

Linguistics Isn't 60 Years Old!

Pāṇinian Approaches to the Syntax and Semantics of Natural Language

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The Central Findings of Linguistics

- ▶ Language is generative, creative: “Infinite use of finite means”
- ▶ Languages can be defined by rules, rule-ordering, transformational grammar.
- ▶ Distinct subdomains: syntax, phonology, morphology, semantics, each with their own properties, but each with formal overlapping on similar domains.
- ▶ Unification of “constructions”. “There’s no such things as a passive, etc.”
- ▶ Argument assymetries.

All of this before 1 A.D.! Linguistics is great!

We knew about exocentric compounds before we knew the world was round.

The Major Works of Linguistics

- ▶ Pāṇini's works:
 - ▶ *Aṣṭādhyāyī* (“Eight Chapters”, **the** grammar, thousands of rules/sutras)
 - ▶ *Dhātupāṭha* – List of several thousand verbal roots sorted by inflectional tendencies.
 - ▶ *Śivasūtras* – A small, but powerful classification of phonemes for formal use.
 - ▶ *Gaṇapāṭha* – Running list of irregularly inflected words.
- ▶ The *Mahābhāṣya* of Patañjali (uncertain name) (144 B.C.?)
- ▶ The *Vākyapadīya* of Bharṭṛhari (~600 A.D.?)

Lāghava, Description and Theory

Lāghava, or economy principles, are the guide through all description.

The core documents were written in sutras, which are small, pithy, economical although sometimes complex phrases. These are considered ideal in a literary sense.

Pāṇinian Theoretical M.O.

1. Exhaustively describe the data.
2. Make simple generalizations (as simple as possible).
3. Look into theoretical implications.

Sanskrit (In case you don't know.)

It one of the earliest attested Indo-European languages. It is/was the scholarly and liturgical language of India.

Morphology

Three numbers (singular, plural, dual). 8 noun cases. (Many) verb tenses. Fully-fledged mediopassive.

Phonology

4 way plosive distinction: voiceless vs. voiced vs. aspirated vs. murmured. Dental vs. retroflex. Actually, just lots of everything. Ubiquitous allophony and hyper-active phonological rules (Sandhi), all of which were written in the orthography.

Syntax

Free word order. Ellipsis, pro-drop everything.

The Architecture of the Aṣṭādhyāyī: Sutras and Rules

The Aṣṭādhyāyī was a complete rule-based grammar. Makes SPE look like child's play.

- ▶ Written in sutras.
- ▶ Rules were highly referential to be non-redundant.
- ▶ They were hierarchical. Rule X might activate or test Rule A and B...
- ▶ In some cases (as we'll see with *Kāraḱas*) rules were taken in groups or had special meta-rules for how they were applied.

The Aṣṭādhyāyī sits on the verge of history... Most linguistic terminology is not so much defined as presupposed.

Description of Sanskrit Case

Sanskrit retains all 8 Indo-European cases. Here is the inflection of the word *devá*, meaning “god”. (Duals excluded)

	Singular	Plural
Nominative	devaḥ	devāḥ
Accusative	devam	devān
Instrumental	devena	devaiḥ
Dative	devāya	devebhyaḥ
Ablative	devāt	devebhyaḥ
Genitive	devasya	devānām
Locative	deve	deveṣu
Vocative	deva	devāḥ

Let's look at Pāṇini's system in action: *Kāra*ka theory.

Kāraḱa Theory

A *kāraḱa* can be thought of as a (semantic) verbal participant, or perhaps an *argument*. Kāraḱa theory largely is a formal rival of what in Generative Grammar is “case theory”.

- ▶ *Apādana* – Point of reference
- ▶ *Sampradāna* – Goal, target of emotion
- ▶ *Karaṇa* – Means, tool
- ▶ *Adhikaraṇa* – Substrate locus
- ▶ *Karman* – Undergoer, theme
- ▶ *Karṭṛ* – lit. “doer”, but the *svatantraḥ kartā* “the independent argument”

Needless to say, these are similar in meaning to thematic roles, see Kiparsky and Stall (1969). But they are *not exactly* the same.

Case assignment

Rules

- ▶ The grammar has a list of rules that apply nouns to *kāraka* categories, and then a case if they meet semantic requirements.
- ▶ All nouns must have case (real case).
- ▶ If two rules can apply nouns into multiple *kāraka* categories, the last one has precedence.

Kāraka categories and case

- ▶ *Apādāna* → Ablative case
- ▶ *Sampradāna* → Dative case
- ▶ *Adhikaraṇa* → Locative case
- ▶ *Karman* → Accusative case
- ▶ *Karṭṛ* → Instrumental case

Nominative case is special.

Where does nominative case come from?

Pāṇini does overtly give a rule for the formation of the nominative, rather it comes “for free” given other established rules and principles. Thieme (1956) makes clear the classical interpretation of this:

- ▶ Expression of meaning is necessarily non-redundant.
- ▶ The active verb ending (*ti* in the 3rd plural) expresses active agency (Rule 2.3.1).
- ▶ Instrumental case cannot be assigned if *ti* is present, as it would be duplicating the meaning of the verbal prefix.
- ▶ Nominative case is an “elsewhere” outcome of the derivation.

Q: why not the bare stem? >muh features

The “External Argument” in Pāṇini

In the original definition of *karṭṛ* “doer”, it is similar to our familiar concept of “agent” in GG. As Cardona (1972) notes, however, though this is the literal meaning of the word, Pāṇini assumes that passive subjects are “spoken of as agents”.

To be clear, what is actually important for Pāṇini is not volition (although Bhartr̥hari notes that that helps in establishing *karṭṛ*-hood), but the noun it is *svatantaḥ kartā*: the independent *kāraṇa*, or the discourse topic to which new information is appended. All of these are connected in *karṭṛ*.

You might...be able to say that the passive ending carries the meaning of a *karman* in the same way that the active ending carries the meaning of a *karṭṛ*.

Holism

The root pac 'cook', for example, is said to denote everything involved in cooking: the internal conscious effort of the agent, putting the pot on a stove (or hearth), putting water and grains in it, blowing, heating, etc. It is when these things are being done that one says pacati ('is cooking') of someone. (Cardona 1972)

Generative Grammar

Deep Structure → Transformations → Surface Representation
Verbs have lexical demands and select particular nouns.

Pāṇinian Grammar

Holistic perception of a scene → Surface Representation
Sentences are indivisible expressions of cognitive schemata.

The Centrality of the Sentence

► Brough (1951) puts it:

“In Bhartrhari’s view, then, the primary linguistic fact is the undivided sentences-*sphota*. Just as a bare root has no meaning in the world, so also the meanings of individual words are merely hints or stepping stones to the meaning of the sentence. This is a plain linguistic fact, which has none the less been clear to very few philosophers, either in India or elsewhere; and though familiar enough in modern linguistics, is still constantly overlooked in many discussions on meaning.”

Implicit Ellipsis

Alluded to before, Sankrit is a very liberal dropping and eliding language.

Deshpande (1985) describes two schools of thought towards this process:

- ▶ *Padādhyāhāra* – “assumption of missing words”, words and syntax are reconstructed in the mind, then interpreted as a whole.
- ▶ *Arthādhyāhāra* – “assumption of missing meaning”, meaning is reconstructed directly from elided input.

Formally, Pāṇini created rules as if the first were true, i.e. rules could refer to non-existent rules, but that shouldn't necessarily be taken as a theoretical stance.

Important: There are no syntactic deletion rules in Pāṇini. You can delete morphemes or phonemes, but syntactic “deletion”/“ellipsis” is either too commonplace to warrant an explanation, or is viewed as extra-linguistic (depends on who you

If Pāṇini were writing today...

Reviewer 2

“Very descriptive. Of unclear theoretical importance.”
REJECT WITHOUT INVITATION TO RESUBMIT

Generativity

The generative/creative aspect of language is discussed at some length by Patañjali, focusing first on the seemingly infinite number of morphologically complex words. Sharma (1987) paraphrases:

“How, however, should one approach the instruction about, or understanding of words? Should one start by taking individual words and explain them till the totality of words in the language is exhausted? Patañjali does not approve of this technique of pratipadapāṭha ‘recitation of each and every word’, mostly because it would require several lifetimes with the end still not in sight.”

The solution is rules that unify and describe the patterns between the generation of language.

“He proposes that a set of rules (lakṣana) should be formulated based upon the principle of general (sāmānya) and particular (viśeṣa). He argues that this will enable us to understand the enormous mass of words with little effort.”

End Part 1

References

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