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# To classify words: European and Indian grammatical approaches

ÉMILIE AUSSANT

**Abstract:** This paper aims at briefly recalling the presuppositions the European and Indian grammatical approaches present regarding word-classification. From its very beginning up to the most contemporary trends in linguistics, the European approach knew essentially only one classification of words: the canonical list of eight parts of speech which comes from Dionysius Thrax and which was developed, restructured, sub-divided, etc., throughout the course of history, according to the aims of particular scholars or schools. Within Vyākaraṇa, native Sanskrit grammar, the situation is not so different: the Sanskrit grammarians generally alternated between only two classifications (the four-fold Yāskan division of parts of speech and the two-fold division proposed by Pāṇini); some of them like Nāgeśa having even tried to reconcile the two.

**Keywords:** Europe, India, history of linguistic ideas, epistemology of language sciences

## 1 Introduction

Even though the analysis of language into units appears to have been essential in all traditions of language study, the classification of words consists in an activity which is neither self-evident nor homogeneous: the classifier (whether he is an individual scholar, a school of thought or a trend) has an epistemological aim (that

27 is to say, he has something to explain) and one must consider the  
 28 regularities (hence the categories) he makes exist on this basis.  
 29 Epistemological aims have varied a lot in history, from one tradi-  
 30 tion of language study to another, but also within one and the same  
 31 tradition. The analysis and description of Sanskrit in the perspec-  
 32 tive of computational linguistics brings two different grammatical  
 33 traditions, as well as different classifications, face to face. With-  
 34 out calling into question their legitimacy (my approach is rooted  
 35 in the perspective of the history of ideas), I would like to recall, al-  
 36 beit briefly, the presuppositions these theories present. I will con-  
 37 sider first the European approach and then the approach of Sanskrit  
 38 (Vyākaraṇa perspective).<sup>1</sup>

## 39 **2 The European approach**

### 40 **2.1 Parts of speech in computational linguistics**

41 In computational linguistics, the parts of speech which are used  
 42 come, most of the time, from works realized in the field of for-  
 43 mal linguistics. Very often indeed, taggers are statistical tools  
 44 trained on manually or semi-automatically annotated data. These  
 45 data were mostly annotated under the responsibility of formal lin-  
 46 guists and according to the guidelines they elaborated on the basis  
 47 of their linguistic expertise, as well as on the basis of what re-  
 48 sults from the confrontation of the system with real data. Hence,  
 49 at first sight, there is no real norm: corpora can be tagged in var-  
 50 ious ways. However, some tag sets, such as the Brown Corpus

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<sup>1</sup>I wish to thank Aimée Lahaussais, Clément Plancq and Benoît Sagot for their kind help.

51 tag set,<sup>2</sup> the Penn Treebank tag set,<sup>3</sup> and, to a lesser extent, the  
 52 French Treebank developed by the University of Paris Diderot,<sup>4</sup>  
 53 today constitute a reference. If one looks at these tag sets, one ob-  
 54 serves that the choices made remain mainly traditional — it is even  
 55 explicitly given on the website of the French Treebank, “For part  
 56 of speech, we made traditional choices [...]” and, once we sub-  
 57 tract the numerous categories and sub-categories which divide or  
 58 complete each part of speech (see Table 1), and which are mainly  
 59 based on inflectional and lexico-semantic information, we find the  
 60 well-known list again: noun, verb, article, adjective, preposition,  
 61 pronoun, adverb, conjunction, and interjection. Even tools devel-  
 62 oped for languages other than English and French, such as the Nat-  
 63 ural Language ToolKit (NLTK) tag set for four Indian languages  
 64 (Bangla, Hindi, Marathi and Telugu),<sup>5</sup> and the Stanford Natural  
 65 Language Processing Group (SNLPG) tag set for Chinese,<sup>6</sup> resort  
 66 to this list. Where does this list come from? On what kind of  
 67 classification criteria is it based? How can one explain its stability  
 68 throughout the course of history?

## 69 **2.2 Parts of speech in Graeco-Latin grammatical tradi-** 70 **tion**

71 The list of eight parts of speech comes from the Graeco-Latin  
 72 grammatical tradition, and more specifically from the *Τέχνη*

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<sup>2</sup><http://www.comp.leeds.ac.uk/ccalas/tagsets/brown.html>

<sup>3</sup><http://www.cst.dk/mulinco/filer/PennTreebankTS.html>

<sup>4</sup><http://www.llf.cnrs.fr/Gens/Abeille/French-Treebank-fr.php>

<sup>5</sup><http://nltk.googlecode.com/svn/trunk/doc/book/ch05.html#fig-tag-indian>

<sup>6</sup><http://nlp.stanford.edu/projects/chinese-nlp.shtml#pos>

**Table 1**  
*Sub-categories of noun in the Brown Corpus*

NN	singular or mass noun
NN\$	possessive singular noun
NNS	plural noun
NNS\$	possessive plural noun
NP	proper noun or part of name phrase
NP\$	possessive proper noun
NPS	plural proper noun
NPS\$	possessive plural proper noun
NR	adverbial noun (home, today, west)

73 *Γραμματική* by Dionysius Thrax (2nd-1st c. BCE). The aim of  
 74 the Greek scholar was to provide, mainly for writers and poets,  
 75 an overview of the Alexandrian grammatical tradition, giving a  
 76 reference list for phonetics (letters-sounds, syllables) as well as  
 77 the list of eight parts of speech: noun, verb, participle, article,  
 78 pronoun, preposition, adverb and conjunction. This list itself is  
 79 the result of developments and restructurings of a more ancient  
 80 classification: that made by Aristotle (384–322 BCE) in his *Poet-*  
 81 *ics* (chapter XX), which distinguishes four parts of speech: ὄνομα  
 82 ‘noun’, ῥῆμα ‘verb’, σύνδεσμος ‘link’ (late ‘conjunction’), ἄρθρον  
 83 ‘articulation’ (late ‘article’) and which is mainly based on notional  
 84 criteria (semantic, ontological, psychological, and/or logical) (Lal-  
 85 lot 1988). The four parts of speech list was quickly enlarged and  
 86 restructured on the basis of formal and semantic criteria. In the  
 87 *Τέχνη Γραμματική* by Dionysius Thrax, each part of speech is  
 88 defined, its ‘accidents’ (e.g. everything which happens to it, that  
 89 is to say number, gender, inflection, diathesis and tense variations)  
 90 are listed, defined and illustrated, its morphological and/or seman-

91 tic sub-classes are listed and illustrated (31 for the noun, 13 for  
 92 the verb, 26 for the adverb, 9 for the conjunction) (Lallot 1998).  
 93 What are the criteria used for this classification in eight parts of  
 94 speech? Notional (see above) and formal (morphological) crite-  
 95 ria were used very early; functional criteria (syntactical) appeared  
 96 a little bit later, with the Greek grammarian Apollonius Dyscolus  
 97 (2nd c. CE). But from the very beginning, parts of speech were  
 98 — and are still today — classified according to (a) their meaning  
 99 and/or their reference, (b) according to their form, and (c) accord-  
 100 ing to their position and/or their relation to other parts of speech  
 101 in sentences (Lagarde 1988). The hierarchy of these criteria, the  
 102 number of their sub-categories as well as their relationship, varied  
 103 greatly in history. For instance, Ramus (Pierre De La Ramée), a  
 104 16th c. French grammarian, tried to impose (in his *Scholae Gram-*  
 105 *maticae*) a model with two categories of words (lat. *voces*), us-  
 106 ing exclusively formal criteria: ‘mots de nombre’, i.e. nouns and  
 107 verbs, *versus* ‘mots sans nombre’, i.e. adverbs and conjunctions.<sup>7</sup>  
 108 For authors of universal grammars (which elaborate their own cat-  
 109 egories by linking them to cognitive structures), such as Beauzée  
 110 and Condillac in the case of the “Grammaire générale française”,  
 111 notional criteria are much more relevant than the others (Auroux  
 112 1988: 81). As Lagarde (1988: 93) already highlights, the list of  
 113 eight parts of speech, though provoking strong debate,<sup>8</sup> crossed  
 114 over the centuries and modeled grammatical consciousnesses. Ev-  
 115 ery linguist must, explicitly or not, make a stand regarding this  
 116 model of analysis which has become an unavoidable reference.

<sup>7</sup>See Colombat 1988, 1998.

<sup>8</sup>See, for instance, the debate opposing Haspelmath and Dryer, two leaders of linguistic typology. Haspelmath (2010) argues that crosslinguistic grammatical comparison cannot be based on grammatical categories, because these are language specific, while Brown and Dryer (2008) write, “While there are often ways in which languages differ from each other in terms of what word classes they have, the differences are generally small compared with the similarities.”

117 The judgements made with regard to this model are generally neg-  
 118 ative. Despite endlessly repeated criticisms and the periodic at-  
 119 tempts to develop universal categories or tag sets (such as the one  
 120 elaborated by Petrov, Das and McDonald in 2011),<sup>9</sup> this classifi-  
 121 cation remains. Auroux (1988: 82) observes quite rightly that, as  
 122 a word-classification tool used in various fields of language study  
 123 (language description, learning, etc.) which are not always theo-  
 124 retically well mastered, the list of eight parts of speech is stable,  
 125 much more so than the theoretical variations suggest. Simply for  
 126 communicability reasons, no theoretical change can lead to a fun-  
 127 damental change in the list of parts of speech. The question of  
 128 parts of speech cannot be reduced to a mere matter of word classes  
 129 because it is on the basis of this word-classification that European  
 130 grammar was elaborated.

### 131 **3 The Indian approach (Sanskrit Vyākaraṇa)**

132 If we now move to the Indian side and, more particularly, to the  
 133 field of Sanskrit Vyākaraṇa, what ways of classifying words do we  
 134 find? Two models were mainly used: the *nāman-ākhyāta-upasa-*  
 135 *rga-nipāta* classification and the Pāṇinian classification of padas.

#### 136 **3.1 The *nāman-ākhyāta-upasarga-nipāta* classification**

137 One of the most ancient classifications of words seems to be the  
 138 one in four parts: *nāman*, *ākhyāta*, *upasarga* and *nipāta*, which are  
 139 traditionally translated as ‘noun’, ‘verb’, ‘preverb’ and ‘particle’.  
 140 In section 13.9 of the *Nirukta* (*N.* hereafter) which is considered to  
 141 be an appendix (*pariśiṣṭa*),<sup>10</sup> while commenting on the *Ṛg-vedic*  
 142 verse

<sup>9</sup>See <http://www.petrovi.de/data/lrec.pdf>

<sup>10</sup>Sarup (1920–1929) does not translate this section.

143 *Catvāri vāk párimitā padāni*  
 144 *tāni vidur brāhmaṇā yé manīṣiṇah;*  
 145 *Gúhā trīṇi níhitā néngayanti*  
 146 *turīyaṁ vācó manuṣyā vadanti. (RV. 1.164.45)*  
 147 Speech has been measured in four steps. The Brah-  
 148 mins who have control over their mind know them.  
 149 The three of them which are deposited secretly do not  
 150 stir. The fourth [step] of the speech is that which men  
 151 speak. (Bhate undated: 2, revised).

152 Yāska mentions different readings of the expression *catvāri padā-*  
 153 *ni* among which the following one:

154 *Nāmākhyāte copasarganipātās ceti vaiyākaraṇāḥ.*  
 155 *(N. 13.9, Sarup 1920–1929: 226)*  
 156 Grammarians [consider that these four kinds of pada  
 157 are]: the noun and the verb, as well as the preverbs  
 158 and the particles.

159 Yāska himself gives this classification of padas at the very begin-  
 160 ning of his *Nirukta*:

161 *Tad yāni catvāri padajātāni nāmākhyāte copasarga-*  
 162 *nipātās ca tānīmāni bhavanti. (N. 1.1, Sarup 1920–*  
 163 *1929: 27)*  
 164 Now, what (are) the four classes of words? They are  
 165 the following: noun and verb; prepositions and parti-  
 166 cles. (Sarup's translation)

167 This classification, which is found in other texts such as the *Ma-*  
 168 *hābhāṣya (Paspasā)*, seems to come directly from the very early  
 169 grammatical analyses elaborated in India. Such analyses aimed  
 170 at deconstructing Vedic texts in their continuously recited version  
 171 (*samhitā-pāṭha*), where sandhis are applied, to result in a word-by-  
 172 word version (*pada-pāṭha*) of the same texts, where any dissocia-  
 173 ble sequence was de facto isolated. This kind of analysis implied



174 an accurate study of morphology and syntax, and it is most likely  
 175 during this period that the four-part classification of words was  
 176 elaborated. The fact is that it is to be found in the *R̥gveda-Prātiśā-*  
 177 *khyā*:

178 *Nāma-ākhyātam upasargo nipātaś*  
 179 *catvāry āhuḥ padajātāni śābdāḥ;*  
 180 *tan nāma yenābhidadhāti sattvaṃ*  
 181 *tad ākhyātāṃ yena bhāvaṃ sa dhātuḥ. (R̥Pr. 12.5)*

182 The noun, the verb, the preverb and the particle, these  
 183 are the four classes of words say the grammarians.  
 184 The noun is that by which a substance is denoted; a  
 185 verb is that by which a process [is denoted]. It is a  
 186 *dhātu*.

187 ...  
 188 *kriyā-vācakam ākhyātam upasargo viśeṣa-kṛt;*  
 189 *sattva-abhidhāyakam nāma nipātaḥ pāda-pūraṇaḥ.*  
 190 *(R̥Pr. 12.8)*

191 The verb expresses an action; the preverb specifies  
 192 it. The noun expresses a substance; the particle com-  
 193 pletes the verse quater (*pāda*).

194 Though we have access to neither the thought nor the method of  
 195 the authors of *pada-pāṭha* texts, it is nevertheless possible to infer  
 196 from their works some of the principles they adhered to. For in-  
 197 stance, what they meant by *pada*, according to Bhate (undated: 4)  
 198 were isolated inflected forms (nominal, verbal), indeclinables, and  
 199 preverbs. As it appears in the first verse quoted previously, as well  
 200 as in the *Nirukta*, the criteria on which the distinction between the  
 201 noun and the verb is based is notional (ontological) criteria. Re-  
 202 garding the upasargas, two definitions are given by Yāska:

- 203 • One, ascribed to Śākaṭāyana, says that upasargas do not ex-  
 204 press meanings (*na . . . arthān nirāhur*); they simply help the

205 emergence of the whole meaning by suggesting it (*karma-*  
206 *upasam̐yoga-dyotakā bhavanti*) (N. 1.3)

207 • The other, ascribed to Gārgya, presents upasargas as units  
208 expressing (*vācaka*) diverse meanings, meanings which  
209 modify the meaning of verbs and nouns with which the u-  
210 pasargas are combined (*uccāvacaḥ padārthā bhavantīti gā-*  
211 *rgyaḥ. tad — ya eṣu padārthaḥ, prāhur ime tam — nāma-*  
212 *ākhyātayor artha-vikaraṇam*) (N. 1.3). The second verse  
213 quoted from the *R̥gveda-Prātiśākhya* (*upasargo viśeṣa-kr̥t*)  
214 seems to refer to this conception.

215 Concerning the particles, only one description is given in the  
216 *Nirukta*: *nipātas* are said to express numerous meanings (*nipātā u-*  
217 *ccāvaceṣu artheṣu nipatanti*): comparative (*apy upamārthe*), con-  
218 nective (*api karma-upasam̐grahārthe*), expletive (*api pāda-pūra-*  
219 *ṇāḥ*) (N. 1.4).

220 We note that the *nāman-ākhyāta-upasarga-nipāta* classifica-  
221 tion is presented as exclusively based on notional criteria: an onto-  
222 logical criterion for the noun and the verb and a semantic criterion  
223 for the preverbs and the particles. This is surprising since, consid-  
224 ering the context of the emergence of this classification, we would  
225 have expected formal criteria.

### 226 3.2 The Pāṇinian classification of padas

227 On a practical level, the *Aṣṭādhyāyī* (A. hereafter) provides guide-  
228 lines for forming words with affixes. These affixes (*pratyaya*) are  
229 directly taught in some of the 4000 sūtras, in distinction from most  
230 of the bases with which they combine and which are either verbal  
231 roots (*dhātu*) or nominal bases. These nominal bases are:

232 • either generally introduced by A. 1.2.45 *arthavad adhātu-*  
233 *r apratyayaḥ prātipadikam* (“A meaningful [unit], which

234 is neither a verbal root nor an affix, [is called] *prātipadika*  
 235 ka”), which is completed by A. 1.2.46 *kṛt-taddhita-samāsā-*  
 236 ś ca (“Primary derivatives, secondary derivatives and com-  
 237 pounds [are] also [called] *prātipadika*”);

238 • or given in lists which gather together units sharing some  
 239 derivational features (cf. the *Gaṇa-pāṭha* lists (*GP.* here-  
 240 after);

241 • or directly introduced in some sūtras, such as A. 3.1.16 *bā-*  
 242 *ṣpa-ūṣmabhyām udvamane*, which states that the (denom-  
 243 inative) suffix *kyan̄* is used after the nominal bases *bāṣpa*  
 244 ‘tear’ and *ūṣman* ‘heat’ to express ‘to emit’.

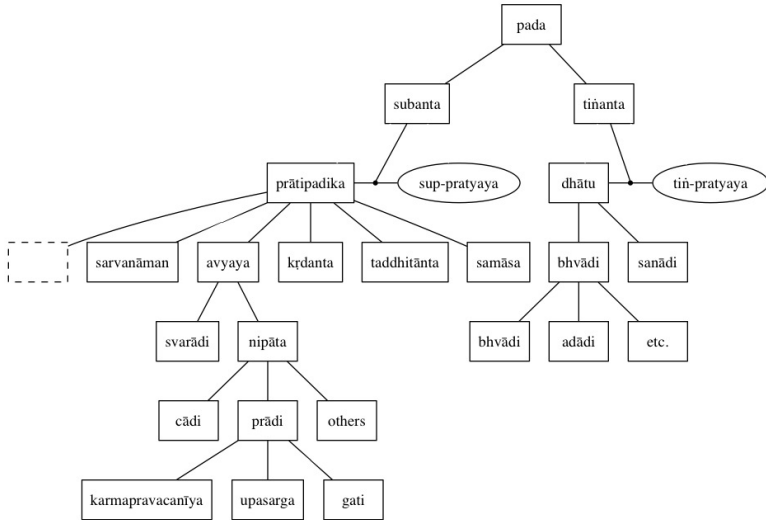
245 Verbal and nominal bases constitute the two starting points of  
 246 the derivational process which occurs over the course of Pāṇinian  
 247 sūtras to generate more and more complex units up to sentences  
 248 (*vākya*).<sup>11</sup> The steps of this derivational process consist in the ap-  
 249 plication of operations to these units and, generally, it is these very  
 250 operations which determine the arrangement of the units in classes  
 251 or categories. For instance, a unit is called *prātipadika*, that is  
 252 to say, belongs to the *prātipadika* class because it undergoes (or  
 253 must undergo) the application of several operations. Sanskrit mor-  
 254 phology being very rich, operations to be applied are numerous,  
 255 and then, the number of classes Pāṇini distinguishes is particularly  
 256 high. The main classes are those shown in Figure 1 (based on that  
 257 made by Bhate (undated: 7)).

258 At the top of the diagram, one finds the term *pada*: Pāṇini uses  
 259 it to designate the general class of words, but he also gives a defini-  
 260 tion of the term (probably the most ancient to have come down to  
 261 us) which clearly delimits its extension: the sūtra A. 1.4.14 states  
 262 that the units which constitute the *pada* class are those that end

<sup>11</sup>The term *vākya* is used only twice in the *Aṣṭādhyāyī*, in A. 8.1.8 *vākya-āder āmantritasya . . .*, and in A. 8.2.82 *vākyaśya teḥ . . .*.

**Figure 1**

*The main classes of speech forms distinguished by Pāṇini*



263 in a nominal (*sup*) or a verbal (*tiṅ*) ending, in other words, the  
 264 inflected words. One notes that in the Pāṇinian system, neither *nā-*  
 265 *man* nor *ākhyāta* are used to designate respectively the noun and  
 266 the verb: neither of these terms is used by Pāṇini in a metalinguistic  
 267 way. One notes too that there is an empty square on the  
 268 diagram: it stands for the nominal stems which cannot be derived,  
 269 such as *vr̥kṣa*, which are meaningful units but neither a verbal root,  
 270 nor a suffix, pronoun, indeclinable, primary derivative, secondary  
 271 derivative, nor compound. As far as I know, Pāṇini does not give  
 272 a name — other than *prātipadika* — to this kind of unit. Patañjali  
 273 explains (on vt. 5 ad A. 7.1.2) that for Pāṇini, nominal stems

274 which cannot be derived are the *uṇādis*.<sup>12</sup> Contrary to *nāman* and  
 275 *ākhyāta*, *upasarga* is used in the *Aṣṭādhyāyī*, and, here too, it des-  
 276 ignates the preverbs (cf. A. 1.4.59 *upasargāḥ kriyā-yoge*). How-  
 277 ever, it belongs to a larger class called *prādi* (GP. 154), which itself  
 278 belongs to the *nipāta* class (the term is also used to designate the  
 279 particles). And this *nipāta* class belongs to the *avyaya* class (‘inde-  
 280 clinables’, cf. A. 1.1.37 *svarādinipātam avyayam*) which includes  
 281 also the *svarādi* class (GP. 254). The *avyaya* class constitutes a  
 282 sub-category of the *prātipadika* class, these units being meaning-  
 283 ful. If *upasarga* and *nipāta* are used in the *Aṣṭādhyāyī* with more or  
 284 less the same meaning as in the *Nirukta*, the Pāṇinian system nev-  
 285 ertheless establishes a difference in the level of analysis between  
 286 them. However that may be, the Pāṇinian classification of *padas*  
 287 is firstly based on formal criteria. Semantics plays a role too, but  
 288 to a lesser extent; it comes as a complement (e.g. the definition of  
 289 *nipāta*: A. 1.4.56–57 “... units which do not designate a substance  
 290 (*asattve*)”).

### 291 3.3 Some remarks on a few other classifications

292 Still within the Vyākaraṇa sphere one finds mention of a few  
 293 other classifications of words. I will not address the classifica-  
 294 tions which correlate linguistic categories with ontological cat-  
 295 egories, such as the *jāti-guṇa-kriyā-yadr̥cchā* classification pro-  
 296 vided by Patañjali in his *Mahābhāṣya*. This classification, as well  
 297 as the *ākṛti-kriyā-guṇa-dravya* list of *padārthas*, actually provides  
 298 a sub-classification of *prātipadikas*, often illustrated by the sen-  
 299 tence *gauḥ śuklaś calo ḍitthaḥ* “[the] white moving cow ḍittha”.

300 At the very beginning of the third *kāṇḍa* of his *Vākyapadī-*  
 301 *ya*, Bhartr̥hari mentions three views on the classes of *padas*. It

<sup>12</sup>*Prātipadikavijñānāc ca pāṇiner siddham. Prātipadikavijñānāc ca bhagava-  
 taḥ pāṇiner ācāryasya siddham. Uṇādayo ’vyutpannāni prātipadikāni. (A. 7.1.2,  
 vt. 5; MBh. 3.241.19–21)*

302 is very well-known that, according to Bhartṛhari, padas exist only  
 303 on the level of apoddhāra ‘[artificial] analysis’; in a philosophical  
 304 perspective, only the sentence is relevant. But placing himself on  
 305 the apoddhāra level, he says:

306 *dvidhā kaiścīt padaṁ bhinnam*  
 307 *caturdhā pañcadhāpi vā;*  
 308 *apoddhr̥tyaiva vākyebhyaḥ*  
 309 *prakṛtipratyayādivat. (VP. 3.1.1)*

310 Some distinguish two [kinds] of padas, [some] four  
 311 [kinds] and [some] five kinds after having artificially  
 312 isolated them from sentences, just as [one would iso-  
 313 late] the stem and the suffix, etc.

314 These classifications are:

- 315 • *nāma* (which includes *nipāta*) : *ākhyāta* (which includes *u-*  
 316 *pasarga* and *karmapravacanīya*);
- 317 • *nāman* : *ākhyāta* : *upasarga* : *nipāta*;
- 318 • *nāman* : *ākhyāta* : *upasarga* : *nipāta* : *karmapravacanīya*.

319 A very similar classification is mentioned by Durga, in his  
 320 commentary on *Nirukta* 1.1:

321 *Naikam padajātam yathārthaḥ padam aindrāṇām iti.*  
 322 *Nāpi dve yathā subantaḥ tinantaś ca. Nāpi trīni ni-*  
 323 *pātopasargāv ekataḥkṛtvā. Nāpi pañca ṣaḍ vā yathā*  
 324 *gatikarmapravacanīyabhedeneti. (Durga on Nirukta*  
 325 *1.1)*

326 It is not the case that there is a single class of words  
 327 as, ‘that which is meaningful is a word for the Ai-  
 328 ndras’. Nor are there two [classes of words], for in-  
 329 stance nouns and verbs. Nor are there three [classes of  
 330 words] combining in one particles and preverbs [along  
 331 with the two preceding ones]. Nor five or six [classes

332 of words], as with the distinction between *gati* and  
 333 *karmapravacanīya*.

334 These classifications do not really improve upon the previous anal-  
 335 yses: they can be seen as variants of the four-fold classification  
 336 given in the *Nirukta* and the *R̥gveda-Prāṭiśākhya*.

## 337 4 Concluding remarks

338 From its very beginning up to the most contemporary trends in lin-  
 339 guistics, the European approach knew essentially only one classi-  
 340 fication of words: the canonical list of eight parts of speech which  
 341 comes from Dionysius Thrax. Throughout the course of history,  
 342 it has been developed, restructured, sub-divided, etc. according to  
 343 the aims of particular scholars or schools. The heterogeneity of  
 344 its criteria and its Indo-European focus did not prevent theoretic-  
 345 ians from analyzing speech and from proposing more and more  
 346 elaborate descriptive or generative models.

347 Concerning the Sanskrit approach (within the Vyākaraṇa  
 348 sphere), the situation is not so different. I would say — follow-  
 349 ing Deshpande (1992: 14) — that “Sanskrit grammarians care for  
 350 Pāṇini’s two-fold division of stems into nominal stems and verb  
 351 roots only as far as the derivational procedures in his grammar are  
 352 concerned.” When the discussion deals with semantics, “they gener-  
 353 ally follow the four-fold division mentioned by Yāska . . . .” The  
 354 inclusion, in the Pāṇinian model, of the avyaya class in the prāṭi-  
 355 padika class seems to have been counter-intuitive for most of the  
 356 vaiyākaraṇas. Some, like Nāgeśa, nevertheless attempted to recon-  
 357 cile the four-fold Yāskan division of parts of speech with the two-  
 358 fold division proposed by Pāṇini. Commenting on the *Mahābhā-*  
 359 *ṣya* passage *catvāri śṛṅgāṇi — catvāri padajātāni nāmākhyātopa-*  
 360 *sarganipātāś ca*, he says: *nāmaśabdena subantaṃ . . . ākhyātāṃ*

361 *tīnantam. upasarga-nipāṭayoh̄ pṛthag upādānam gobalīvardanyā-*  
362 *yena.*

363 As far as the tagging of parts of speech is concerned, computa-  
364 tional linguists working on Sanskrit are not doing anything differ-  
365 ent from their predecessors: they try to establish more appropriate  
366 models and have to hand a wonderful tool: the Pāṇinian gram-  
367 mar, which matches their interests particularly well. More than  
368 their 19th-20th c. colleagues who wrote Sanskrit grammars in Eu-  
369 ropean languages, "...they are in a position to put into practice  
370 one of the major insights of structuralist linguistics of the twenti-  
371 eth century, namely, that languages are best described in their own  
372 terms" (Haspelmath (2010: 664) referring to Boas (1911–1922)).

## Table 2

### Abbreviations

A. *Aṣṭādhyāyī.*

GP. *Gaṇapāṭha.*

MBh. *Mahābhāṣya.*

N. *Nirukta.* See Sarup 1920–1929.

RV. *R̥gveda.* See Sonatakke and Kashikar 1933–1951.

RPr. *R̥gvedaprātiśākhya.* See Régnier 1858.

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