Compositional history of Pāṇini’s syntactic theory: how linguistics can help

Artemij Keidan
Università di Roma “La Sapienza”
Pāṇini and his Aṣṭādhyāyī

• Pāṇini’s date is unknown, but the most authoritative hypotheses suggested so far range between 6th cent. B.C. and 3rd cent. B.C.

• Pāṇini’s grammar Aṣṭādhyāyī (lit. ‘Eight chapters’) provides an unparalleled description of morphology and syntax of Sanskrit

• Aṣṭādhyāyī is subdivided into 8 books, for a total amount of ca. 4000 sūtras ‘grammatical rules’

• What we are concerned here are the passages of the grammar dealing with the syntactic structure of the simple sentence
Simple sentence syntax

- Structure: *verb* (or *predicate*) and its *arguments*, i.e. nominal constituents that specify participants involved in the action “on the sage”

- Semantics of the arguments: how does one define the *semantic categories* that classify all possible arguments of whatever verb?

- Morphology of the arguments: how are different arguments expressed or *coded* from a formal point of view

- What we obtain is: a restricted set of semantic categories called *semantic roles*, and a variety of possible *codings* that are used to express such semantic values
Semantic roles and their realization: English ex.

- *I give the book to you* — the receiver is coded by the preposition *to*

- *I give you a book* — the receiver is coded simply by putting it into the post-verbal position, with no preposition

- There are two possible realizations of one semantic entity
Semantic roles and their realization: Italian ex.

- *Gianni va in Francia* ‘John goes to France’
- *Gianni va a Roma* ‘John goes to Rome’
- *Gianni va da Maria* ‘John goes to Mary’s place’

There are three possible realizations of one semantic entity, namely the *destination*.

To understand this we must distinguish between semantic categories and morpho-syntactic categories.
Kārakas vs. vibhaktis: semantic roles vs. case forms

- **apādāna** ‘source’
- **sampradāna** ‘receiver’
- **adhikaraṇa** ‘locus’
- **karaṇa** ‘instrument’
- **karman** ‘patient’
- **kartaṇa** ‘agent’

- **1st** *prathama* ‘nominative’
- **2nd** *dvitiyā* ‘accusative’
- **3rd** *tṛtiyā* ‘instrumental’
- **4th** *caturthī* ‘dative’
- **5th** *pancamī* ‘ablative’
- **6th** *śaṣṭhi* ‘genitive’
- **7th** *saptamī* ‘locative’
Kāraka roles (defined in the Karake section)...

- ...have allusive names mostly involving the root \( kṛ \) ‘to do’, e.g.:
  - \( kartṛ \) ‘doer’, \( karman \) ‘something done’

- ...however, are defined explicitly, with abstract but still semantic definitions, e.g.:
  - \( kartṛ \) ‘agent’ is defined as «the autonomous one»
  - \( karman \) ‘patient’ is defined as «what is mostly desired by the agent»

- ...are put into a many-to-many relation with cases:
  - \( karman \) is primarily expressed by the accusative, but some times also by the genitive; the latter express also the \( kartṛ \)
General diagram of the kāraka/vibhakti device

Real objects undergo the filter of the semantic classification in order to select the appropriate kāraka, which selects one of possible codings: apādāna, sanpradāna, adhikaraṇa, karaṇa, karman, kartṛ. Possible cases include accusative, genitive, middle verb endings, PPP suffix.
Example of the kāraka/vibhakti mechanism

- The *karman* role is defined as «the most desired by the *kartr̥» (s. 1.4.49 *kartur īpsitatamaṁ karma*)
- The *karman* is assigned the accusative case as its canonical realization (s. 2.3.2 *karmaṇi dvitīyā*)
- Limitedly to the verb *div* ‘to play’ the *karman* is expressed non canonically by the genitive (s. 2.3.58 *divas tadarthasya*)
Vibhaktis (defined in the Anabhihite section) can...

• ...express the **canonical realization** of kāraka roles

• ...express some **non canonical realizations** of kāraka roles

• ...express some **semantic values** that are not covered by any kāraka role, e.g.: s. 2.3.42 pañcamī vibhakte ‘the ablative is used to code the term of comparison’
Kārakas can be viewed as equivalent to...

- ...modern linguistics’ conception of *semantic roles*, because they are based on purely semantic definitions.

- ...modern linguistics’ conception of *semantic macro-roles*, because they are limited in number and some of them ignore lesser semantic subtleties, e.g.:
  
  *kartṛ* is actually ‘agent’, but also ‘experiencer’ (i.e. someone who experiences a feeling or sensation or thought’), similarly to modern Actor macro-role.

- ...modern linguistics’ conception of *grammatical relations*, limitedly to the *kartṛ*, since it turns out to be obligatory in each sentence, as only Subject might be
Briefly

With respect to how a simple sentence is constructed, the **semantics is primary** while morphology is only a consequence of semantics.
Kāraka/vibhakti device: Pāṇini’s greatest achievement

- For the first time in the history the semantics of the sentence is clearly distinguished and opposed to its morphology
- It represents one of the most interesting parts of the whole grammar
- There have been no similar conceptualization in the western linguistic science until Charles Fillmore’s “Deep Cases theory” (1968)
  
  Chomsky’s Generative theory had totally ignored this opposition in its initial variants, and timidly adopted a similar approach only in recent times
  Fillmore’s terminology is far more misleading than Pāṇini’s
But...
But...

- Some parts of Panini’s grammar seem to contradict his own theoretical model.
- In some parts the distinction between semantics and morphology is not as univocal and clearcut as supposed by the standard kāraka/vibhakti device.
- In some parts such a distinction seems to be even totally ignored.
- My hypothesis is that such inconsistencies must be explained as a result of later interpolations.
Kārakas’ definitions emended

• After having defined each of kāraka roles, Pāṇini inserts a number of sūtras where such basic definition are enlarged or emended

• The apādāna ‘source’ is defined, by s. 1.4.24, as dhruvam apaye’pādānam ‘the fixed point in a movement away’

• Also the semantics of ‘source of fear’ is licensed as appropriate for being classified as apādāna (by s. 1.4.25 bhītrārthānām bhayahetuḥ)
Kārakas confused with case categories

- In some instances, however, the emendations are of a different structure

- S. 1.4.42 defines karana ‘instrument’ as sādhakatamaṇi karaṇam ‘the most effective means’

- S. 1.4.43 (divah karma ca) states that with verb div ‘to play’, the most effective means can be alternatively classified as... karman
The underlying logics of such sūtras

a. The instrument of an action is primarily classified as karaṇa by s. 1.4.42

b. The verb div ‘to play’ exhibits an argument matching the semantics of the karaṇa role

c. The canonical vibhakti realization of karaṇa is the instrumental case by 2.3.18

d. The karaṇa argument of the verb div, however, may also be coded by the accusative, e.g.: Devadattaḥ akṣān/akṣair dīvyati ‘Devadatta plays with dice’

e. The accusative case, in its turn, is the canonical realization of karman

f. Ergo, the semantics of the instrumental argument of the verb div must be classified as belonging to the category of karman instead of karaṇa.
Only because something is expressed with accusative it starts to be classified as belonging to the "semantic" category of karman.

Thus, morphology becomes primary with respect to semantics.
Notice that...

- this alternative paradigm is *contradictory* with respect to the standard *kāraka/vibhakti* device

- and it is also *useless* because such kind of problems are easily treated in the *vibhakti* section, even for the same verb *div*

- finally, it brings to a complete *identification* of *kāraka* categories with their canonical cases
The situation of the verb *div* ‘to play’

<table>
<thead>
<tr>
<th><strong>Vibhakti section</strong> (ss. 2.3.1–73)</th>
<th><strong>Kāraka section</strong> (ss. 1.4.23–55)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The <em>karman</em> argument of this verb is taught to be expressible also with the genitive</td>
<td>The <em>karaṇa</em> of this verbs is re-classified as <em>karman</em> only because it is coded with the accusative</td>
</tr>
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should go here
Further developments within Aṣṭādhyāyī: 1

• In some sections of the Aṣṭādhyāyī the kāraka terms are totally replaced by vibhakti terms

• The identification process is complete: no semantics/morphology distinction is observed anymore

• E.g., instead of the term karman ‘patient’, the expression dvitīyārthe ‘in the sense of the accusative’ is used
Further developments within Aṣṭādhyāyī: 2

- In some sections of the Aṣṭādhyāyī even the vibhakti terms are ignored. Instead, inflected pronouns are used as symbols of both case categories and semantic roles.

- E.g., instead of the term *adhikaraṇa* ‘location’ (and also of the term *saptamī* ‘locative case’) the expression *asmin* ‘in it’ is used.
Hypothetical chronology of Aṣṭādhyāyī

1. *Kāraka* terms themselves, possibly of Pre-Paṇinian origin, etymologically alluding to the semantic categories they indicated

2. *Kāraka* definitions: semantics and morphology are strictly separated, the kāraka/vibhakti device is established

3. First group of *kāraka* emendations: kārakas’ definitions are enlarged by additional semantic characterizations

4. Second group of *kāraka* emendations: kāraka categories are identified with their own canonical realizations

5. *Samāsa* (compounding) section: kāraka terminology is abandoned, while vibhakti terms are used instead

6. *Taddhita* (secondary suffixes) section, metalinguistic rules: vibhakti terminology is abandoned, while inflected pronouns are used instead
Further developments outside Aṣṭādhyāyī

- **Mahābhāṣya** (most authoritative comment on Pāṇini) claims that the first group of kāraka emendation is useless

- **Candravyākaraṇa** (a late Buddhist grammar): vibhakti terms are used for both semantics and morphology

- **Kātantra** (a non-Pāṇinian tradition) restores a more etymological definition of kārakas

- **Saddanīti** (a Prakrit grammar) attempts for a macrorole-like treatment of kārakas
How to explain the theoretical contradictions

- The scholars who follow a traditional approach to Pāṇini try to explain these undeniable (but previously ignored) contradictions within the text of Aṣṭādhyāyī with some vayākaraṇist “trickery”, but they do not actually explain anything.

- Thus, George Cardona states simply that kārakas are partly syntactic and partly semantic in nature.

- However, this amount to say that kārakas are kārakas, while the contradiction remains.
How to explain the theoretical contradictions

• Only recently some hypothesis of interpolated nature of the Aṣṭādhyāyī have been raised, namely in the S.D. Joshi and J.A.F. Roodbergen’s pioneering work on Sāmasa and Taddhita sections

• My intention was to show that a similar analysis, based on a modern linguistics background, may be—and must be—made also for the Kāraka section itself
Do not underestimate linguistic facts!