

REVIEW ARTICLE

Explorations in Seamless Morphology. Edited by Rajendra Singh and Stanley Starosta, in collaboration with Sylvain Neuvel. Pp. 351. New Delhi, Thousand Oaks and London: SAGE Publications. 2003.

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The development of morphological theory within generative linguistics has culminated, so far, with several attempts at negating, or undermining, the structuralist notion of the morpheme understood as an isomorphic sign, an arbitrary union of form and meaning. This has often led to a re-analysis of large areas of the morphological systems of various languages as well as a re-shuffling of other aspects of morphological theory.

In the early generative literature, dissatisfaction with the classical definition of the morpheme culminates in the influential monograph by Aronoff (1976), in particular his word-based morphology hypothesis which insists that “[a]ll regular word-formation processes are word-based. A new word is formed by applying a regular rule to a single already existing word” (Aronoff 1976: 21). That is to say, Word Formation Rules (WFRs) are said to operate on whole words rather than morphemes (roots, stems). However, the morpheme is not totally discarded: “Note that we have not abandoned the concept of the morpheme. It still remains, but not always as a sign” (Aronoff 1976: 14). Rather, the morpheme is redefined, so as to dissociate it from semantics: “A morpheme is a phonetic string which can be connected to a linguistic entity outside that string” (Aronoff 1976: 15).

Later developments within generative morphology have led to new, though not very common, assaults on the structuralist concept of the morpheme and on the view of word-formation as, simply, a process which consists in concatenating individual meaning-bearing elements. For instance, one should mention Bybee’s model of word-formation schemas, which are directly rooted in lexical representations of words (see e.g. Bybee 1988), or Beard’s separation hypothesis, which dissociates the formal and semantic aspects of word-formation processes (see e.g. Beard 1995).

An even more radical, and eloquent, criticism of the morpheme, and of morpheme-based approaches in generative grammar, may be found in several studies by Anderson (see e.g. Anderson 1992 and Anderson and Lightfoot 2003). Anderson dispenses with morphemes altogether. According to him, the word (or, to be more precise, the stem) is to be looked upon as the proper unit of morphological structure. Anderson argues that “the morphology of a language consists of a set of Word For-

mation Rules which operate on lexical stems to produce other lexical stems (which, if fully inflected, will be surface words)". He goes on to say that "the morphological structure of a word is given as a derivation, showing the set of rules by which it is related to other words (and ultimately to a basic lexical entry)" (Anderson 1992: 71). Consequently, one may conclude that while the morpheme is gone, the Word Formation Rule is preserved intact.

It would appear that Anderson's position comes very close to the framework advocated in the book under review, *Explorations in Seamless Morphology (ESM)*. In a way, it does, but (perhaps surprisingly) it is subject to some vehement criticism from the editors and contributors of *ESM* (see below).

It is time now to introduce the book itself. *ESM*, at least in its first, programmatic chapters, is a frontal attack on what is generally perceived as mainstream generative morphology. Below, we will focus, in particular, on the contents of the first four chapters which, as announced by the Editors in the "Introduction", outline the theory of Seamless Morphology, also known as Whole Word Morphology: "Prolegomena to a theory of non-Pāṇinian morphology" by Alan Ford and Rajendra Singh (pp. 18-42), "Some advantages of linguistics without morpho(pho)nology" by Ford and Singh (pp. 43-65), "In praise of Śakaṭāyana: some remarks on Whole Word Morphology" by Singh and Ford (pp. 66-76) and "On so-called compounds" by Rajendra Singh and Probal Dasgupta (pp. 77-89).

The principal assumptions and claims of the model in question (developed and presented in several publications by Probal Dasgupta, Alan Ford, Sylvain Neuvel, Rajendra Singh, Stanley Starosta and others) may be new or, indeed, striking, to some readers. Therefore, we need to give a brief overview of the main proposals. We begin with a short definition of the field: "[m]orphology is the study of formal relationships between words" (p. 18) or, alternatively, "morphology relates whole words with whole words" (p. 73). It ought to be noted that this definition departs radically from the usual characterizations of the scope and subject-matter of morphology, according to which it is the study of the internal structure of words. This is because Seamless Morphology insists that words have no internal structure. That is to say, there are no morphemes (roots, affixes) and stems. One of the arguments against the recognition of roots and stems is "[t]hat they are not 'psychologically real', i.e., they are anti-intuitive and badly defined compared to a notion like the word" (Ford and Singh, p. 29). This seems to be somewhat problematic, since numerous studies have shown that, cross-linguistically, the word is not easily definable, either: "one should sensibly keep apart phonological criteria, which define 'phonological word', and grammatical criteria, which define 'grammatical word'" (Dixon and Aikhenvald 2002: 1). No such distinction is introduced in *ESM* and, anyway, a precise definition of the notion 'word' is not offered.

Next, it is argued that there are no traditional boundaries between types or "parts" of morphology, like inflection vs. word-formation, concatenative vs. non-concatenative morphology, or derivation vs. compounding. In fact, "compounds" do

not exist: they are viewed as single words which do not involve a combination of two (or more) words (see Singh and Dasgupta). Also, arguments are put forward for the incorporation of morphophonology into morphology (pp. 29 ff.). The above assumptions are most explicitly stated by Singh and Dasgupta (p. 83): (a) "A word has no internal grammatical (=non-phonological) structure" and (b) "There is only one morphology, only one coherent set of regular inter-word mappings, in the grammar".

This reductionist program is coupled with the 'minimalist' apparatus in the form of so-called Word Formation Strategies (WFSs) which, in a sense, replace the familiar Word Formation Rules (WFRs), developed in Aronoff (1976) and employed in a variety of subsequent generative analyses. But, in fact, a Word Formation Strategy is hardly comparable to any earlier derivational device (nevertheless, it is still referred to as a "rule"). Ford and Singh (p. 19) give the following general formula for a Word Formation Strategy:

$[X]_{\alpha} \leftrightarrow [X']_{\beta}$ where:

- (i) X and X' are words;
- (ii) α and β are morphological categories;
- (iii) \leftrightarrow indicates an equivalence relation (a bi-directional implication);
- (iv) X' is a semantic function of X;
- (v) ' indicates a formal difference between the two elements of the relation of the morphological operation;
- (vi) ' can be null if $\alpha \neq \beta$.

The above formula is repeated, with minor modifications (and occasional misprints), in the following three chapters (respectively, on pp. 45, 67 and, in an abbreviated form, on p. 79). This multiple repetition seems redundant, although it may be excused by the fact that the three chapters under discussion first appeared elsewhere as separate articles. It is also somewhat confusing, given the fact that the authors/editors did not make the notation uniform, e.g. the categories of the words related by a WFS are represented by means of Greek letter variables (α and β) on p. 19, while on p. 45 they appear as Latin capitals (A and B) and on p. 67 as lower case letters (a and b); the versions on p. 19 and 45 use square brackets in the WFS, thus [X] and [X'], while the statement on p. 67 has slashes: /X/ and /X'/, etc. This lack of consistency may be observed also with some of the actual examples of WFSs scattered throughout the text.

In order to illustrate how this abstract formalism is supposed to work, we cite two straightforward examples from English:

$[X]_{N.sg.} \leftrightarrow [Xz]_{N.pl.}$ *cats, dogs, etc.* (p. 55)

$[XIk]_{Adj} \leftrightarrow [XISIZM]_N$ (p.69)
critic criticism

The first statement is supposed to account for the regular relation between singular and plural nouns in English (sometimes involving devoicing of /-z/ to [-s], as in *dogs*, which is to be taken care of by phonology; cf.: “Morphological strategies alone do not account for all formal relationships. They sometimes get a hand from phonology. Each time an aspect of a formal relationship is attributable to phonology, which covers all and only global, automatic alternations governed by phonotactics, that aspect is suppressed in the morphological strategy” (Ford and Singh, p. 19-20)). The second schema describes one method of forming nouns from adjectives (it is not quite clear why *critic*, and not *critical*, is chosen here as an instance of a relevant adjective). As may be seen, the bracketed material may involve either a variable (represented by X) or a (phonological) constant. Evidently, the schemas are very general (one might say, potentially overgenerating, to use a standard term of generative morphology). How about encoding the diverse constraints and conditions, which are so much in the focus of generative work on morphology (word-formation in particular)? Segmental phonological constraints on the ‘base’ (to use the old-fashioned term) are relatively easy to express, viz. the schema for *critic(al)* – *criticism* above: the fact that the ‘base’ must end in /-ɪk/ is explicitly given as a “constant”. It is important to note, however, that such a constant may never be regarded as a morpheme (affix), since morphemes do not exist. Therefore, it appears that (certain types of) morphological constraints are hardly expressible in the framework under discussion. For instance, consider the well-known limitation on the formation of *-al* adjectives in English, from nouns terminating in *-ment*. According to Aronoff (1976: 54), the constraint in question depends on the internal constituent structure of the nouns, in the sense that (apart from a few exceptions) those *-ment* nouns which are derived from verbs, i.e. contain the morpheme (suffix) *+ment*, do not lend themselves to the process in question (cf. *commit* – *commitment* – **commitmental*). On the other hand, nouns which, in traditional terms, have no internal structure, i.e. do not contain a suffix, may derive corresponding adjectives in *-al* (e.g. **orna_v* – *ornament* – *ornamental*). The problem is, then, how this contrast is to be expressed in a framework which dispenses with morphemes and morpheme boundaries.

It is even harder to imagine how WFSs are to cope with the known cases of ‘affix’ attachment which are sensitive to the structurally (but not linearly) adjacent morphemes or, in other words, to the derivational history of a complex word. Consider, for instance, the Adjacency Condition, as formulated in Siegel (1977) and Allen (1978). Allen (1978: 154) states this principle as follows: “morphological rules may only relate material contained in structurally adjacent cycles”. Siegel (1978: 190-192) illustrates the Adjacency Condition with her analysis of the distribution of the negative prefix *un-* with respect to base adjectives in *dis-*. It turns out that *un-* cannot be prefixed to adjectives containing *dis-*, where *dis-* is structurally adjacent to the point of prefixation. Hence, impossible are derivations like **un[discrete]_A* or **[un[dis[honest]_A]_A* but perfectly well-formed are structures of the type *[un[[distract]_ving]_A]* or *[un[[discover]_vable]_A]*.

It would appear that no such dogmatic considerations should prevent the proponents of Whole Word Morphology from recognizing the existence of semantic constraints on word-formation. Indeed, some of the WFSs discussed in *ESM* make reference to the semantic properties of words. For instance, while discussing the behaviour of noun “compounds” in Bangla, Singh and Dasgupta (p. 81) make use of semantic labels like “abstract”, “botanical” or even “leaf”, which are made an integral part of the relevant WFSs. These are used as diacritics encoding significant semantic constraints on the processes discussed. But some of the semantic conditions discussed in the morphological literature are just too subtle, and too complicated, to be expressed as simple, binary diacritics. For instance, Zimmer (1964) demonstrated that the formation of negative adjectives in English (by means of *un-*) is, as a rule, impossible when the semantic content of an adjective is “evaluatively negative” (cf. **unbad*, **unugly*, **unstupid*). Moreover, Zimmer pointed out that *un-* prefixation is not applicable to lexical, “strictly monomorphemic” adjectives that have “strictly monomorphemic” antonyms (cf. **ungood* vs. *bad*, **unlong* vs. *short*, etc.). The latter claim is, in fact, another example of a morphological generalization that is impossible to make under Whole Word Morphology. The former one refers to a semantic property (“evaluatively negative”) which is, of course, difficult to define in any framework, but will make a particularly cumbersome diacritic, if added to a WFS.

Judging on the basis of what we see in the first four chapters of *ESM*, the semantic side of the model does not appear to be well developed, in general, even though words are said to have semantic structure, apart from phonological structure; cf. p. 78.

One more feature of the Word Formation Strategies needs to be stressed. This is symbolized by the two-sided arrow (\leftrightarrow) in the examples quoted above. This arrow is meant to suggest that morphological relations between words, contrary to what is usually accepted in generative morphology, are bi-directional (reciprocal), rather than uni-directional. As a consequence, there is no ‘base’ and no ‘derivative’. This move circumvents a number of embarrassing problems in classical morphemic analysis (like, for instance, the need to decide about the direction of derivation (motivation) for conversion-related pairs of words or in certain synchronically obscure cases of back-formation).

It is remarkable that, on several occasions, the proponents of Seamless Morphology attempt to distance themselves from the, arguably, not-so-distant views originally expressed in Anderson (1992). For instance, Singh and Dasgupta (p. 86) simultaneously acknowledge that Anderson “is supposed to be an advocate of the sort of morphology” they have argued for, but also they blame him for “giving up” and for just “flirting” with a genuinely a-morphous model. This criticism is reiterated by Singh and Ford (p. 67) when they write about “neither fish nor fowl attempts such as Anderson [1992]”. It may occur to some readers, who are confronted with such pronouncements, that the radicalism once demonstrated by Anderson is not just radical enough, in the eyes of the proponents of Seamless Morphology. But does not

this criticism reveal also some sort of extremist or fundamentalist zeal, in their attitude?

The programmatic papers just discussed show some editorial blunders. For instance, quite a few readers may find it frustrating that there are no English glosses for the examples from French (e.g. on pp. 19-20), Latin (p. 27), German (pp. 27-28), Spanish (p. 29), while Ukrainian examples on p. 31 are glossed, although, it appears, imprecisely; Greenlandic examples on pp. 51-52 are glossed, but the glosses are in French. Among the rules given on p. 26 for the French "morphemes" *mal-*, *-el*, *-o*, and *-ais*, the last statement seems to be missing (the one concerning *-ais*). Occasionally, names are misspelled: "Kiparky" for Kiparsky (p. 34) and Chomsky, "Naan" [sic!] for Chomsky, Noam (p. 40). Mohanan (1996) is referred to on p. 54 but appears as Mohanan (1995) on the list of References (p. 64). Similarly, Singh (forthcoming) is recalled on p. 31 but in the References, it seems, we do not have it (there is only Singh, R., with no date). On page 54, the author says: "I have demonstrated..." but he is hard to identify, given the fact that the article has two authors. On pp. 59-60, where sound alternations are discussed, instead of phonetic/phonological segments, there are little squares. Yet, as one reads on, the number of misprints seems to be dropping.

Papers of the second group (Chapters 5 to 7) elaborate upon and illustrate selected theoretical assumptions of the model of Seamless Morphology. Occasionally, some of these assumptions are, explicitly or implicitly, questioned and undermined; for instance, in Chapter 5: "On defining the Chinese compound word: Headedness in Chinese compounding and Chinese VR compounds", by Stanley Starosta, Koenraad Kuiper, Siew Ai Ng and Zhiqian Wu (pp. 90-115). It seems that the analysis of Chinese compounds is carried out in terms largely compatible with mainstream generative (and pre-generative) tradition, including terms like "morpheme", "suffix", "headedness", i.e. with the recognition of compound-internal structure. The following definition of compounds (in Chinese) is adopted: "compounds consist of two or more free forms, i.e., two constituents which are themselves able to function as words and therefore have syntactic categories" (p. 92). But this stands in conflict with the principal claims of the previous chapter (by Singh and Dasgupta), where it is claimed that one should "refrain from imposing internal grammatical structure on 'compound' words" (p. 82) since, in general, "words of the sort traditional definitions of 'compounding' talk about don't seem to exist" (p. 87).

The issue of compounding recurs in Chapter 6: "Do compounds have internal structure? A seamless analysis" by Stanley Starosta (pp. 116-147). Again, the familiar claim (cf. Chapter 4) is put forward: "compounds, like other words, can and should be analyzed as having no internal structure" (p. 122). This position is juxtaposed with Anderson's view, who adopted the traditional interpretation, that compounds are "words made up of other words" (Anderson 1992: 299). In fact, Starosta treats the problem in question as an excuse for an extensive polemic with Anderson's A-Morphous Morphology Model.

Another paper by Stanley Starosta (Chapter 7: "Micronesian noun incorporation: A seamless analysis", pp. 148-196) demonstrates the shortcomings of previous analyses of noun incorporation in various languages, which assumed that this type of process may be accounted for either syntactically (transformationally) or lexically, by treating it in a way analogous to compounding. Starosta opts for a third possibility: the seamless approach, which rests on Word Formation Strategies postulated in order to express analogical patterns established by two sets of words related by noun incorporation. Numerous examples from Micronesian languages are discussed and, in summary, several advantages of the seamless approach are listed.

The remaining papers in the collection raise a variety of morphological topics, highlighting solutions which are, by and large, compatible with the basic tenets of Seamless Morphology. Thus, Franz Rainer (Chapter 8: "Fragmentation in word-formation: The case of Spanish *-azo*", pp. 197-211) discusses the role of analogy in word-formation. He points out that "there is a strong tendency in the literature to overestimate the degree of generality and productivity of word-formation rules" (p. 198) and argues for an analogy-based model of word-formation processes. Semantic irregularity or diachronic "fragmentation" of a morphological process is illustrated with the case of the Spanish suffix *-ado*. Derivatives with this suffix are said to be best represented in the synchronic grammar of Spanish as a radial structure.

The contribution by Robert R. Ratcliffe (Chapter 9: "Towards a universal theory of shape-invariant (templatic) morphology: Classical Arabic reconsidered", pp. 212-269) focuses on the principles of morphological structure (and the phonology/morphology interface) in Classical Arabic as well as other, typologically related languages. As is well known, the predominant practice in generative literature has been to describe the 'root' and 'pattern' morphology of Arabic in terms of the framework of autosegmental morphology and its successor, prosodic morphology, which postulate multi-tier representations for Arabic words, involving the discontinuous consonantal skeleton for the root morpheme and the melodic tier for the vocalic elements. Ratcliffe presents extensive arguments for the claim that "the minimum unit of organization in the Arabic lexicon is the word, rather than the 'consonantal root'" (p. 213). Several other interesting hypotheses are put forward, concerning, for instance, the horizontal segmentation of the Arabic word into peaks and troughs of sonority (vowels and consonants), which is viewed as an alternative to tiers. Also, structural similarities between Arabic morphology and various non-concatenative mechanisms in other languages are discussed.

In Chapter 10 ("Paradigmatic morphology", pp. 270-283), Thomas Becker investigates one property of Seamless Morphology in particular, namely the paradigmatic nature of the Word Formation Strategies it postulates. The paradigmaticity of such rules is shown to be based on the traditional notion of proportional analogy. However, as argued by the author, the property in question "is independent from other aspects (e.g., 'seamlessness'), which seem to be debatable" (p. 270). That is to say, word-internal morphological structure may be significant, in view of the fact

that, for instance, complex words in German differ from simple ones in terms of the respective sequential constraints on phonological segments: "Consonant clusters which are prohibited within morphs are allowed at the juncture between stems and affixes" (p. 281).

Chapter 11 (Probal Dasgupta, "The importance of being *Ernist*", pp. 284-300) brings another defence of the word as the only basic unit for morphology, simultaneously negating the significance of the morpheme. The author develops an in-depth analysis of the lexical relations which hold between English items like *north* – *northern* – *northerly* – *northerner*, etc., in order to demonstrate that the traditional morphemic segmentation of such items does not seem to make much sense: dividing *northerly* into *north* + *erly* (or, alternatively, *northern* + *ly*, with *-n* drop) is almost as ill-advised as postulating an internal morpheme boundary in *nor+th* and *sou+th* (the latter segmentations "are a bit of a *reductio ad absurdum*", p. 290). Idiosyncratic data of this sort are seen as compelling evidence for the claim that there are no morphemes: "There are simply words. Some of them form morphologically interesting paradigms with other words" (p. 289).

In Chapter 12 ("A perfect strategy for Latin", pp. 301-327), Byron W. Bender offers a substantial extension of the most restrictive version of Whole Word Morphology, according to which Word Formation Strategies are the only formal mechanism necessary for encoding the fact that two words are morphologically related. Special "paradigmatic strategies" are introduced and illustrated with data from Latin inflection. Thus, the concept of the inflectional paradigm is re-introduced into morphological theory, since "paradigms are an inherent part of language design" (p. 301). As a result, the traditional distinction between inflection and derivation is maintained in Bender's approach.

Finally, the last paper in the collection (Chapter 13: "Morphology in Minimal Information Grammar" by Danko Šipka, pp. 328-338) considers certain aspects of Seamless Morphology from yet another angle, namely from the point of view of machine translation. The paper presents "several solutions in the morphological generator within the machine translation system called NeuroTran®" (p. 238). The system uses a set of formal rules called Minimal Information Grammar. Its operations are illustrated with samples involving English to Serbo-Croatian translation as well as generation of some inflected nouns in Polish. "While morphology within this system is not seamless, it still has much in common with this idea" (p. 328). For instance, the morphological generator is not forced to imitate standard morphological segmentation, but may assign its own inter-morpheme boundaries, if this results in a simpler and shorter description and analysis.

Concluding this summary, we should stress that the way of thinking about morphology which permeates the papers collected in *ESM* has been welcome, in some recent surveys, as a promising theoretical alternative to mainstream generative approaches. For example, the newly published textbook *Word-formation in English* by Ingo Plag has a major theoretical section devoted to the opposition between word-

based and morpheme-based models in morphology (Plag 2003: 179ff.). Actually, in his evaluation of the two competing approaches, Plag does not refer to any works by the contributors to *ESM* (rather, he only mentions briefly Aronoff and Anderson). Yet, his general conclusions are significant. Following an analysis of several recalcitrant puzzles in English word-formation, Plag concludes that "word-based morphology can account in a straightforward fashion for a wider range of phenomena than seems possible in a morpheme-based approach" (Plag 2003: 189). This does not mean, though, that morphemes are inexistent or superfluous: "There is some evidence that word-internal morphological structure is needed to account for a number of phenomena, which are not easily accounted for otherwise" (Plag 2003: 189). Consequently, a compromise position is opted for. This is also the view taken by the present reviewer. Abandonment of the morpheme is not likely to offer a panacea for all the ills that plague contemporary morphological theory.

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