Towards a Less ‘Syntactic’ Morphology and a More ‘Morphological’ Syntax

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The task of reporting on the full range of current views on either morphology or syntax, let alone both, is a completely daunting one, and could not possibly be accomplished in anything like a serious way within the scope of a single talk. Instead of attempting it, therefore, I will present some of my own views on some areas where the two can usefully be compared, and suggest that the result of that comparison does not come out quite the way it is often assumed to.

A long tradition, reaching back to the beginnings of scientific linguistics in the early twentieth century, has seen morphology and syntax as quite similar areas of structure, at least in terms of the appropriate theoretical principles which underlie them. In structuralist theory, syntax was often seen as an essentially morphological study, extended to structures above the word but otherwise exhibiting the same general organization and accessible to the same methods. Somewhat ironically, perhaps, generative theory long maintained the converse: that morphology was just the syntax of word-internal domains, with no real properties of its own.

The last three decades or so have seen a revival of interest in morphology for its own sake, and with that, a recognition that word structure really does have some properties that distinguish it from sentence structure. A close look, indeed, suggests that there are virtually no principles of any substantive sort that the two share, apart from a vocabulary of features that serve at the interface between syntax and the lexicon (Anderson 1992: chap. 3).

Despite this, the assumption persists in the field that morphology is ‘really’ like syntax, in that the structure of words consists of a hierarchical arrangement of fundamentally concatenative units (‘morphemes’) quite parallel to the arrangement of words into phrases. On that picture, the fundamental operations of both morphology and syntax consist in (a) selecting a set of content units—morphemes or words, as the case might be; (b) grouping these into larger structures—words or phrases; and then (c) computing the appropriate phonetic forms which should be assigned to the result.

I will suggest below that this conception of our knowledge of words is significantly flawed, and that morphology has a somewhat different character from that implicit in the traditional division of the field into the study of ‘morphotactics’ and ‘allomorphy’. So much, I think, is really just a summary of what we have come to know by taking morphology seriously as an area of inquiry in its own right. Somewhat less of a consensus exists, however, with respect to the other part of what I have to say. I will go on to suggest that in some areas outside the domain of word structure—specifically, the analysis of incorporation constructions, clitics, and ‘Verb-second’ structures, the insights we get from the study of words are also applicable, and that these traditionally ‘syntactic’ areas are thus more like morphology than is usually assumed.
1 What Morphology is Really Like

The classic Saussurean picture of the linguistic sign as an irreducible link between form and content may suffice for *tree*, but it fails for words like *trees, tree-like, and palm tree*. Recognizing that words do not in general have the character of simple signs, Saussure allowed for the fact that many signs are *partially motivated*: a portion of the connection between their form and their content is bounded on their relation to some other sign(s). The goal of morphology, indeed, can be seen as the explication of this notion, its possibilities and its limitations.

To approach this goal, we must begin by being clear on the information that words bear. Their content includes not only the core content we call their ‘semantics,’ but also much information about the relation of particular words to the syntactic structures in which they appear. A basic aspect of a word, for instance, is its lexical category (Noun, Verb, etc.), as well as its associated argument structure. Together, these determine the range of syntactic positions in which a given word can occur, a crucial aspect of the word’s identity.

Other relevant information which a word carries (and which may or may not be reflected in its form) can be arrayed on a number of dimensions of what is traditionally called its inflection. These include inherent properties, such as the grammatical gender of Nouns; configurationally assigned properties, such as case; agreement properties, such as gender in Adjectives or person-number inflection in Verbs; and the base generated properties of phrases which are realized on particular words within them, such as tense in Verbs (reflecting the assignment of tense to the clause of which the Verb is the head) or number in nominal expressions. For discussion, see (Anderson 1992).

The content of a word in the general case, then, involves a number of distinct components, even apart from the possibility of decomposing basic meanings into combinations of properties. We must then ask what kind of analysis is appropriate for the forms of words, with an eye to the relation that exists between form and content. Words clearly have a phonological organization, into features, segments, syllables, and larger prosodic constituents such as the foot, but the central question in this area has always been that of other sorts of complexity within words. Do the forms of words, that is, have an organization into non-phonological constituents of a sort defined by the morphology as well?

In more explicit terms, what is at stake here is the difference between theories of word structure based on an analysis into *morphemes* and theories lacking such units, relying instead on systems of Word Formation Rules. The difference is often subtle, but an important one is the extent to which a principle examining a morphologically complex word can or cannot refer
directly to its composition in terms of non-phonological structural units.

When we look for evidence of such structure in word forms, we do not find it. The kind of argument we look for would be a principle in some area of grammar which crucially requires reference to such morphologically motivated constituents, but it appears that morphologically defined units within a word are not referred to in a necessary way in any component of a grammar.

Within the study of meaning, it turns out that compositional meaning and the relative scope of meaning components can be reconstructed quite adequately in terms of semantic representations themselves, together with the relation among the Word Formation Rules which may have participated in its formation. In Phonology, where this issue is usually presented in terms of the presence of non-phonological boundary elements within the representation of a word, these elements can in fact be dispensed with in a theory that makes appropriate use of cyclicity, as in various forms of Lexical Phonology. In syntax, the widespread acceptance of versions of the Lexicalist Hypothesis (on which the syntax neither manipulates nor has access to the internal form of words) entails the syntactic irrelevance of word-internal morphological structure.

The morphology itself might provide such evidence, but it is notable that we do not in fact find morphological principles that refer directly to morphological structure. We do not find, for example, infixes which appear precisely after the first morphological constituent of a form, regardless of its phonological shape: rather, infixes appear after the first (or before the last) unit of some phonological type, such as a segment, a vowel, a syllable or foot, etc.

Two major classes of apparent counter-examples to this generalization have been suggested in the literature. Aronoff (1976) argued, for instance, that rules of truncation in morphology delete precisely a morpheme, as in the formation of *navigable* from *navigate* (which appears to involve the loss of the unit *-ate* in conjunction with the addition of *-able*). Corbin (1987) demonstrated, however, that what is lost in truncation processes is not in general a synchronic morphological unit, at least not in the language where the truncation takes place. In English formations such as *viral, rectal* from *virus, rectum*, the truncated material (*-us, -um*) may well have been a morphological unit in the language from which the words are originally borrowed, but this is not the case in English.

Another potential counter-example would be presented by cases in which some morphological element was restricted precisely to bases which are not themselves morphologically complex, as claimed for a number of morphological types in English in (Fabb 1988). This seems simply to be based on a flawed methodology, however: Fabb’s study was based on the presence of forms in a standard rhyming dictionary, and it is well-known that
the value of dictionary listings for an argument about the sorts of word that cannot occur in a language is extremely limited. A similar argument offered in (Aronoff and Fuhrhop 2002) fares no better, at least for English, in the face of numerous attestations of precisely the complex forms alleged to be impossible. It must be concluded that the existence of a morphological rule referring to morphological complexity per se has not yet been demonstrated.

From the considerations above, we must conclude that the best theory of morphological structure would be one on which the forms of words have no internal structure at all, apart from what is motivated in the phonology. This is undoubtedly too strong a position: for instance, in Icelandic the word *kallastr* ‘to be called (something)’ is undoubtedly a single word, and when it is inflected, the inflectional material is added to its internal stem (in e.g. *kálumstr* ‘we are called (something)’). Such examples show that in some cases, we need to recognize the existence of word-internal non-phonological structure; and as (Carstairs-McCarthy 1993) makes clear, it is not at all trivial to define exactly the circumstances under which this is appropriate. Such difficulties, however, should not be allowed to obscure the undoubted fact that in most cases, word-internal morphological constituency should not be accessible to rules of grammar.

We conclude, therefore, that the forms of words, at least in the general case, are organized in terms of phonological structure alone and not in terms of overt morphological constituents (‘morphemes’). This raises the question, obviously, of how the components of the content of a complex word are to be related to its form. Whatever the answer to this, it is likely to be quite different from the solution to the corresponding problem in syntax, where the existence and structural relevance of grammatical words and phrases as constituents of larger structures is not seriously in doubt.

1.1 Morphology is Realizational

The traditional picture of morphology views complex words as built up out of ‘morphemes,’ local form-meaning correspondences that preserve the literal form of the basic, unanalyzable Saussurean sign. If this were in fact true, there are several consequences which would follow.

For one thing, word formation on this model, since it always involves the addition of a new morpheme to a base, would always be monotonic: additive, in the sense that the new form would always contain its base as a proper sub-part, and concatenative. It has been known at least since Hockett’s (1947) classic survey, however, that this is not at all the case. Morphological relations often involve not addition but substitution (*sit/sat, bath/bathe*), subtraction (e.g., Icelandic *pukr* ‘concealment’ from *pukra* ‘make a secret of’) or other non-concatenative changes such as metathesis. Many accounts of such phenomena have been offered, from Hockett’s purely terminologi-
cal presentation to rather more insightful analyses, but the fact remains that a substantial class of cases remains apparently ineliminable in which morphological elaboration rests on formal mechanisms other than the addition of an affix.

If morphological structure were as represented by the morpheme-based picture, we would also expect to find that the relation between components of form and those of content would be one-to-one, at least at some level of granularity. Instead, however, we find components of form that reflect no content at all ("empty morphs" in Hockett’s terms), elements of content that must be assumed to be present but for which there is no formal reflection ("zero morphs"), unitary elements of form corresponding to multiple elements of content ("portmanteau" morphs, such as the ending of Latin *amō* which realizes first person singular present indicative, categories that are normally represented in Latin verbs by distinct pieces), and elements of content that are represented by several distinct aspects of the form ("multiple exponence").

Morpheme-based views of word structure also imply that morphological relations should always have a specific directionality, since they are always the result of adding a particular morpheme to (one of) a class of possible bases. This prediction will be addressed in the following subsection, where it too will be seen to be false. In summary, morphological relations do not in general have the character they would be expected to show if they were really based on the combination of minimal signs (or ‘morphemes’) into larger structures.

The morpheme-based view seems to follow rather directly from the existence of partially motivated signs, the observation that parts of word form may be related to parts of word content. This simple picture, based to some extent on a presumed analogy between morphology and syntax (the notion of morphology as “word-internal syntax”) is quite adequate to explain a large number of local observations under familiar circumstances. It is also quite intuitive, and easy to explain to beginning students. In these respects, however, it is somewhat similar to the view that the earth is really flat. Both yield to somewhat different pictures upon closer examination of a larger picture under a broader array of circumstances.

In the case of morphology, the more appropriate view appears to follow from the conception of a word’s content as involving a certain sort of feature structure—as including not only its semantic core but also a Morphosyntactic Representation (in the formulation of Anderson 1992) or the more elaborate representations of, e.g., (Stump 2001). On these Realizational theories of word structure, components of a system of rules specify (aspects of) the relation between form and content. Concatenative affixation, the sole possibility admitted by the morpheme-based view, is one type of such a relation, but by no means the only one.
Realizational views of morphology are thus quite different from the quasi-syntactic picture of word formation to which we are often tempted. Adopting such a theoretical position, in particular, reduces considerably the apparent similarity between the structures of words and of sentences, and accordingly leads to a much less “syntactic” picture of morphology.

1.2 Morphology is Relational

On the usual picture, the rules of a language’s morphology serve to provide recipes for the construction of complex words out of simple or otherwise basic components—and that is all. In fact, however, morphological structure may play other roles as well.

Consider the class of agent nominals in English, words such as *diver*, *baker*, *actor*, etc. with meanings ‘one who dives, bakes, plays, etc.’ These appear to be formed from verbs by the addition of the phonological material -er to the form and the addition of something like ‘ONE WHO (Verb)’ to the semantic content of the base. But now consider *butcher*, *carpenter*, *janitor*, and many others: words that appear to have both the right form and the right meaning to have been constructed in exactly the same way, but for which no basic verbs (*butch*, *carpent*, *janit*, etc.) exist. There are good reasons for recognizing all of these as members of a unitary class (see (Anderson and Lightfoot 2002) for some discussion of these matters), but if so, that class cannot be defined by a process of construction from simpler bases. As first argued in the generative literature in (Jackendoff 1975), the regularities of morphology must be seen as having a function in parsing and recognizing existing words, as well as in constructing new ones.

Since these morphologically defined classes have a status in the grammar that is not based exclusively on the manner of their formation, relations among them might be expected to be more general than simply the construction of members of one class from members of another. In fact, in some languages we find fairly clear instances of inter-class relations that have no inherent directionality. In most of the languages of the Northwest Caucasian family, for example, the substitution of the vowel [o] for [e] yields a transitive verb corresponding to an intransitive (e.g., ‘to work (a field, the ground)’ from ‘to work’), but the opposite substitution, of [e] for [o], yields an intransitive (e.g., ‘to wash up, wash the dishes’) from a transitive (‘to wash (something)’).

From these examples and others, we can see that the essence of a morphological regularity is to state the relation between two classes of words, in terms of systematic relations between them in terms of their form and their content, and the correlations between these aspects of their identity. Again, this relational aspect of morphology is quite different from the more constructional character of the rules of syntax.
1.3 Morphology is Based on a system of Constraints

Finally, we can ask what is responsible for the details of the formal composition of complex words. While denying that words should be seen as composed of ‘morphemes,’ we certainly accept that formal morphological markers appear within words as reflexes of their morphological organization. In some sense, the order of these morphological markers within (the form of) a complex words reflects relations of relative scope among the content elements to which they are linked. This is an intuitively obvious idea, explored in some detail in (Baker 1985) under the name of the “Mirror Principle.”

What is it that is responsible for this word-internal sequence? In the absence of morphemes as structural units of analysis, we cannot say that it follows from a quasi-syntactic, hierarchically organized structure into which these units are inserted, as on Baker’s original picture. In (Anderson 1992), I attempted to represent the relevant structure in terms of an order of application obtaining among the word formation rules, but that view cannot be maintained if one takes seriously the non-constructional aspect of word formation argued for in the previous section: if janitor is indeed an agent nominal, but not formed by the addition of an agent ending to a basic verb, why should the formal characteristic of this class nonetheless appear at the right edge of the word, just like the -er of baker? Other arguments as well, not rehearsed here, seem to militate against the conception of the grammar as involving sequentially applied processes of word formation, adding formal markers one at a time to a base. But in that case, we must seek elsewhere for a mechanism that can encode the sequential aspects of word form.

The answer to this problem in morphology appears to come from recent developments in phonology. Instead of construing a stage in the derivation of phonologically complex forms as involving the sequential application of a series of rules of phonological modification, phonologists have increasingly come to see such derivations as based on a system of hierarchically ranked, potentially violable constraints. Given an input form, that is, such a grammar defines the corresponding output not by a series of steps gradually modifying the input, but rather as whatever possible form best satisfies the constraint system in its relation to this input.

The grammars countenanced by such a view (generally known as “Optimality Theory,” following the foundational work of (Prince and Smolensky 1993)) are founded on the regularities of ‘derived’ structure, rather than on the process by which that structure is composed. As such, they turn out to be quite appropriate for the expression of morphological regularities as well as phonological ones. While the “classical” version Optimality Theory probably goes too far in stipulating a one-step relation between the most abstract underlying structure and concrete, phonetically realized output, recent
developments in integrating a constraint-based perspective into the relation between morphology and phonology within an overall architecture like that of Lexical Phonology have shown considerable promise (see (Kiparsky, to appear) for extensive discussion).

I conclude, therefore, that morphology deviates in a number of important ways from the classical picture of word structure as simply the combinatorial syntax of ‘morphemes’. As we have seen, morphology is best seen as a system that describes relations among word structural types in terms of the way the forms of words realize the properties that compose their content. These relations seem best characterized by a system of interacting constraints on form, rather than a set of procedures by which a complex word can be built up step by step from elementary components. In all of these ways, morphology turns out to be much less ‘syntactic’ than is generally assumed.

2 Much of “Syntax” is Like That, Too

Since the days when structuralist linguists saw it as simply an extension of “morphotactics,” syntax has been thought of primarily as a matter of the construction and manipulation of hierarchical arrangements of discrete constituents. The proliferation of ‘functional categories’ and their phrasal projections in recent decades, for example, can be seen as an attempt to integrate information about syntactically relevant non-lexical properties into a framework in which the only way content can play a structurally significant role is through the mechanisms of X-structure. In the previous section, I have argued that this is not the kind of picture within which to seek the regularities of word-internal structure.

In fact, however, much of what we normally think of as clearly part of syntax (because of its relevance to phrasal categories manifestly larger than those of the individual word) seems to have some of this same character. Rather than being exclusively matters of the construction and manipulation of hierarchical constituent structure, a number of areas usually considered syntactic in character also turn out to be realizational, relational, and governed by a system of constraints rather than (solely) by rules of X-structure, displacement, and other manipulations of phrasal structure. Three of these will be be discussed briefly below: the analysis of clitics, incorporation (especially noun incorporation, and perhaps most surprisingly, verb-second constructions.

2.1 Clitics

The syntactician’s standard approach to the grammar of clitics is to introduce them as structural elements entirely comparable to other pronouns
(though also characterized in some way that can be used to trigger their special distinctive behavior), and then count on rules of syntactic displacement to ensure that they occur in the proper position in Phonetic Form. In a series of works (Anderson 1992; Anderson 1996; Anderson 2000; Anderson 2003) and a more extensive treatment to appear (Anderson, in preparation), I have defended quite a different account of clitics.

On that picture, special clitics are regarded not as autonomous syntactic units but rather as the ‘morphology’ of phrases: a view often abbreviated by describing clitics as ‘phrasal affixes’. Just as morphological material (affixes and other sorts of morphologically significant modification of word form) is introduced as the realization of features characterizing the word, so also clitics expressing aspects of the functional content of a phrase are introduced as modifications of the phonological shape of that phrase. Certain other clitics represent a sort of phrase-level ‘derivational morphology’ (in contrast with the ‘inflectional’ nature of functional material), and as argued in (Anderson 2003), for example, we find the same sort of relation between ‘inflection’ and ‘derivation’ at the phrase level (in the relative placement of clitics) that we find at the word level (with respect to affixes and other morphology).

2.2 Incorporation

2.3 Verb-Second

3 Conclusion
References


Notes

1 Several authors have seen that multiple exponence poses an important problem for morpheme-based views of word structure, and have attempted to deny its existence—quite unsuccessfully, in my view. For discussion, see (Anderson 2001)

2 Many other morphologists have advocated realizational views of morphology, including (but by no means limited to) Mark Aronoff, Robert Beard, and Arnold Zwicky, among others in the recent literature.

3 We make no pretense about the seriousness of such ‘semantic’ representations, which are obviously nothing but place-holders for a serious theory of meaning.

4 More properly, “special” clitics in roughly the sense of (Zwicky 1977) and (Anderson 1992). The phonological dimension of clitics, as it manifests itself in “simple” clitics (as well as in the phonological properties of special clitics) is not considered here.