

IN PRAISE OF SAKATAYANA: SOME REMARKS ON WHOLE WORD MORPHOLOGY*

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1. Introduction

Panini's *Astadhyayi* is, as Thieme (1971) points out, an extended argument, presumably *contra* Sakatayanaⁱ and others, that a grammar can be built up with small units, particularly in the domain of morphology. For Panini, the word is an entirely derived entity, something made up of smaller pieces, put together according to the combinatorics he provides. The parts that enter into his combinatorics are according to him all real (cf. Deshpande 1997). Both his atomistic ontology and his methodology have been questioned in the immanent critique that begins with Patanjali's insistence on *nityatva* and ends with Bhartrihari's demonstration that words are seamless wholes and that the parts Paninians delight in coming up with are at best grammatical fictions (cf. Singh 1998). Bhartrihari's critique is, however, ignored by most—even his defenders, such as Kelkar (1999), see him primarily as a philosopher of language, obviously making a distinction he would have abhorred, and do not draw what seem to us to be obvious grammatical conclusions from his insistence, for which he provides several substantial arguments, on seamlessness. Post-Renaissance grammatical practice in the West increasingly abandons the Greco-Roman construal of morphology as a study of relationships of shapes of whole words, and whole-heartedly adopts the Paninian position, espoused by leading structuralists from Saussure (cf Singh 1992 and Vajpeyi 1997) to Bloomfield. Despite some modern attempts to revive the ancient Greco-Roman practice (cf. Robins 1959 and Matthews 1974 , in particular), the Paninian way of doing morphology has been dominant for centuries now, possibly because a fully formalized full-fledged alternative had not been made available until recently (neither fish nor fowl attempts such as Anderson 1992 actually end up supporting the Paninian view, as Sadock 1995 is happy to note). The purpose of this short dialogue-initiating note is to outline the alternative that has been available at leastⁱⁱ since Ford and Singh (1991), to show some of its applications, and to invite South Asianists to tell us why the Paninian view of morphology should be preferred. Hoping to shift the burden of proof, we shall concentrate not on the critique of that view, best characterized as morphemology (a la Janda 1983) but on the presentation of whole-word morphology.

2. The Theory

All that needs to be said about word structure in any language (of any type whatsoever) can and must be said by instantiations of the schema in (1) below. .We refer to these instantiations as W (ord) F(ormation) S(trategies) because as generalizations drawn from known particular facts, they can be activated in the production and understanding of new words (cf. Ford and Singh 1991 and Ford, Singh, and Martohardjono 1997)ⁱⁱⁱ: WFS's must be formulated as generally as possible, but , and this is crucial, only as generally as the facts of the matter permit.

$$1. /X /a \leftarrow \text{----} \rightarrow /X' /b$$

where:

a. $/X /a$ and $/X' /b$ are words and X and X' are abbreviations of the forms of classes of words belonging to categories a and b (with which specific words belonging to the right category can be unified or on to which they can be mapped).

b. ' represents (all the) form-related differences between $/X /$ and $/X' /$

c. a and b are categories that may be represented as feature-bundles

d. the $\leftarrow \rightarrow$ represents a bidirectional implication (if X ,then X' and if X' ,then X)

e. X' is a semantic function of X

3. Some Consequences

It should be obvious that (1) above denies both intra-linguistic (inflections vs. derivation, affixation vs. compounding etc.) and inter-linguistic (flecational, isolating etc.) morphological diversity , and offers a unified account of what have sometimes been seen as different types of morphologies. The diversity that exists can be read off the system of strategies that instantiate (1) above, but it does not need to be expressed as a difference in type: a difference in content does not constitute a difference in form (of rules or strategies). (1) also denies any theoretical status to descriptive labels such as “concatenative,” “non-concatenative,” “affixal,” “non-affixal” etc. Again, multiplicity is superficial , and resides in descriptive, pedagogical paraphrases of instantiations of (1).

As all morphological relationships can be expressed by strategies instantiating (1) , morphology has little or no architecture and, to change the metaphor, no traffic rules (such as *krt* before *taddhita*). Although there may well be constraints on what sorts of things can be morphologized, i.e. constitute categories relevant for a morphological description, there are no constraints on particular instances of (1) , though all manifestations of (1) must, obviously, relate (single) words with (single) words.^{iv}

Morphological strategies (= instantiations of (1)) are invoked only in moments of crisis, i.e., when the speaker needs to analyze or fashion a word she needs for the purpose at hand, often to meet a syntactically enforced requirement ; otherwise, they are representations of her knowledge of the patterns of morphological relatedness in her language. Their exploitation, of course, helps her to bridge the gap between the actual words she happens to know and the possible words she can be said to know—actually their existence makes the known merely a subset of the knowable. . When they ARE invoked to produce what will become words, their “outputs” are seamless wholes, with no brackets, boundaries, or a-cyclic graph fragments in them. They are not there to be deleted; they are just not there. WFS’s cannot supply these things because they do not have them. And neither the strategies nor their “outputs” have any syntactic constituency relationships marked in them in any fashion whatsoever. In both the active and the passive mode, they license the words a speaker has or may come up with (in the “ on line” mode).

4. Some South Asian Examples

Below, we provide some examples of morphological strategies from English and other South Asian languages (the parenthetical comment draws attention to what some would like attention drawn to). When not enclosed in phonemic bars, words from languages other than English are given in their standard transliterated form and are provided with glosses .

2.a.	English / X /	↔	/ XIzm /
	Marx		Marxism
	Ford		Fordism

2. b. .	English / X Ik /	↔	/ XIIsIzm /
	critic		criticism
	mystic		mysticism

(the / s / in *criticism* is a concomitant consequence and an integral part of the morphological operation that CAN be used to form nouns from adjectives terminating in / Ik /, an operation or rule that is in competition with the general rule in (2a) above. It is, therefore, part of the representation of the word *criticism*, to which the phonology of English (= the phonological processes of English) will apply, as it must. Needless to add that the Paninian view of phonology sees the / s / in *criticism* as “ phonologically derived” from a / k / despite the fact that the allegedly phonological part of the operation in question is NOT generalizable beyond the morphological categories with which it is bound and in which it actually shows up).

3.	Khasi / X /	↔	/ myn X /
	step		mynstep
	rising sun		morning

(There is, apparently, some debate about *myn*-words being affixed words or compounds (cf. Philip 1997),, a debate which presupposes that the distinction is a viable one! (cf. Tirumalesh 1997).

4. Kashmiri	/ X /	←-→	/ X /
	thag		thag
	to cheat		a cheat

(the agent noun is generally said to be derived from the verb with the help of the famous zero-suffix, despite the fact that in a very large number of cases there is not a shred of evidence to support the putative deverbal character of the agent noun (cf. Wali and Koul (1997: 270): “ The syntax of deverbal nouns is similar to that of nonderived nouns with respect to gender, number, and case-marking.”). and despite diachronic derivations that follow the opposite path.

4.b. Kashmiri	/ X V C /	←-→	/ X V: C /
	mar		mAR
	to die		to kill

(This *vriddhi* alternation is treated by some scholars as a part of Kashmiri phonology despite the fact that inter-consonantal vocalic lengthening is never required in Kashmiri and is in fact not only associated with causativization but is the only mark of it in words like / ma:r / ‘to beat’, / ga:l / ‘ to melt (causative), / da:l / ‘ to remove’)

5. Bangla (a.k.a. Bengali) /X / ←→ /Xnau /

(/ nau / is one of the handful of “supporting verbs” or vectors that appear in structures traditionally described as “compound verbs” despite the fact that the freedom that label implies would generate far more combinations of verbs with verbs than are actually treated as “ compound verbs” even by those who use this label. The grammatical subservience of elements like / nau / in such structures is demonstrated with remarkable clarity and elegance in Dasgupta (1989:215-222, in particular).

6a. Hindi / Xa /n,nom,sing,masc \leftrightarrow / Xi / n,sing,fem laDkA
 laDaki ‘girl’

(As masculine nouns ending in /a/ have a straightforward feminine correspondant in /i/, there is absolutely no need to postulate an intermediate laDak, an entity whose postulation is forced by the rather peculiar architecture of Paninian morphology. The generalization SPEAKERS use is 6a (cf. Singh and Agnihotri 1997)

6 b. Hindi / X/ \leftrightarrow / ghuDX /
 savAr ghuDsavAr
 rider horse-rider
 doD ghuDdoD
 race horse-race

(/ ghuD / can, obviously, be called the combining form of the word /gho:Da:/ ‘ horse’ in this *vikari* “compound”, but it is not clear what is gained by doing so, particularly because the form that combines is not always the combining form (see 6 b. below). It is hard to see why Paninians do not call it a “prefix”).

6 c.. Hindi / X / \leftrightarrow / Xga:Di /
 ghoDA ghoDAAgADi
 horse horse-carriage

(words like /gho:Da:ga:Di / are standardly presented as made up of two words despite the fact that whereas / gho:Da: / is very freely commutable, /ga:Di / is hard or impossible to find a substitute for (cf. Singh and Dasgupta 1999). It is quite clear that despite the fact that there is no *vikaar* in / ga:Di / , it has lost its word-hood—it only sounds like the word / ga:Di / , as Bhartrihari would say).

7. Sanskrit / Xen /n,masc.sing,inst \leftrightarrow / X sy / n.masc,sing,gen
 kamen kamasya

love

love

(Whenever the masculine singular instrumental noun ends in / en / the corresponding masculine singular genitive ends in / sy /, something quite directly accessible to those who know Sanskrit and yet not quite that easy to state in neo-Paninian approaches, which must take these forms through some intermediate bridge-head, unnecessarily in our view).

7b. Sanskrit / Xa /v,imp.II,sing ↔ / Xami /v,pres,I,sg

bhava

bhavami

you be

I am

(Notice that there is no need to go through the famous “root” / bhu / to capture this part of what is involved here. Nor is there any need to appeal to this fictitious construct to capture other such relationships

7c. Sanskrit / X / n,dat,pl ↔ / X / n,abl,pl

kamebhyas

kamebhyas

love

love

devebhyas

devebhyas

god

god

(That this straightforward partial syncretism must, under Paninian lights, be stated in a meta-grammar of Sanskrit or made to follow from some Paradigm Structure Condition(s) is surely a reflection on those lights).

5. Conclusion

Even at the risk of being redundant, we wish to underline the fact that the WFS's presented in section 3 above do not appeal to or use any Paninian construct such as *dhatu*, *anga*, *vibhakti*, *pratyaya* etc. Nor do they use concepts such as inflection, derivation, and compounding etc. Yet these strategies say exactly

what needs to be said about the bits of morphology they describe, and some of what they do say is hard, if not impossible, to say in Paninian terms. Whereas Paninian morphology sees what could be called morphological complexity as a matter of layers of morphological structure, our strategies invite one to think of complex words as made up of variables and constants that have been non-hierarchically put together, provided, of course, there is a strategy that licenses such an analysis. Thus, both English *Marxism* and Hindi ghODAgADi can be analyzed as made up of substrings that correspond to what is varied and what is held constant in the relevant strategies (they are, it is important to underline, identified as such ONLY in the strategies). If these strategies are in fact invoked to create these words, they will not, we want to emphasize, supply any boundaries or brackets, only seamless wholes (*marxism* and ghODAgADi) that will show up as words after phonological processes have given them the phonetic shape they must have to count as words. The need to divide non-category bearing substrings into roots and stems etc. or what is held constant and can be seen as strings into prefixes, suffixes, and infixes etc. remains a mystery to us. As for the word, it is clearly indicated by a bald, unadorned and unsupported X, whose ability to bear a category does not depend on the presence of some other supporting material or by a n X AND the bound material whose support it needs before it can take on the burden of bearing a category (cf. Hindi ghODA as an instance of the left-hand pole of (6c) above and Hindi laDak as an instance of the variable in the left or right hand pole of (6a) above). And it is, of course, forever *nitya*. What is held constant but cannot be neatly localized as a “morpheme” is, of course, the Achilles’ heel of morphemology. Although the different types of substrings in deconcatenatable representations can be easily, perhaps even trivially, identified, there is no reason to give them any status or special names, except perhaps for heuristic and pedagogical reasons, and even then a *caveat lector* is needed..

As for morphological typology, it is perhaps only a matter of the types of X’s that dominate particular morphologies. Thus it is possible to refer to a morphological system or a part of a morphological system in which bald, unadorned X’s can bear categories on their sleeves as word-based and to systems or subsystems characterized by the absence of such bald X’s as non-word based. This naming device does not, however, require giving up the assumption that morphology relates whole words with whole words, obviously *pace* Panini.

6. Post-script

Is it too arrogant to suggest that perhaps the only things in *The Astadhyayi* that seem sustainable are its rejection of the putative distinction inflection/ derivation^v and of so-called conjugational and declensional classes? The former (inflection vs derivation) is a result of confusing form with function. As for the latter, we have, hopefully, shown that it is indeed possible to do morphology without declensional and conjugational classes without paying the heavy price the celebrated Paninian invocation of “ internal sandhi “ here seems to demand and exact.

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Notes

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ⁱ Sakatayana, an honoured name mentioned by Panini himself, is known to have argued that affixes do not have any meanings (outside the words they appear in). Although his work has not survived, we speculate that he must have argued for what we can call whole word morphology, the view from which the non-autonomy of affixes would naturally follow.

ⁱⁱ Although a full outline of the theory in question is provided only in Ford and Singh (1991), implicit and explicit suggestions regarding its shape and claims are available in papers written as early as the early eighties (cf. Ford and Singh 1983 and 1984).

ⁱⁱⁱ The word is a quantum of information whose particle properties are made reference to by phonology and morphology while its syntax and semantics make its wave properties explicit.

^{iv} The point of saying it this way is to make it clear that so-called compounds are single words and DO NOT contain two or more words (cf. Singh and Dasgupta).

^v As most contemporary versions of Paninian morphology do not reject this distinction, we refer here specifically to *The Ashtadhyayi* and NOT to Paninian

morphology (in general).