



# Foundations of Linguistics



Professor S.N. Sridhar


Department of Linguistics &

Center for India Studies, State

University of New York at Stony

Brook

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# Linguistics in India

- “Grammar--a discipline that until very recently was more highly developed in India than anywhere else”

Fritz Staal 1988: viii.

- Centrality of grammar in Indian thought, cf. Mathematics in Western



# The Indian Approach to Language

- Characterized by both analysis and synthesis
- The analytical method was older and more popular
- Sanskrit word for grammar is *vya:karana* “linguistic analysis.”
- Sophisticated exploration of many theoretical issues



# Fillippo Sassetti's (1540-1588) Theory

- Florentine merchant
- Noticed similarities between Sanskrit and European languages
- Impressed by the Indian discovery of relationship between sound and mouth/tongue movements
- Habit of chewing betel leaves and areca nuts.

# Francois Pons, S.J. (1698-1752)

- Jesuit Missionary
- Stressed the “small number of primitive elements,” themselves not used, from which the Sanskrit grammarians derive “the infinite variety of actual forms in use” and noted that the rules of grammar are described explicitly, so that someone who “knows nothing but grammar” can apply them.



# Sir William Jones (1746-1794)

# Leonard Bloomfield

- Called Panini's grammar "one of the greatest monuments of human intelligence... It describes, with the minutest detail, every inflection, derivation, and composition, and every syntactic usage of its author's speech. No other language, to this day, has been so perfectly described." (Language, 1933, p.11)



# Impact on Western Linguistics

“Around the beginning of the nineteenth century, the Sanskrit grammar of the ancient Hindus became known to European scholars. Hindu grammar described the Sanskrit language completely, and in scientific terms, without prepossessions or philosophical intrusions. It was from this model that Western scholars learned, in the course of a few decades, to describe a language in terms of its own structure.”

(Bloomfield, *Linguistic Aspects of Science*, 1939, p. 2)

# Skeptical View

- Bopp: strong views on the “reality” of roots: no unattested forms set up as underlying forms
- “Grammarians’ Sanskrit -- a thing of grammatical rules merely, having never had any real existence as a language” (Whitney)

# Mixed Blessing

- Panini's grammar praised for its alleged positivism (by Bloomfield, Whitney, etc.)
- Later linguists have erroneously regarded Panini as the embodiment of the taxonomic approach
- B. ignored the predictive implications of the notion of grammatical rules. However, Sanskrit grammarians are always talking of examples and counter-examples.

# Possible Words

- Ya:ska's Etymological School
- Ya:ska:, author of *Nirukta*, commentary on the *Nighantu* (list of select words in the Vedas)
- Theory of word-derivation:  
nouns are derived from verbal roots
- No restrictions on derivational creativity
- Language designates things incompletely



# Wilhelm von Humboldt (1767-1835)

- Published several studies on Sanskrit (e.g. on *-tva* gerunds), on the *Bhagavad gi:ta*, etc.
- Sanskrit was the zenith of the development of inflected languages
- Only because of Sanskrit was a serious and fruitful study of language possible.
- Indian grammarians mentioned several times in Humboldt's best known work

## Humboldt (contd.)

- “Invented roots” as “language atoms”
- Develops idea (similar to Bopp’s) of one to one correspondence between smallest morphological and semantic elements of language.
- Language atoms must be verbs: two kinds of word forming suffixes in Sanskrit.

# Chomsky on Humboldt

- H's emphasis on the creative aspect of language. H. in fact relates his views on some of these matters to the Sanskrit grammarians.
- H: Sanskrit grammarians recognized the principles of word formation
- Posits abstract underlying roots (contra Bopp)
- *Asty aprayuktah*: there exist words which are not used. Panini, *Ashta:dhya:yi*: I.9.23-24

# Fritz Staal

- “The activities of the Indian grammarians are the closest parallels in history to contemporary linguistics” (p. xii).
- “Only contemporary insights can pave the way for an adequate interpretations of the work of Sanskrit grammarians themselves ... [as] linguists [and] the linguistic problems with which they themselves were coming to grips.”

# Timeline

- The Vedas
- Phonetics
- Nirukta
- Panini
- Ka:tya:yana (Va:rtika's or rules of interpretation on P.)
- Patanjali
- Bhartrhari

# From the earliest literature...

uta tvah pas'yan na dadars'a va:cam  
uta tvah s'rnavan na s'rnotyena:m.  
uto tvasmai tanvam visare  
ja:yeva patya us'ati suva:sa:h.

*Rg Veda* x. I. 4.

“The ignorant man, seeing and hearing speech in its overt forms, does not know its real nature... To the wise, Speech reveals her intrinsic nature, even as a loving wife does to her husband.”

# The Ancillary Disciplines of the Vedas

- S'iksha: (Phonetics)
- Vya:karana (Grammar)
- Nirukta (Etymology)
- Mi:ma:msa (Textual Interpretation)  
—All intimately connected with language

# The Sanskrit Alphabet

- Phonetic Organization (Stahl Chart)
- Another Chart

# Pratis'a:khya Literature

- Deals mainly with Vedic phonetics & phonology (provides for each Vedic text the rules to derive the *Sambhita*: from the *pada pa:tha*)

# Pada pa:tha (“word-for-word analysis”)

- Word by word version of the Rg Veda: Early Linguistic Analysis
- *Sambhita* (connected) text broken up into words (*padas*), identifying even the separate elements of compound words

# The Mi:ma:msa School

- Developed an elaborate methodology of textual (Vedic) interpretation
- The word is a form and is thus distinct from its material embodiment, sound. (*s'abda nityatva va:da*).
- Proposed a semantic definition of the sentence based on the concepts of
  - *A:ka:nksa:* (mutual expectancy)
  - *Yogyata* (consistence)
  - *A:satti* (contiguity)

# Origin Of Grammar

- Ma: udakam de:hi “Do not sprinkle the water on me.” Vs.
- Mo:dakam de:hi “Bring me sweetmeats” [22]

# Panini's *Ashta:dhya:yi:*

- Just under 4,000 sutras in 8 chapters
- Names 8 predecessors
- Accounts for both Vedic and Classical Sanskrit
- Descriptive, not prescriptive
- Sensitive to sociolinguistic variation

# Timeline

- Vedic Sanskrit (1500 BCE to 500 BCE)
  - The language of the *Rig Veda*, and others
  - Referred to as “*Chandas*” in Panini
- Classical Sanskrit (500 BCE onward)
  - The language of the epics *Mahabharata*, *Ramayana*, the *Bhagavadgita*, the later *Upanishads*, etc.
- Panini described the language of the *Vedas* and the *Bra:hmaṇas* (later part of the Vedas)

# Pa:nini's *Ashta:dhya:yi:*

- Derives all the forms of Sanskrit from operations on two kinds of primitives -- **bases** (*prakerti*) and **affixes** (*pratyaya*)
- **Bases** (*prakerti*) consist of two types, **verbal** (*dha:tu*) and **nominal** (*pra:tipadika*)
- **Affixes** include two major types, verbal (*tin*) & nominal (*sup*)

# Panini's Technique

- Brevity “dark as the darkest oracle” --WJ
- Computational (algebraic formulas)
- *Paribhasa*: Metarules, technical terms
- Explicitness
- Comprehensiveness
- Don't Defrag!
- “System grounded on a profound investigation of the analogies in both the regular and the anomalous inflections...”
- Abstract U.R.'s
- Rule Ordering
- Relative Strength of Rules
- The linguistic zero

# The Agony & The Ecstasy of Brevity

*Ardha ma:tra:  
la:ghavena  
putrotsavam manyate  
vaiya:karana:h*

A grammarian  
delights as much  
in lightening [his  
rule] by half a  
syllable as in the  
birth of a son.

The *Ashta:dhya:yi:*'s form of presentation is of the strangest: a miracle of ingenuity, but of perverse and wasted ingenuity. The only object aimed at is brevity, at the sacrifice of everything else -- of order, of clearness, of even intelligibility except by the aid of keys and commentaries and lists, which are offered in profusion. (Whitney)

# Format

- *Su:tras* “succinct aphorisms”
- *Vritti, Ka:rika, Bha:shya/Ti:ka:*  
(Annotation/Commentary)
- *Nighantu* Concordances, etymologies
- Dhatu Patha (Catalog of verbs, classified)
  - Appendix to Panini’s grammar
- Ghana Pa:tha (Index of words cited in the rules)

# Sources of difficulty

- Extreme compactness; shorthand symbols
- Incredible wealth of minutely observed detail
- Relevant processes dispersed across the grammar
- Presupposes knowledge of Sanskrit
- “Children begin learning the work when they are 8 years old and can repeat it in 8 months time.” (I Tsing)
- “The exquisitely refined system by which the Sanskrit grammar is taught...” (Colebrooke)

# The Great Grammarians

- **Autonomy of Grammar:** They evolve their own concepts (svakrta:nta)
- **Grammar is based on the usage of s'iStas and s'iStas are those who are versed in grammar.** (Patanjali)

*tasma:d bha: bmanena na mlecchitavai*

“Therefore Brahmanas should not speak barbarously”

# Philosophy of Grammar

- Why study grammar?
- How language is learnt
  - not word by word but to formulate rules following principles of generalization (sa:ma:nya) and exceptions (vis'es'a)



# Does Grammar Help in Learning A Language?

Eight ways to learning the meaning of a word


- grammar
- analogy
- lexicon
- statement of a reliable person
- the speech behavior of elders
- the remaining part of the sentence
- explanation
- proximity with well-known words

# Ka:tya:yana

- Va:rttika (annotations)
- Annotated, restricted, enlarged, and corrected (marked the exceptions to) the scope of Panini's rules
- Definition of a Sentence:
  - A group of connected words which contains a single finite verb (*ekatin*)

# Patanjali's *Maha: bha:shya* “The Great Commentary”

- Vast & voluminous
- “A man who wants to use a pot goes to the potter and says, ‘Make me a pot, I want to use it.’ But a person who wants to use words does not go to a grammarian and say, ‘Make me words, I want to use them.’”
- The grammarian’s rules must account for the actual usage (*prayoga*) of the people (*loka*).  
(I.7.28-8.1)



# Patanjali's Famous Question: What, in fact, is the word *gauh* (‘cow’)?

Patanjali defines the word as that on the utterance of which there is common understanding regarding objects.

Yenoccaritena sa:sana-la:ngu:la-kakuda-khura  
visha:nina:m sampratyayo bhavati sa s'abdah.

*Mahabhasya, A:hnikā I.*

# Bhartrhari (5th cent C.E.)

- Idealistic view of reality.
- Denies construction free knowledge beyond the reach of words.
- All knowledge is interpenetrated with words. It is impossible to have a cognition free of word association.
- Exposed inadequacy of a linguistic theory based entirely on individual words

## Bhartrhari ... 2

- When words are used, three things are understood by us;
  - the form of the word
  - the meaning
  - the intention of the speaker

# How Words Mean: Three “Powers” of Words

- Saying or denoting (*abhidha:na*)
- Pointing, signifying or indicating (*lakshana:*)
- Theory of Metaphor:
  - when the primary meaning is a misfit in the context
  - when indicated meaning would have to be associated with the primary meaning
- Suggesting (*vyanjana:*) appealed to only

# Conditions for understanding word or sentence meaning

3 factors creating unified sentence meaning

- Expectancy (*a:kanksha:*)
- Consistency (*yogyata:*)
- Contiguity (*a:satti*)

Added later (not universally accepted):

- Intention (*ta:tparya*)

# *A:ka:nksha: “expectancy”*

- psychological expectancy  
(*Mima:msa:* philosophers)
- syntactic expectancy (Logicians & Grammarians)

# *Yogyata*: “consistency of sense”

- Involves judgement of the sense or nonsense of a sentence -- Grammarians not interested in this; nor in *lakshana*: “secondary meaning”
- They separated syntactic well-formedness from real life impossibility. Favorite example:
  - *vandhya: putrah* “child of a barren woman”
  - Cf. *Colorless green ideas sleep furiously*

## *A:satti* “contiguity”

- Uninterrupted utterance or unbroken apprehension of words in a sentence
- Supplied by recovering missing (or deleted) meaning or words

## *Ta:tparya* “intention”

- Speaker’s intention known from the context
- Eg. *saindhavam a:naya*
  - a. ‘Bring the salt’ or
  - b. ‘Bring the horse’



# Contextual factors which help in resolving ambiguity

- association
- dissociation
- mutual association
- opposition
- purpose
- context of situation
- indicatory sign
- proximity
- capacity
- propriety
- place
- time
- gender
- accent

# Theories of Sentence Comprehension

- Gricean Assumption: Speakers intend to make connected, unified sense
- Two major theories:
  - anvita: ‘bhi da:na
  - abhi hita: ‘nvaya

# Comprehension:

contd...*anvita*:-'bhi-da:na

- Sentence meaning is meaning of each word, plus their syntactic connection, obtained through their secondary significance [*lakshana*]
- The meaning of a sentence arises directly from the collection of its words. (i.e., words convey no meaning except in the context of a sentence)
- Children understand the meaning of the entire expression from the context or situation and arrive at the meanings of individual words only by distributional analysis [*anvaya-vyatireka*]



Comprehension: contd...

*abhi-hita:-'nvaya*

words themselves give both their individual meaning, as well as their syntactic connection

# Bhartrhari (5th c. A.D.)

- Author of *Va;kyapadi:ya* “Of sentences and words”
- Possibly also author of a commentary on Patanjali
- Greatest philosopher of language in Sanskrit
- Proposed the “Sphota” Theory

# *Sphota* Theory of Bhartrhari

- A word or a sentence is not just a concatenation of different sound units in a particular order, but a single whole, a single symbol which bears a meaning.
- (from <sphut 'to burst' i.e., “make explicit”)
- Word-sphota or Sentence-sphota
- Contrast with the audible sounds, the ‘noisy realities’ through which sphota manifests.

# Does thought depend on language?

Bhartrhari's doctrine:

Na so'sti pratyayo loke yah s'abda:nugama:d rte,  
anuviddham iva jna:nan sarvam s'abdena bha:s'ate.

*Va:kyapadi:ya* I, 123

“There is no cognition without the operation of the word. Shot through and through is cognition by the word, as it were. All knowledge is illuminated by the word.”



# Comprehension contd...

- *Pratibha*. Idea & Expression conceived as a single unit. Listener likewise comprehends it as a whole, the understanding is a single flash of insight
- Cf. painter; We see a picture as a unit, not as different colors and strokes.



# Analogies

- Crystal
- Moon in water
- Light in the stick
- Painting
- Peahen

# Digna:ga

- Indebted to Bhartrhari
- Proposed concept of *a:poha* (“exclusion”)
- Meaning of a sentence is “intuition”  
(*pratibha:*)



A:nandavardhana (c. 850 A.D.)

## Great Literary Theorist

- Suggestion (*vyanjana:*) -- a capacity to suggest a meaning beyond its primary and metaphorical meaning -- a third “potency” of language.
- Hearer-relative meanings:  
Eg. “The sun has set.”
- Comprehensive theory of language but primarily interested in poetic language
- Extension of Bharata’s (3c. CE) *Rasa*\_theory

# Logicians (Contd.)

- Rejected Vyanjana: (“Suggestion”)
  - subjective
  - assumes limitless suggestive power of language
  - suggested meanings may be too vague, fleeting, subjective; do not lend themselves to logical discussion/analysis

# Concluding Thoughts

- Indian pandits discovered the same universals that were discovered in the West
- Demonstrates possibility of communication between civilizations, contra Quine's *indeterminacy of translation*.
- Don't isolate philosophy from ongoing research in the human sciences, especially in Asian Studies.

# Conclusion

- *Anupa:sita vrddha:na:m  
vidya: na:ti prasi:dati*”
- “The goddess of learning does not smile on those who neglect the ancients.  
– Bhartrhari *Va:kyapadi:ya*, II.493