial variety of Sanskrit. The conventions established by Pāṇini in his usage of case endings, quotational forms and technical terms are sophisticated and contribute to the efficiency and generality of the grammar. However, these conventions are not such that they sever the link between the language of grammar and the ordinary Sanskrit language. The ability to apply natural procedures of interpretation is necessary for the correct understanding of Pāṇini’s rules. If Pāṇini’s metalanguage is viewed as an independent system, then its nature appears flawed and lacking in rigour. It follows that it is inaccurate to view the *Aṣṭādhyāyī* as a wholly formal algorithm or ‘computer program’.

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