

LEXICAL REPRESENTATIONS

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0. Many authors write as if for themselves, setting the thoughts down for their own records. The resulting style usually fails because too much background is left out. The most penetrating minds, though, taking little for granted, have the best chance of mastering this manner. The resulting work appears dense to the ordinary person, but that is not because the author assumes too much, but rather because very little is assumed, forcing the reader to leave behind more preconceptions than can easily be abandoned.

One of my favorite books in this genre is Chomsky's Aspects of the Theory of Syntax. Here there will be many raised eyebrows, for of all Chomsky's work only Syntactic Structures is anything near enjoyable the first time round. But Aspects is different from later work. Except for the unfortunate "Boolean conditions on analyzability," it takes almost nothing for granted, and can be read many times, each reading giving fresh insight into the depths of the author's thought. The germ of the present paper came from a recent reading of Aspects, and I will come back to it at the end.

I will be concerned in this paper with the question of Lexical Representations, and especially the relationship of the level of lexical representation to such levels as the systematic phonemic, phonemic, and systematic phonetic. I will assume that the lexicon of a grammar is a list of lexical entries. Each entry is a lexical item, a member of one of the major lexical categories in the sense of Aspects, that is, either a noun, verb, or adjective.¹ I will further assume that all inflected (syntactically distinct) forms of a given lexical item are provided by a single entry, and that all derivationally related forms are given distinct entries. Very little of what I have to say, however, hinges on this last assumption. My lexicon is meant to resemble Webster's III quite closely.

The lexical representation, according to Sound Pattern of English, is the phonological representation provided by the lexicon. It is phonological insofar as it is given in terms of phonetically based distinctive features. The level of lexical representation is related in SPE to several others, underlying representation, phonological representation, and syntactic surface structure. The relation to underlying representation is made clear in the index, where, under the heading Lexical representation it says (p. 467) "see Underlying representation."² The two are, however distinct. The lexical representation is used "in reference to formatives which are provided directly by the lexicon, i.e., the lexical formatives as well as certain grammatical formatives which happen to appear in lexical entries." (p. 9) Underlying representation, on the other hand, is part of a derivation. It is either the output of the syntax, the syntactic surface structure, which contains, in addition to lexical material,

abstract markers for grammatical formatives, or the phonological representation, in which the abstract markers have been replaced by phonological material. The distinctions are fine, but important.

1. The first question I would like to address is whether each lexical item has one or many lexical representations. The traditional view is that each lexical item has one lexical representation, which is usually called the stem, or citation form, or signifiant. It has been suggested recently, however, by several authors (Halle 1973, Vennemann 1974) that for each lexical item there must be many lexical representations, one for each inflected form of a paradigm. A more radical possibility is that each inflected form have its own separate lexical entry.

What evidence is there for listing inflected forms separately? I will exclude metatheoretical evidence such as plausibility arguments or those based on naive psychology or "substantive" evidence. Aside from this, the main evidence comes from irregular forms. Consider such suppletive paradigms as English be, is, am, are, was, were; Latin fero, ferre, tuli, latum; or Russian Человек, l,ud,i. Since the stem is completely suppletive in these cases, we must list all its suppletive variants. Furthermore, since there is no way to pick one over the other, we cannot call one the citation form and the others the subentries. They are all of equal merit and should stand on their own. This argument is also made for non-suppletive irregularity, but there it has more of a bearing on the phonological nature of lexical representations. I will deal with that matter later. For now, we can restrict the discussion to suppletive forms. There are several reasonable counterarguments to what I have just said, even in these extreme cases of suppletion. One concerns the nature of paradigms. A paradigm is best conceived of as a matrix defined by the morphological dimensions of the language, whose cells are the inflected forms. Paradigms are characteristically full. This is one of the central differences between inflection and derivation. Even if there is suppletion, it is rare for a paradigm to be defective. If it is defective, it is generally because of external reasons. Thus, many languages lack certain forms of the copula. Semitic languages, for instance, have no present tense of the copular verb, and Russian has only the third singular in the present. But there are syntactic reasons for this. The fact is that the Semitic languages need no present tense copula because its absence is dictated by the syntax. The Russian situation is similar. The gap in the paradigm is thus syntactic, not morphological. Sometimes there are phonotactic or other phonological reasons for the absence of certain forms. Halle (1973) discusses such a case. Sometimes a paradigm is defective because speakers are unsure. Such a case is English mongoose, for which many speakers have trouble forming a plural. The problem is that the two forms mongeese and mongoses so interfere with one another that the speaker feels comfortable with neither.

Paradigms are important, because if we list each suppletive

variant of a given lexical item separately, we have no way of encoding the fact that together the inflected forms of the suppletive stems exhaust a single paradigm. Per-, tul-, and lat- together cover exactly one Latin paradigm and listing them in one entry expresses this fact. Note, by the way that the notion suppletion itself makes little sense if the suppletive variants are distinctive entries. One might wish to invoke a Jackendovian analysis here, listing the suppletive stems separately, and relating them by means of a redundancy rule. This analysis still calls the paradigm merely accidental, which is what we want to avoid. Indeed, we can see here the fundamental weakness of redundancy rules and via-rules: they render everything more or less accidental.

We can retreat one step to the position in which we list all the suppletive forms, but as alternates in one lexical entry. This is the curly brackets notation. It successfully encodes the notions of suppletion and paradigmaticity which I have brought up. This system does not claim that one variant is more central than the others. There is no citation form. This seems reasonable on phonological grounds: there is no way to derive one suppletive variant from the others phonologically, so why should one be picked as the lexical representation?

There are reasons, however, for doubting even this eminently rational scheme. Consider first the processes whereby new lexical items are formed, derivation and compounding. All of these derive one lexical item from another (Aronoff 1976). They must therefore pick a lexical representation of the base upon which they operate. When the base is regular, the rule operates not on an inflected form, but rather on the stem. This shows that the stem is the lexical representation in regular cases. If suppletive variants were all of equal merit, we would expect the various stems to be equally acceptable candidates for the phonological base of a Word Formation Rule. This is not the case. Instead we find that one of the stems is chosen. With English verbs, the "infinitive" is the chosen form:

- (1) be: be-in, be-all and end-all, *was-in, *is-all and ends-all
 go: moviegoer, [get up and go]_N, on the go, go-down, go-cart, *wenter
 do: do_N, doer, wrongdoing, *didder

With nouns, the chosen stem is the singular:

- (2) child-support, womanize, manhunt, *womenize, *menhunt

We must assume that the selected variant has some priority over the others. Since Word Formation Rules operate on lexical stems in regular cases, this chosen suppletive variant must be the stem of the lexical item in question. Thus, even in cases of suppletion, a lexical item has a single lexical representation or citation form.³

Similar cases can be constructed in other languages. In Greek, for example, the lexical item for "man" has two stems which are not related by any prevalent rule, /ane:r/ and /andr-/, the former occurring only in the nominative. The latter is the only one which is used in derived forms. The verb /pher-/ "carry" is highly suppletive, its other stems being /oi-/, /enek-/, and /enenk-/. Derived forms are based only on the stem /pher-/. Other suppletive verbs behave analogously.

Another type of evidence for the priority of one suppletive variant comes from regularization of derived and extended forms. Paul Kiparsky has pointed out such English examples as grand-standed and flied out, *grandstood, *flew out (in this sense). These are cases of circular derivation: V→N→V. The fact that the second verb preserves none of the irregularities of the first shows that the intermediary noun has inherited from its base, the original irregular verb, only one form, which is the citation form of the verb. This is exactly what we expect if the citation form is the lexical representation of a lexical entry.

One might try to explain away the prominence of the citation form on functional grounds. The citation form, in this account, would be the least marked or most frequent of the suppletive variants. But markedness and frequency often give us the wrong result. For example, the least marked and usually most frequent form of a verb is the third singular masculine present. It is also the form which is analogized to in most cases of paradigmatic regularization (Jakobson 1932). Similarly, in a noun, the nominative singular is generally the most frequent and syntactically least marked form. Yet precisely these forms are often irregular. Consider English is, has, does. Their stems do not serve as the base in derivation, as we saw in (1). Similarly, in Greek and Latin, the nominative singular is often irregular, nor does it usually function as the form used in derivation. We saw this with Greek /ane:r/, and the same is true of its Latin counterpart /homo/, stem /homin-/.

I conclude that even in cases of severe suppletion a lexical entry has a single main form associated with it, which is its lexical representation, citation form, name, or address. It is this form which is associated with the lexical entry in the absence of special context. What about the other suppletive variants, how are they listed? Here, though I have no evidence, the standard dictionary solution seems to be as correct as any: they are listed secondarily, and each is specified as occurring in a particular syntactic context, or in particular cells of the paradigm. There is a sense, then, in which these other variants are also lexical.

2. Having established that all lexical items have a lexical representation, I would like to turn to the relationship between lexical and underlying phonological representations. To what extent do they coincide and to what extent is lexical representation phonological in nature? Are lexical entries abstractions

in the Hjelmslevian sense or are they signs in the Saussurean sense? I will begin by reviewing the various answers to this question which are to be found in the major Generative Literature. I might note in passing that the question has received curiously little attention in recent years. This can perhaps be attributed to the virulence which it engendered a decade ago. No one of any sense would want to revive the tone of such works as Postal (1968).

The most important works on the subject are The Sound Pattern of Russian (Halle 1959, henceforth SPR), Current Issues in Linguistic Theory (Chomsky 1964, henceforth CI), and SPE. SPR assumes that the lexical and phonological levels are distinct. According to SPR, in the dictionary, every lexical morpheme is listed in its "most explicit form, i.e., the form from which all other forms of the same morpheme can be derived in the simplest fashion." (p. 56) It is at this lexical level that Morpheme Structure rules apply. Lexical morphemes are inserted into sentences at the level of Phrase Structure (p. 29). The rules of derivation and inflection are part of the Transformational component of a grammar (p. 55). Application of the Transformational rules yields the underlying phonological representation. This representation is autonomous "for it consists entirely of morphophonemes and boundaries." (p. 42) The phonological rules turn phonological representation into sound, and are also autonomous, depending for their application solely on morphemes and boundaries (p. 21).

The position of CI is similar. "The phonological component of the grammar can be regarded as an input-output device which operates on a string of formatives, provided with a structural analysis by the syntactic component, and assigns to this string a representation as a string of phones. . . .Formatives are of two types: grammatical and lexical. . . .Each grammatical formative is represented by a single symbol." (p. 85) Each lexical formative is represented by a distinctive feature matrix. The analogue of the phonological representation of SPR is the systematic phonemic level, a "stage in the application of the rules of the phonological component [at which] all grammatical formatives except junctures will have been eliminated and we have a representation in terms of classificatory matrices and junctures alone (with derived phrase structure indicated)." (p. 86) The major differences between SPR and CI are 1) that the phonological rules which apply after the systematic phonemic level of CI are not necessarily autonomous (because of the presence of phrase structure) and 2) that the spelling out of grammatical morphemes is part of the phonology in CI.

In SPE, lexical representations are presumably inserted in the manner of Aspects, by lexical insertion, the first rule of the Transformational component. The syntactic surface is related to phonological representations (the input to the phonology per se) by readjustment rules of various sorts, some of them being morphological in the sense of SPR.⁴ Thus the syntax mediates

between lexical and phonological representations, much as in SPR. SPE differs from CI in that SPE's phonology does not begin, strictly speaking, until the level of phonological representations. SPE thus segments CI phonology into two ordered halves: readjustment, which is morphologically and syntactically conditioned, and SPE phonology. The former precedes the latter. This position is similar to that of SPR, except that the morphological rules are no longer part of the Transformational syntax, but rather operate on its output.

Despite the roundabout nature of their connection to the phonology, the lexical representations of SPE are still rooted in phonetic reality, which is to say that each lexical item is given a single lexical representation in terms of phonetically based distinctive features. The exact nature of each individual lexical representation will be determined by its interaction with the rules of the phonology. (p. 296).

Despite certain differences, these three versions of the relationship between lexical and phonological representations are very close. One thing that they share is a tension between the desire to equate lexical and phonological representations and the empirical difficulties of such an equation.⁵ In each case the dialectic is resolved by positing an intermediate phonological level from which "pure phonology" may precede. The place of the lexical level then becomes a puzzle, and though the grounding of this level in distinctive feature theory is stressed, no justification is given for it. Do we in truth need two levels, lexical and phonological?

3. There are probably reasons for wishing to posit a separate, purely phonological level. I believe that these reasons are largely ideological, having their roots in Structuralist attitudes concerning double articulation and the nature of phonological representations. I will not go into the issue here, however. I only raise it in order to remind readers that whether there is a phonological level separate from the lexical level is an empirical question. On the supposition that the establishment of any level is a good thing, we must accept the existence of a phonological level until we find empirical evidence for doubting its validity. Is there any empirical evidence? Yes, a great deal, much of it familiar.

Halle himself established that one phonological level, the biunique phonemic level, could not be maintained on empirical grounds. I will not repeat his well known arguments. The reader will find them in SPR. Halle's own phonological level is a little more difficult to refute, since the claims that its establishment embodies are a little more abstract. The various versions of the purely phonological level of SPR, CI, and SPE do, however, share one important common claim: that all the rules which spell out morphemes (I will call them M rules) apply prior to this representation. The phonological level consists of "representations. . .at the point where grammatical morphemes other than juncture have been eliminated." (CI, p. 104)

There are two possible interpretations of this claim. The least interesting one is that M rules are interspersed with the phonological rules and that the phonological level is arrived at when the last M rule is applied. This could be anywhere in a derivation. It could even be the systematic phonetic level if the last rule of the phonology happened to be an M rule. I know of no one who has explicitly endorsed this position.

The more interesting position is that of SPE, where the M rules are ordered in a block before the phonological rules. It is easily falsified, and has been a number of times in the recent literature, by analyses which show that a particular M rule must be ordered late in the phonology. Interestingly, to my knowledge no one has ever explicitly pointed out the significance of these analyses with regard to the establishment of a phonological level. The best known examples are those of Anderson (1974) on Danish imperatives, and Munro and Benson (1973) on Luiseño reduplication. The original example of a late M rule was in Bloomfield's (1933) discussion of Tagalog. Fittingly, the most convincing example is the more thorough analysis of Tagalog reduplication presented by Carrier (1973). She shows that three productive reduplication rules in Tagalog (one inflectional and two derivational) must be ordered after certain phonological rules and before others. I cannot conceive of any way in which Carrier's data could be reanalyzed so as to undo the ordering facts. She herself shows that Wilbur's (1973) global treatment (which seeks to avoid positing of late M rules) will not do in certain instances. We must conclude in the face of such analyses that there is no phonological or systematic phonemic level in a grammar.⁶

4. I will now return to the question which I asked in section 2. What is the relationship between lexical, phonological, and underlying representation? The answer is that lexical items have lexical representations. Grammatical morphemes may or may not have any such representations. If they do not, then they will be spelled out in the course of the phonological derivation of a sentence. Grammatical morphemes, then, are, or at least may be, purely abstract syntactic markers without any underlying phonetic content. They may be Hjelmslevian signs. Lexical items may not. But is it true that all lexical items have a phonetically based lexical representation? The answer to this is a qualified yes.

It is well known that lexical items have other phonologically relevant properties besides their phonetic distinctive feature matrix. Some of these properties are syntactic, and only incidentally affect phonology. Thus, the rules of English stress depend to a surprising degree on the lexical category of a word (Lieberman and Prince, 1977) as do many phonological rules in other languages. Other properties are clearly morphological. These include conjugation class markers which may only be realized phonologically in certain environments, and related entities such as theme vowels, which are demonstrably separate

from the stem of a lexical item. But there are properties of lexical items whose only import is phonological, and which cannot be described in terms of phonetic distinctive features. These are the notorious rule features. Rule features come in two varieties, plus and minus, and are associated with two kinds of rules, minor and major, respectively. The minus features associated with major rules are sometimes called exception features. These are unpopular and there are various ways to get around them (cf. Leben and Robinson (1977), and the literature on opacity). The other rule features, though, positive specification for minor rules, have received strong support from several fronts recently. Most important are a series of recent papers by Jim Harris (1976, 1977, 1978) devoted to the behavior of certain irregular verbs in Spanish. Harris posits two minor rules, one of diphthongization and another involving a high/mid alternation. He shows that all of the irregularities encountered in the analysis of the verbs in question can be elegantly accounted for by marking verbs for whether they undergo the minor rules in question. Furthermore, a good deal of perfectly regular data becomes understandable once the minor rules and rule features are posited. Harris also reveals the inadequacies of a number of other analyses of the same phenomena that have been given in the literature. The superiority of his treatment to the others is so marked that it is difficult to imagine how one could construct an adequate analysis which did not resemble Harris's in its essential use of minor rule features. Crucially, Harris shows (1976) that the rule features are properties of lexical items and not of individual inflected forms or of morphemes.⁷

We must conclude that lexical representations contain diacritic rule features. Such features are not controversial. However, when they are discussed, as for example in SPE (p. 381), they are usually grouped together with syntactic and morphological features of the lexical entry, and separately from the distinctive feature matrix which constitutes the lexical representation. This practice is deceptive, for the only function of these features is phonological. The lexical representation of a lexical item thus consists of a phonetic distinctive feature matrix, plus a number (perhaps zero) of purely phonological diacritics. It is annotated, or relativized.

In addition to minor rule diacritics, there are the rule features governing the late M rules which we discussed above. Consider another example from Carrier (1978). Occupational nouns have two morphological characteristics: a prefix /mang/ and reduplication of the first vowel of the stem and the preceding consonant:

- (3) mag-limbag "publish" → man-lilimbag "publisher"
 b-um-a:sah "read" → mam-baba:sah "reader"

The final nasal of the prefix assimilates to the initial

consonant of the stem, and in certain cases they merge. Reduplication then copies the result of the merger:

(4) /mang-tahi?/ "sew" → mananahi? "seamstress"

The order of the rules must be (i) prefixation of /mang/⁸, (ii) nasal assimilation and merger, (iii) reduplication. But (i) and (iii) are part of the same Word Formation Rule. There is thus no way to list the output of this Word Formation Rule in the lexicon without either (a) including the output of the phonological rules, or (b) including a rule feature which triggers the late reduplication. Alternative (a) makes it impossible to encode the fact that the prefix is always underlyingly /mang/, and also prevents us from stating that the prefix and the reduplication are both operations of the same Word Formation Rule. Therefore the rule feature is the only possible solution. The lexical representation of a word like mananahi? must contain a rule feature which triggers reduplication.

I suggested (Aronoff 1976) that only the most productive Word Formation Rules could engender such a state of affairs, in which a lexical representation would contain a rule feature. The idea was that since the output of the most productive WFR's would not be listed in the lexicon, we wouldn't have to worry about listing such diacritic features as [+ Reduplication] in a lexical representation. This is a rather baroque argument, and in fact, though the rule which produces occupational nouns is productive, the output of at least some instances of the rule require listing, by the criteria which I gave. These diacritics must therefore stand as valid parts of lexical representations.

Lexical representation thus must contain rule features of at least two sorts, those arising from late base-dependent WFR's, such as the ones which Carrier discusses, and those governing minor phonological rules. The result, as I noted above, is that lexical representations consist of an abstract phonetic/phonological form, plus diacritics. Note, however, that the phonological form is still there in its entirety. Lexical representations are annotated phonological representations, and, taking up again the conclusion of section 1, every lexical item has a single lexical representation.

5. This brings us back to Aspects. On page 64, Chomsky establishes the distinction between lexical items and grammatical formatives. He then asks "whether the formatives and category symbols used in phrase markers have some language-independent characterization. . ." He goes on to suggest that "in the case of the lexical formatives, the theory of phonetic distinctive features does, in fact, give a language-independent significance to the choice of symbols. . ." In other words, one of the necessary properties of lexical items is that each have a lexical representation. For grammatical formatives, Chomsky has a different answer. He puts these together with

the category symbols, and suggests that "the question of substantive representation in the case of the grammatical formatives and the category symbols is, in effect, the traditional question of universal grammar." It is not necessary that grammatical formatives not have a lexical representation. Chomsky himself gives the word the as a possible example of a grammatical formative with a constant form. Nor is the possession of a lexical representation the only property of lexical items. Subcategorization is another, for "it seems that the only categories involved [in subcategorization, MA] are those containing lexical formatives as members." (p. 79)⁹

When I first noticed its significance, Chomsky's assertion that the possession of a lexical representation constituted a "language-independent characterization" of the notion "lexical item" seemed peculiar. The point of my paper has been to show that it is correct.

I should note some other consequences of the position I have constructed in this paper. The first has to do with morpheme structure conditions. In SPR, Halle separated these from phonological rules, saying that they applied before the morphological transformations which led to phonological representations. Once we are rid of phonological representations, the nature of morpheme structure conditions becomes somewhat clearer. They are stem structure conditions, and apply only to lexical items in their lexical representations, not to grammatical morphemes, nor to collocations of lexical and grammatical morphemes. This seems to me to be a reasonable conclusion, since grammatical morphemes, even when they do have a recognizable phonological form, are often phonologically peculiar. In English, only grammatical morphemes may consist of a single consonant. In general, reduplicative, deletive, and infixing morphemes are only grammatical. We can recognize more clearly the phonological differences between grammatical and lexical morphemes, if we see that such differences in phonological behavior make sense within the context of a complete linguistic theory.

Secondly, we now have theoretical justification for the notion stem boundary. This has always been a problematic entity. It seemed necessary, and distinct from morpheme and word boundary, but within the context of previous theories it was difficult to find a rationale for its distinctiveness. By suggesting that lexical representations are stem representations I have provided such a rationale.

Finally, I would like to point out the role of phonology in a grammar without a separate phonological level in a derivation. It is analogous to the role of the Transformational component. Just as Transformations map from Deep Structure to Surface Structure, so does phonology map from Surface Structure to a phonetic representation. Just as there is no single transformational representation, so there is no single purely phonological representation in a derivation.

Footnotes

1. I assume that there are no other lexical categories. Adverbs will be in the same category as adjectives.
2. The fact that the two are cross-listed in the index to SPE should not lead us to believe that Chomsky and Halle themselves equate them, since Chomsky and Halle did not prepare the index to SPE.
3. It is not always the case that derivation is done exclusively from one stem. In Latin, for example, -or agentives and -io abstract nominals are formed on the supine (e.g., cuncta:tor, de:li:bera:tio). In suppletive lexical items, the stem used in this case is the suppletive stem used in the supine, e.g., la:t- (di:la:tio "postponement", di:la:tor "loiterer"). Most suffixes, however, choose the present stem: ferax "fruitful", ama:bilis "likeable", volu:men "scroll". In these cases, we cannot decide, just by looking at the suppletive cases, which is the citation form. This can only be done by analogy to the regular cases, where the supine is a derived form, and by looking at the subsequent history of the suppletive forms.
4. A discussion of syntactic readjustment is given in Selkirk (1972). A class of purely morphological readjustment rules is discussed in Aronoff (1976).
5. One work where systematic phonemic and lexical representations seem to be equated is Postal (1968). He says (p. xii, fn. 9) that "in systematic phonemics the systematic representation of a form consists not only of this, but of the Surface Constituent Structure of the form as well. In short, the input to the phonological rules is identical with the output of the syntactic rules." Postal does not discuss the problem of nonlexical morphemes.
6. This is not to say that M rules can be interspersed among phonological rules willy-nilly or that all M rules can be so interspersed. It has been claimed in various places (Siegel 1974, 1977; Aronoff, 1976; Carrier, 1978) that the places in a phonology where M rules may occur are highly restricted. Furthermore, it is only base-dependent rules (in the sense of Aronoff, 1976) which are orderable at these late points.
7. Harris gives some evidence that diacritic rule features are the property of lexical representations rather than of lexical items. He notes that such Spanish forms as vengo and tengo are doubly irregular. First, they contain a g which is present nowhere else in their paradigms. Secondly, since venir and tenir undergo Diphthongization, and since the stem vowel of these forms is in a Diphthongization environment, we expect *vieno and *tieno. Vengo and tengo are thus apparently exceptions to a diacritic rule feature. Harris suggests that the presence of the g gives vengo and tengo their own separate subentries, the stems veng- and teng-. If diacritics are properties of stems, there is no reason to expect veng- and teng- to have the Diphthongization diacritic and to

undergo diphthongization. They are thus not exceptions to an exception. This is an interesting example, but Harris cautions that we should not make much of it until we have more such cases.

8. The /maŋg-/ prefix of the verb and noun in (4) are distinct. They happen to be homophonous.

9. Subcategorization provides an argument against Jackendoff's (1973) claim that Preposition is a major lexical category. Jackendoff's rule for PP is as follows:

(i) $PP \rightarrow P (NP) (PP)$

This rule provides for strict subcategories of P. But are there actually any such subcategories? Consider first the environments /NP PP and /PP. I know of no preposition which is restricted to either of these environments. They thus do not strictly subcategorize P. As for intransitive prepositions, Jackendoff claims that there are two sorts of these: (a) particles, and (b) adverbial words such as home, here, there, up, tomorrow, etc. The only argument for particles being prepositions is one of convenience. In any case, even if particles are prepositions, they are not introduced in the same manner as prepositions. To do so, one would have to allow context sensitive base rules, for as far as I can tell Jackendoff's discussion entails that particles be derived by the following rule:

(ii) $V \rightarrow V (PP)$

But the only PP that can appear inside a V is a particle. If we do not want to make the expansion of PP context sensitive, we must amend the rule as follows:

(iii) $V \rightarrow V (P)$

This means that particles are not introduced by the PP rule. They are therefore not a strict subcategory of prepositions, since the two are introduced by different base rules. This leaves us with the adverbials. Some of these must be nouns with deleted prepositions:

(iv) He left $\left. \begin{array}{l} \text{home} \\ \text{Paris} \end{array} \right\}$ at eight o'clock.

(v) She is only happy at home or at Fenway.

Others, like up, seem to be parallel to verbs with \emptyset objects (see Bresnan, 1977, for a discussion of the difference between \emptyset object and no object). This done, we are left with no strict subcategories of P. P is therefore not a lexical category. There are other reasons besides those of subcategorization which make it odd to say that P is a major lexical category. For instance, it is a closed category.

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