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Rules and Representations in Morphology

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The present paper has an essentially programmatic goal: to lay out some reasons to believe that words ought not to be assigned, as commonly assumed, an internal structure motivated by the morphological relations they bear to other words. That is, I intend to question the idea that words have an 'internal syntax' that consists in a structured arrangement of 'morphemes', and that morphology itself (or at least the part of it that corresponds to 'morphotactics' in structuralist accounts) is essentially the study of this kind of structure.¹ I will suggest that if we construe morphological relations as described by Word Formation rules, the structure of the derivation of a word represents the only sort of information about its relation to other words that can be relevant to any aspect of grammar. Eliminating the assignment of internal morphological structure to words would constitute an advance, because it would render unnecessary a number of otherwise *ad hoc* moves and stipulations at diverse points within current theory whose goal is precisely to ensure that such structure is not referred to. Naturally, it is impossible within the compass of a short paper even to survey all of the ways in which word internal morphological structure has been invoked, let alone to show that all such invocations are dispensable; but it may be possible at least to convince the skeptical reader that the present research program is not a completely implausible one.

We start by asking what information must inescapably be treated as part of the structure of individual words. There seem to be three aspects of a word's representation that have this character: indeed, the essence of being part of a language's lexical stock would seem to be precisely the association of these three sorts of property with one another, as in (1).

- (1) a. Sound: [k^hæt] (with appropriate autosegmental and metrical structure)
- b. Meaning: "A carnivorous mammal (*Felis catus*) long domesticated and kept by man as a pet or for catching rats and mice"
- c. Syntax: [+Noun] (or something)

A word is an association between sound and meaning that fills some syntactic function, so this much is irreducible. The question to be considered below is whether words should in general be assigned any other sorts of internal structure. It is of course quite clear and uncontroversial that we know many things about words beyond the basic information in (1), but this fact alone does not necessarily justify the attribution of further structure to words if there are other ways of accounting for the kinds of 'knowledge' involved.

Since structuralist times, it has been assumed that (independent of their phonological organization) words are divisible into **morphemes**. A theory gradually grew up according to which the phonological forms of these elements are separated from one another by quasi-phonological 'boundaries', and organized into a hierarchical structure like that of the Phrase-Marker in (2).

Variations on this scenario are represented, for instance, by the views of Selkirk 1982, Di Sciullo and Williams 1987, and Halle 1990, all of whom treat morphology as in one way or another the 'internal syntax' of words.

We can contrast such views, based on morphemes, with a picture of morphology as based on a system of rules that map words (or stems) onto other words. There are in fact a number of morphological theories presently on the market based centrally on Word Formation Rules rather than on morphemes of the more traditional sort, but to be more concrete we adopt the specific proposals of Anderson forthcoming. Let us call this the 'A-Morphous' view of morphology. On this picture, the structure of *discontentedness* is given by a derivation like that in (3).

$$(3) \left[\begin{smallmatrix} \text{N} \\ \text{content} \end{smallmatrix} \right] \xrightarrow{\mathcal{R}_{\text{dis}}} \left[\begin{smallmatrix} \text{N} \\ \text{discontent} \end{smallmatrix} \right] \xrightarrow{\mathcal{R}_{\text{ed}}} \left[\begin{smallmatrix} \text{Adj} \\ \text{discontented} \end{smallmatrix} \right] \xrightarrow{\mathcal{R}_{\text{ness}}} \left[\begin{smallmatrix} \text{N} \\ \text{discontentedness} \end{smallmatrix} \right]$$

The individual rules of a language's morphology describe the (more or less) systematic relations that obtain among classes of words. Each step of a derivation like (3) invokes such a rule, which is a mapping between the phonology, the semantics, and the syntax of one such class (its 'inputs') onto the properties of another class (its 'outputs'). The derivation thus represents the place of an individual word in a network of such relations that constitutes the lexicon (in at least one reasonable, pretheoretic sense of the term) of a language. It expresses the same facts about subparts of words that are themselves words, relative scope of morphological operations, etc. as the Phrase-Marker, but without imposing a distinct structure on derived words themselves.

If a structure such as that in (2) has to be imposed on words, that would presumably constitute an argument for the reality of the constituents of such

structures: morphemes. On the other hand, a theory (such as that of Anderson 1988, forthcoming) which dispenses with morphemes as units has the consequence that such structure will only arise when explicitly stipulated in the structural change of a morphological operation. In the usual case, 'complex' words will have only phonological and semantic structure, together with syntactic properties.

Now while no one would contest the suggestion that information such as that presented in (2) is linguistically 'real', the observation that much the same information is presented in (3) should make it clear that there are real issues concerning the way this information should be represented. Do words have a morphological **content**, as assumed in (2), in addition to their phonological, semantic and syntactic content? If so, is the attribution of such internal structure the best way to represent that content? In that case, we ought to find that the structure attributed to words is actually referenced by rules of the grammar that operate on words. On the other hand, if the relation of words to other words is represented by their derivation as in (3), not by shared internal structure as implied by morpheme based views, we ought to find that morphological structure has a much narrower relevance. The choice between (2) and (3) is thus an empirical one, at least in principle.

So what sorts of motivation might we find for a structure like that in (2)? In theory at least, such motivation could come from any of a number of places. We might, for example, have *a priori* reasons to believe in it: it might be that the independent principles of $\bar{X}$ -structure extend directly to describe the internal nature of words. This, however, seems quite unlikely. Zwicky 1990 has recently summarized a dozen or so ways in which word-internal structure differs significantly from syntactic structure. In addition to Zwicky's points, Williams 1989 observes a number of major differences that follow from the absence of a word-internal analog of the syntactic notion of 'Maximal projection'. Although Williams' goal is ultimately to justify a relation between morphological and syntactic structure, the effect of his argument is virtually to eliminate any significant resemblance between the two. The similarities that remain between the two sorts of structure are extremely limited. Even the claim that "both use concatenation as the basic operation" (hardly a profound or substantive theoretical resemblance between two systems that have been formulated as concatenative algebras!) may well not be true in all cases, once one takes seriously the range of morphological processes in various languages that cannot in fact be described adequately as simple affixation. The end result of the observations of Zwicky, Williams and others is to eliminate any claim that syntactic $\bar{X}$ -structure itself motivates word-internal structure like that in (2).

Absent any such *a priori* justification, evidence for the structure in (2) would be provided by rules of any component of grammar that necessarily

referred to such structure. For instance, semantics could provide the motivation we seek if we believed that it was necessary to invoke morphological structure *per se* in the computation of the meaning of a word. Among other things, (2) represents relations of relative semantic scope; but the same scope relations that (2) indicates are also indicated in a derivation like (3). There seems no reason to doubt that the relevant scope relations can be quite adequately represented by treating the semantic aspect of Word Formation Rules as operating on the basis of the semantic content of the word that constitutes the word's input, and thus the position of a particular rule in the derivation reflects the semantic material that falls within its scope without requiring us to assign further structure for this purpose.

If reorganization of a word's internal structure were a crucial part of the mapping from sentences onto their meanings (as proposed, for example, by Pesetsky 1985), this would of course constitute an argument. Pesetsky's account of 'bracketing paradoxes,' however, has spawned a virtually limitless range of alternative proposals, not in general requiring readjustment of a structure such as that in (2) and so not providing motivation for it. We do not summarize these alternatives here, but simply note that others have (for completely unrelated reasons) proposed ways of describing mismatches between apparent phonological and semantic structure of the sort described by Pesetsky without relying on the sort of structure we are interested in here.

The syntax could provide the required motivation if it were allowed to examine or manipulate the internal forms of words. This is directly contrary to the most natural construal of the Lexicalist Hypothesis, however. In fact, it can be shown that representations such as (2) are both too weak (i.e., they provide too little information) and too strong (they provide too much information of an inappropriate sort) to support the informational interchange that exists between words and syntax. An alternative view is presented in Anderson (forthcoming) which eliminates this sort of motivation for assigning internal morphological structure to words. On that basis, the denial that there is any structure like that in (2) provides an excellent way of eliminating the stipulative character of the claim that the syntax neither sees nor manipulates it (the essential content of the Lexicalist Hypothesis).

The phonology could provide such motivation if it were allowed to refer to the presence of internal structure. Of course, the 'Standard Theory' of Chomsky and Halle 1968 assumed that all sorts of structure was indeed available, but the past twenty years or so have been marked by a continuing retreat from that position. Conditions such as 'Bracket Erasure,' 'Tier Conflation' and the like are intended to restrict the phonology to as little structural information as possible. In fact, having Bracket Erasure (or its analog) apply at the end of each cycle, as is widely assumed, limits the information available to the phonology to precisely the content of the current morphological operation defining

that cycle—and that same information can be accessed via an (independently necessary) condition on rules that only apply in derived environments without requiring that the structure itself be accessible to phonological rules.

It looks as if evidence for a structure like that in (2), if it exists, would have to come from the morphology itself. We might find evidence for the presence of structure if we had a rule that, say, inserted affixal material precisely between two morphological units. A rule might infix a particular marker precisely before the final suffix (or after the initial prefix) present in its input form. Such rules do not appear to exist, however: rules of infixation seem always to place their affix with regard to material that can be characterized in phonological terms. Infixes thus appear after (or before) a single consonant, a syllable or syllable nucleus, a prosodic foot, etc., but never after (or before) a single affix regardless of its phonological shape. This fact suggests that information about the morphological (as opposed to phonological) constituency of words is not available to morphological rules.

As in the syntactic domain, the phonological case provides a genuine theoretical advantage that accrues to non structure-building views of morphology. Theories that posit the erasure of brackets, or the conflation of tiers, etc., can avoid stipulating any such operations (and *a fortiori* avoid ordering them at some particular point) if in fact no brackets or tiers (both ways of indicating morphological structure of the sort that appears in (2)) were introduced in the first place. In the one place where reference to structure appears motivated, it can be replaced with a condition on the way in which (at least some) rules operate—the ‘derived environment’ condition.

In addition to the general points made above, however, there are several other proposals that have been made in the literature that would indeed require morphological operations to have access to information like that in (2). For example, Aronoff 1976 proposes that rules of **truncation** operate precisely on specified affixes, whose identification within a complex word would thus be necessary. According to Aronoff, the affix *-ate* is deleted before some other affixes, such as *-able*, in words like *demonstrable* (from *demonstrate*). Since instances of the sequence *-ate* which are not affixes are not truncated (cf. *debatable*, not **deable*, from *debate*), he argues that it is impossible to replace reference to the affix by a purely phonological description. Truncation rules would thus require information about the morphological structure of words which is not purely phonological.

The argument that truncation here is based on morphological and not phonological structure is not particularly secure, however. The absence of forms like **deable*, **inflammable*, etc. would also follow from a requirement that the truncation in question applies only to unstressed instances of *-ate*. Furthermore, this affix appears in two classes of words, associated with either ‘level 1’ or ‘level 2’ phonology.² The ‘level 1’ forms undergo truncation of *-ate*,

but the 'level 2' forms do not: see pairs such as *démonstrable* (level 1) vs. *démonstratable* (level 2). While the (non-truncating) level 2 formation seems quite productive, the (truncating) level 1 formation is, as we would expect, somewhat less so. As a result, even in cases where we have no particular reason to doubt the affixal status of *-ate*, the only available form in *-able* may not show truncation: consider the word *truncate* itself, from which we find *truncatable* but not **truncable*. The absence of e.g. **translable* might thus just be a lexical gap.

Furthermore, other instances of truncation seem clearly to involve morphological non-constituents. A considerable range of such forms in French is provided by Corbin 1987, p. 345, including the following:

- (4) a. virus – viral; cactus – cactée; rectum – rectal; tétanos – tétanique
- b. liquide – liquéfier – liqueur; stupide – stupéfier – stupeur *vs.*
- c. rigide – rigidifier – rigueur; humide – humidifier – humeur
- d. certain – certitude; caillou – caillasse
- e. charité – charitable; hérédité – héréditaire; vanité – vaniteux
- f. adroit – adresse, maladroît – maladresse

In none of these cases have we any reason (apart from truncation) to believe that the truncated material is a morphological unit in French. We conclude that rules of truncation do not provide clear evidence for imposing morphological structure on words.

When we ask why languages should contain rules of truncation at all (assuming they do: see Kiparsky 1982 for a contrary view), it seems rather unlikely that they should have the morphologically sensitive character originally attributed to them by Aronoff. The typical case in which one is tempted to posit truncation, as in the cases cited above in (4), is when a language (e.g. French) has borrowed (or even inherited) a large number of formations from another (e.g. Greek or Latin) that are built on the same stem, but without borrowing (or inheriting) the entire morphology of the source language—particularly its inflectional pattern. If the source language is one in which all (or at least most) surface forms of words contain an inflectional suffix, then the relation between a basic word and a derivational formation from the same stem will appear to consist in the replacement of one suffix (an inflectional one, or perhaps a derivational one corresponding to a non-borrowed formation) with another (the derivational suffix). Insofar as some of the morphological material in the original language is not part of the system of the borrowing language, an apparent truncation applies. Truncation is thus an attempt (at least in some cases) to cope precisely with the replacement of material that is *not* a morphological unit in the 'truncating' language. It would be remarkable, in

that event, if it were constrained to apply only to material that *did* constitute a morphological unit.

Another morphologically based argument is offered by Fabb 1988, who proposes explicitly that "all internal brackets are visible to all suffixes" (p. 533). His justification for this is the claim that English exhibits a number of suffixes that are constrained not to be added to already-suffixed words—a requirement that obviously could not be met unless internally complex words could be distinguished from others. This argument suffers from serious empirical problems, however. In fact, a quick check of such reference works as Marchand 1969 and Jespersen 1942 turns up examples of already suffixed words that can be further suffixed in virtually all of Fabb's affix classes. Indeed, he himself gives as an example at least one form of this sort: *robbery*, presented as an instance of the formation of Nouns from Noun stems by the suffixation of *-y* is surely from *robber*, itself a suffixed form derived from *rob*. Some other examples of already suffixed bases in the derivational categories discussed by Fabb include:

- (5) a. N+age]_N: brokerage, portorage, readerage, percentage,...
- b. V+ant]_{Adj}: significant; also radiant, stimulant, etc. with truncation of *-ate*;
- c. N+ful]_{Adj}: healthful, truthful, meaningful
- d. N+ism]_N: gangsterism, behaviorism, favoritism, aristotelianism,...
- e. N+ize]_V: computerize, puritanize, italianize, signalize,...
- f. N,Adj+ly]_{Adj}: maidenly, scholarly, loverly, northerly, westerly
- g. V+ment]_N: chastisement, aggrandizement, betterment, enlightenment,...
- h. N+ous]_{Adj}: felonious, erroneous, disputatious, flirtatious

All of Fabb's affixes also appear on the second elements of compounds (with scope over the entire compound) and on already prefixed words, even those that are otherwise not widely attested with other affixes.

Fabb's methodology seems to have involved extensive reliance on listing in Walker 1924 as a criterion for the possibility of a formation. As argued extensively by Corbin (*op. cit.*), dictionary listing is far from being an appropriate measure of the potential domain and range of word formational processes, and I can only conclude that no argument of the sort Fabb proposes has actually been made. Indeed, the kind of selection he proposes would be quite unusual: normally subcategorization is for some positive property of the subcategorized element rather than for a purely negative aspect of its structure.

A final argument known to me from this general class is made by Halle in various recent works dealing with morphological theory. Since much of this

discussion remains unpublished, I must ask the reader to accept my presentation of Halle's position. The issue concerns the prefixes³ that mark the person of arguments of the Verb in Georgian, about which the basic observation is that when two such prefixes are called for, only one appears:

- (6) a. mo-v-ḱlav 'I will kill him'
 b. mo-g-ḱlav-s 'he will kill you'
 c. mo-ḱlav-s 'he will kill him'
 d. mo-g-ḱlav 'I will kill you' (*mo-v-g-ḱlav, *mo-g-v-ḱlav)

Halle has proposed to account for this by having first a set of rules to develop Object markers (such as /g-/ '2nd person object') and then a set of rules to develop Subject markers (such as /v-/ '1st person Subject'). The complementarity observed above is then claimed to follow from a restriction that the subject marking rules apply only to un-prefixed forms. It appears that if this is to work, enough structure must be visible to distinguish prefixed from unprefixed forms.

Halle appears to support the plausibility of this analysis by an appeal to the fact that in German, the prefix /ge-/ 'past participle' is not added to verbs that already bear a prefix. As Kiparsky 1966 showed long ago, not only verbs with prefixes (e.g. *besprechen* 'discuss') but also those with exceptional non-initial stress (e.g., *riskieren* 'risk') have participles without /ge-/ (*besprochen* and *riskiert* respectively).

If one wished to maintain the claim that it was the prefixed (as opposed to unprefixed) status of forms like *besprechen* that blocks the addition of /ge-/, it might be suggested that prefixes like /ge-/ can only be added to forms that are not only unprefixed, but also bear some feature such as [+Native]. Since *riskieren* is undoubtedly [-Native] (as shown by the suffix *-ieren*), it would fail to take /ge-/ as well. For this analysis to be taken seriously, however, we must first ask what 'non-native' and 'prefixed' stems have in common, and at least at first glance, it appears that the answer is that these are the cases in which main stress does not fall on the initial syllable. The disjunctive statement seems to miss the underlying regularity. More importantly, though, we should ask what the content is of the proposed feature [$\pm$ Native]. Does it, in particular, predict any aspect of the behavior of [-Native] words other than their non-initial stress? If so, it is not evident what that aspect would be. But if the content of '[-Native]' is simply 'non-initial stress' this analysis differs from the one based on the location of stress (which makes no reference to 'prefixed' vs. 'unprefixed' status) only in saying twice what need only be said once, since it is also a property of the inseparable prefixes that they cannot bear stress.

If the class of [–Native] words is defined in some way other than as ‘non-initially stressed’, it ought to be possible to find cases of non-initially stressed [+Native] words, and of initially stressed [–Native] ones. We ought to expect the former to take prefixes like /ge-/ and the latter to reject them. The difficulty of confirming independently the status of proposed examples of the first type as properly [+Native] makes it difficult to propose candidates which might either confirm or to refute the suggestion. But of the second sort, there are examples. The verb *boxen*, ‘to box’ for instance, is apparently [–Native]. Similarly, *toasten* ‘to propose or drink a toast to’ is apparently felt as non-native, as confirmed partly by its spelling and partly by the Viennese dialect form *toastieren*. It seems likely that *leasen* is also felt synchronically as non-native, though apart from the spelling this is again difficult to confirm. All of these, being monosyllabic stems, bear initial stress despite their apparent status as [–Native]—and all of them accept /ge-/ happily in their past participles (*gebort, getoastet, geleast*).⁴

It looks, therefore, as if in order to maintain the suggestion that prefixes like /ge-/ are added exactly to unprefixated native stems, it will be necessary to circumscribe the class of non-native stems in a less than intuitive fashion—essentially reducing [–Native] to a diacritic for ‘non-initially stressed’. But in that case, surely, the analysis based on stress is preferable, and so German does not serve as an example of a language with a restriction of certain processes to ‘unprefixated’ stems. The correct generalization makes no reference to internal morphological structure: it is simply that /ge-/ is only attached to stems that bear initial stress.

Regardless of what is going on in German, though, Halle’s account would be quite interesting if it went through for Georgian. The proposed condition, however, is simply incorrect. We can ignore the fact that Georgian verbs can also be prefixed with an aspectual preverb (e.g., the /mo-/ in the forms above, rather parallel to the corresponding Russian preverbs), where the presence of such a preverb has no effect on whether or not /v-/ can be prefixed. Besides this, Georgian Verbs can contain other prefixes: there is an important class, called the ‘pre-radical vowels’, which occur for a variety of reasons, derivational and inflectional. These are surely prefixes, but do not block the appearance of /v-/.

Furthermore, there are other prefixes that mark indirect objects. For the first and second persons, these are the same as those marking direct objects, but for third person indirect objects the situation is more complicated. When the pre-radical vowel appearing before a given verb stem is /a-/ or /e-/, the third person indirect object is unmarked. When it is /i-/, third person indirect objects are marked by changing this /i-/ to /u-/. But when there is no preradical vowel, a consonantal prefix marks third person indirect objects, at least in the ‘standard’ dialect. This is the reflex of Old Georgian /x-/, and

appears in the modern language as /s-/ before coronal non-continuants, /h-/ before labial, velar and uvular stops, and as $\emptyset$ elsewhere. Now this prefix has a rather peculiar status: generally its appearance is blocked by the appearance of another prefix (thus, *v-txov* 'I ask him it', where the only prefix is that marking first person subject). There is some fluctuation, however, and forms such as *v-s-txov* 'I ask him it' (where the indirect object prefix appears as well) also occur.⁵ This state of affairs can be analyzed as a fluctuation in whether the s/h/ $\emptyset$ prefix is associated with the other verb person prefixes (and thus mutually exclusive with the other person prefixes, giving forms like *v-txov*), or with the pre-radical vowels (in which case its appearance is compatible with other prefixes, giving forms like *v-s-txov*). On Halle's view, it is not clear how the form *v-s-txov* could be derived at all, since the /v-/ here appears in an evidently 'prefixed' form. Notice, by the way, that there is absolutely no variation in the case of the other prefixes: *g-klav* is the only possible form for 'I am killing you', and **v-g-klav* is completely impossible.

The generalization, then, is not that /v-/ cannot be added to prefixed forms. In fact, aspectual prefixes, preradical vowels, and the person marker s/h/ $\emptyset$ (for some speakers) can all be prefixed to verbs without blocking the introduction of /v-/. Rather, it is the *specific* prefix /g-/ (and by implication, perhaps, also /m-/ '1st person singular object' and /gv-/ '1st person plural object', though these could never cooccur with first person subjects for syntactic reasons) whose incompatibility with /v-/ must be described. Apparently, then, the condition on the /v-/ rule must be "does not apply if the /g-/ rule has already applied", just as the condition on the s/h/ $\emptyset$ rule, for those speakers who assign it to the verb person prefix class, is "does not apply if the /v-/ rule⁶ has already applied."

In these instances, the condition is thus a matter of the mutually exclusive character of certain specific elements, not a limitation (such as "does not contain a prefix") on the formal makeup of the stem to which a morphological element is to be added. But wait: isn't that exactly the sort of thing I am supposed to be arguing does not occur in grammatical systems? Surely if the account offered above is correct, the grammar of Georgian must be able to identify specific prefixes, a task for which the kind of structure that appears in (2) would appear to be well suited.

The solution to this puzzle is to treat the relation of exclusiveness between the two prefixes as a matter of disjunction between two rules, rather than as a subcategorization restriction on one of the affixes. A stipulation that two (adjacent) rules are disjunctive in this fashion is quite comparable (though not equivalent) to the more traditional claim that the rules in question belong to the same position class. Such an account was proposed in Anderson 1986, and Halle's argument was intended precisely to show that the kind of disjunction claimed there to exist can be replaced with positive conditions on individual

rules (much like those offered by Fabb). But if we recognize that the complementarity observed in the Georgian prefixes is a relation between Word Formation Rules, we do not need to assign internal structure to the forms themselves in order to account for the facts. Such a condition on representations can (and apparently must) be replaced by a condition on the interaction of rules within a derivation.

The point of this discussion is that much of what might be done in the structure-based account by various sorts of subcategorization restriction (assuming that conditions such as “only attaches to morphologically simplex forms” could be stated at all) can be formulated in the structureless theory as matters of the internal organization of a system of rules. Now we clearly need some such organization in any event: relative order of affixes, for example, is reconstructed by the relative order of rules in the sort of system I am proposing. But if we assumed that morphological structure is recorded whenever we perform morphological operations, and (what is more important) that that structure can be referred to at various points later in the derivation, we would be able to formulate essentially global conditions. Such conditions, making essential reference to arbitrary earlier stages of a derivation, cannot be expressed as conditions on adjacent steps (the conceptual content of ordering restrictions on pairs of rules). There is thus a substantial theoretical advantage to be achieved by pursuing a program on which morphological form is represented as the application of rules, and abandoning the morphological analogs of the Phrase Markers that are so important to syntactic form. We also, of course, avoid confusing claims about the interrelations of words within the lexicon of a language with claims about their internal structure and the information they bear. And we see that one more potential source of support for the notion that words are built up as structured concatenations of minimal signs (“morphemes”) falls by the wayside.

Footnotes

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¹It should be made clear at the outset that the goal of eliminating word internal morphological structure which I pursue here is not intended to be applicable to the analysis of compounds, but only to the traditional categories of ‘derivation’ and ‘inflection’. Even within these latter domains, examples exist in which internal structure must be presumed to exist: for an instance, see the category of ‘middle’ verbs with the ending *-st* in Icelandic (Anderson 1990).

I do not mean to suggest that Word Formation Rules *cannot* build internal structure, but only that when they do so, this must be treated as a specifically stipulated aspect of their structural change, and not as the default consequence of any morphological operation.

²This distinction is couched here in the terms of Lexical Phonology, but is also familiar as the difference between the phonology of ‘+ boundary’ and ‘# boundary’ affixes, etc. Nothing hinges on the choice of terminology here.

³A corresponding argument can be made in connection with Verbal suffixes for person and number, but is not given here for reasons of time.

⁴I am indebted to Gert Webelhuth for helpful discussion of these forms.

⁵See Vamling 1989 for some discussion.

⁶Again for syntactic reasons, this is the only other verbal agreement prefix that could appear in a form with a third person IO that must be marked by s/h/∅.

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