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TWO SENSES OF *Lexical*

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The term *lexical* has been to the eighties what the word *natural* was to the seventies, a kind of feel-good buzzword that has attached itself to a number of theories with no necessary connection to each other or to anything else. This sudden popularity has given the word such a variety of different, often contradictory and sometimes vague meanings that one reasonable response is to suggest that the term *lexical* be banned from further professional discourse, as I was going to do when I sat down to write this paper. But on reflection, it seems to me that such a sentence would be too harsh. It would also leave unanswered an interesting question that lurks in the polysemous morass of current usage, which is whether the various senses of this single word, some of which at least are quite old, coincide on some single hopefully real object, even though they are conceptually quite distinct. Or are we simply being fooled by language?

Although I will not provide a definitive answer, I think that merely raising the question is valuable, since many of my colleagues have begged it instead, assuming that what is lexical in one sense of the term must also be lexical in another sense, and then gone on to construct entire grand monuments on this dubious foundation.

In its most unadorned sense, *lexical* means 'having to do with words'. Etymologically, it is derived by means of the Latinate adjectival suffix *-al* from the borrowed Greek noun *lexicon*. The latter is originally a neuter adjective and its nominal sense is derived by clipping from the phrase *lexicon biblion* 'wordbook'. The adjective stem *lexic-* is based on the noun *lexis* 'what is said, word', which derives finally from the verb *leg-* 'say, speak'. *Lexical* itself is not an old word, although its Greek progenitors are all venerable. The first citation in *OED* is 1836 and it is not listed in any dictionary of medieval Latin.

In its two most important academic uses, *lexical* has a narrower sense than just 'having to do with words' and is contrasted with *grammatical*. I will devote the rest of this paper to these two senses and

ignore any non-contrastive senses. Etymologically, grammatical is quite parallel to lexical. It is based on the Greek noun grammatike, which is originally a feminine adjective. Its nominal sense is derived by clipping from the phrase grammatike texne, which had a number of distinct senses, one of them being more or less equivalent to grammar. The adjective stem grammatik- is derived from the noun grammata 'letters',which itself is derived from graph- 'write'. The two words lexical and grammatical are thus perfectly parallel in their etymological history, each being an adjective derived from a noun derived from an adjective derived from a noun derived from a verb.

Traditional grammarians divided a language into two major parts, grammar and lexicon. The latter contains the basic elements, the words, while the former contains the rules for combining these basic bits. If words and grammar are conceived as being maximally distinct, so that all the ruliness of language is concentrated in the grammar, then we arrive at the kind of theory that has dominated theoretical discourse since at least the seventeenth century, in which the words, by contrast with the grammar, are treated as the seat of everything that is irregular.

Early theorists went so far as to equate grammar with logic and they constructed purely logical artificial languages in which "real characters" substituted for untrustworthy words. These same theorists were only strengthened in their dichotomous conclusions by the simultaneous recognition that words were arbitrary signs. Words and their adjective lexical thus came to be associated with arbitrariness and idiosyncrasy by contrast with grammar and grammatical.

The equation of lexical with idiosyncratic was strengthened in the twentieth century, under the theoretical influence of Leonard Bloomfield. Sometime before 1881, Baudouin de Courtenay coined the term morpheme to refer to minimal meaningful forms.1

Bloomfield adopted the term but gave it a characteristically formal definition free of mentalist baggage. In his postulates, he defined the morpheme as "a recurrent (meaningful) form which cannot in turn be analyzed into smaller recurrent (meaningful) forms" (1970 [1926],130). For Bloomfield, as for Baudouin, the basic elements of language were not words, but morphemes. I will try to explain briefly why this was so.

Bloomfield always acknowledged two major influences on his general views with regard to language. These were the Neogrammarians and Panini.

For both of these, and especially for Panini, grammar was centered on morphology, which is to say that it dealt mostly with word-internal phenomena. But if grammar could reach inside the word, then words must not be the basic arbitrary elements that they were supposed to be. In order to resolve this problem, the early modern theorists, beginning with Baudouin, instituted a theoretical change. Instead of having words be the basic elements, they assigned this role to morphemes. This theoretical innovation resulted in another terminological change for which Bloomfield alone seems to have been responsible: the lexicon, the list of basic elements in a language, was now defined as a list of morphemes rather than as a list of words: "The total stock of morphemes in a language is its lexicon" (Bloomfield 1933,162). Furthermore, since "every morpheme is an irregularity..." then the lexicon is "a list of basic irregularities..." (ibid. 274). This definition makes the word lexical in turn synonymous with idiosyncratic and leaches it of any connection at all with words.2

Bloomfield's new senses of lexicon and lexical prevailed for the next forty years. Together with the emphasis on the phoneme and the subsequent influence of information theory, it led in phonology to the sparse lexical phonological representations of the 1960's and 1980's from which all predictable non-arbitrary redundancy is excluded. In syntax and ssemantics too, lexical properties became those which were not predictable but were rather part of what must be memorized about individual lexical items. As Chomsky puts it, "In general, all properties of a formative that are essentially idiosyncratic will be specified in a lexicon." (Chomsky 1965,87). Let us call this sense of lexical that I have traced to Bloomfield idiosyncratic lexical.

The second sense of lexical also finds its roots in the traditional distinction between lexical and grammatical, but on the substantive side, in the contrast between lexical (content) elements, sometimes called full words, and grammatical elements, sometimes called function words, what Bloomfield calls formatives.3 This sense is explicated most clearly by Sapir in his Language(1921), although it should be noted that Sapir does not himself use the term lexical, but rather a variety of other terms, especially radical. In Sapir's work, as in traditional grammar, the lexical vs. grammatical dichotomy is grounded in semantics. Lexical(radical) concepts are semantically concrete, while grammatical concepts are archetypically abstract and relational. Sapir divides radical

concepts into three types--objects, actions and qualities--which correspond respectively to the three open classes or parts of speech--nouns,verbs and adjectives.Sapir devotes the longest chapter of Language to an attempt to develop a classification system that will distinguish the concrete concepts of radical elements from the relational concepts of grammatical elements. He is careful to point out in the end that no sharp dichotomy can be made. Nonetheless, the lexical/grammatical dichotomy still stands as a way of expressing the distinction between the three open classes of forms, which are lexical, and all other (closed) classes of forms, which are grammatical. Let us call this second sense of our term categorial lexical, since it is based on the identification of lexical categories. Compared with Bloomfield's idiosyncratic lexical, this sense has enjoyed little popularity until very recently, largely because of its overt connection with traditional semantic definitions of parts of speech, which were a favorite target of structuralist ire. However, this sense has come to the fore in recent lexical research.

These two senses of lexical obviously lead to two quite distinct notions of a lexicon. On the idiosyncratic sense, the lexicon is a list of arbitrary expressions, regardless of the category they belong to. On the categorial sense, the lexicon is the set of all members of the major lexical categories, regardless of whether they are arbitrary. Both senses have figured strongly in morphological research in the last twenty years.

We are now ready to look at these twenty years. The first work that I will discuss is Aspects, since it is here that we find the beginnings of the importance that the term lexical enjoys today. In Aspects, Chomsky uses the term in both of its senses. Thus, early in the book (65), he distinguishes between lexical and grammatical formatives or items and suggests that the lexical categories are at least N, V and A.4 In later work, e.g. Remarks (210), the lexical categories are characterized as just these three. Chomsky searches, as Sapir did, for some independent characterization of the lexical/grammatical distinction. His answer is very different from Sapir's. In the case of lexical categories, Chomsky suggests, phonetic distinctive feature theory provides a language-independent representation, while the substantive representation of grammatical formatives is provided by Universal Grammar. It is thus clear that, although his criteria are novel, Chomsky is pursuing a traditional categorial definition of the term lexical.

In accord with this definition, Chomsky then defines the lexicon as "an unordered list of all lexical formatives." (84).

On the other hand, Chomsky also says, following the Bloomfieldian tradition, that "In general, all properties of a formative that are essentially idiosyncratic will be specified in the lexicon" (87), with an accompanying footnote recalling Bloomfield's characterization of the lexicon as a list of basic irregularities and noting a remark of Sweet's according to which "grammar deals with the general facts of language, lexicology with the special facts." Chomsky's definition is thus explicitly within the Bloomfieldian idiosyncratic lexical tradition (both in nature and in attribution), according to which even grammatical formatives must be listed in the lexicon. A similar definition is given in SPE: "formatives which are provided by the lexicon, i.e. the lexical formatives as well as certain grammatical formatives which happen to appear in lexical entries. There may be other grammatical formatives introduced directly by the syntactic rules themselves" (9).

The syntactic theory of Aspects incorporates the categorial sense of lexical. Grammatical formatives are introduced by the categorial component, which will generate strings consisting of various occurences of the variable Delta, which marks the position of lexical categories, and grammatical formatives. Lexical formatives are then introduced into these strings by the substitution transformations which substitute complex symbols for occurences of Delta. Nonetheless,because both senses of the term are used in Aspects without explicit differentiation, it is reasonable to believe that the confusion in the subsequent literature between the two senses of lexical lies at the source.

One question that was clarified in Aspects is whether Bloomfield's (or Baudouin's) reduction of all arbitrary information to the level of the morpheme is correct. In the last half of the last chapter, under the (on one reading) oxymoronic title The Structure of the Lexicon, Chomsky discusses the use of redundancy rules in order to simplify lexical entries and thus to achieve the Bloomfieldian/Jakobsonian goal of removing whatever structure might seem to be present in the lexicon. These redundancy rules are explicitly modeled on those of pre-markedness generative phonology, in which all redundancy was purged from lexical representations and restored in the course of a derivation by lexical redundancy rules (SPE 8.8).

The question is whether these redundancy rules,

together with Transformations, allow us to reduce the lexicon to a list of morphemes. Chomsky discusses a variety of cases drawn from derivational morphology and phrasal idioms which suggest that this is not achievable. He concludes, in a discussion of words like telegraph and frighten, as follows:

> In these cases, there are no rules of any generality that produce the derived items, as there are in the case of sincerity, destruction, and so on. Hence , it seems that these items must be entered in the lexicon directly. This, however,is a very unfortunate conclusion, since it is clear that from the point of view of both the semantic and the phonological interpretation it is important to have internal structure represented in these words. Their meaning is clearly to some extent predictable (or at least limited) by the inherent semantic properties of the morphemes that they contain, and it is easy to show that internal structure must be assigned to these items if the phonological rules are to apply properly in forming their phonetic representations... (186)

If these complex items must be entered in the lexicon, then the lexicon must contain instances of a complex symbol dominating a sequence of symbols, or branching within a word. In other words, the Bloomfieldian lexicon must contain polymorphemic words. Chomsky finds similar problems with phrases like take for granted and with verb-particle constructions: both types are syntactically complex but (idiosyncratic) lexical.

This entire last section of Aspects is very tentative in tone and the last paragraph of the book is one of the least assertive in the entire canon. I will cite it here in full.

> Obviously, this discussion by no means exhausts the complexity or variety of topics that, so far, resist systematic and revealing grammatical description. It is possible that we are approaching here the fringe of marginal cases, to be expected in a system as complex as a natural language, where significant systematization is just not possible. Still, it is much too early to draw this conclusion with any confidence and, even if it is eventually justified, we must still face the problem of extracting whatever subregularities exist in this domain. In any event, the questions we have touched on here

> have not been illuminated in any serious way by approaching them within the framework of any explicit grammatical theory. For the present, one can barely go beyond mere taxonomic arrangement of data. Whether these limitations are intrinsic, or whether a deeper analysis can succeed in unraveling some of these difficulties, remains an open question. (192)

Given this tentative tone, it is easy to understand why this entire last section has been so long overlooked. From the vantage point of this paper, though, it is clearly a revolutionary piece, for, through the jargon about complex symbols, what Chomsky has shown here is that idiosyncratic lexical information cannot be contained within the morpheme. There are lexical words and lexical phrases as well as lexical morphemes.

If this is so, then the entire Baudouin/Bloomfield program, which seeks to locate idiosyncrasy solely within the morpheme, and of which early Transformational Grammar is (at least in this respect) a continuation, is a failure. Furthermore, the Jakobsonian program of squeezing out all redundancy from lexical entries, the driving force behind generative phonology, must also be misguided, since it too depends crucially on the equation of lexical with both arbitrary and morphological.

But this revolutionary finding has been ignored, judging from the continued popularity of such morpheme-based theories as Lexical Phonology. The historical legacy of Aspects in this domain is instead only a confusion between the two senses of lexical and a tendency to equate one with the other, to which I will now return.

Aspects is followed by Remarks, which most of us regard as the cornerstone of lexical grammar. Bresnan (1978), for example, says that "the existence of a class of lexical rules of word formation was postulated by Chomsky (1970)..." (5). In fact, the lexical theory of Remarks is essentially identical to that of the last chapter of Aspects. There are no word formation rules of the sort that Bresnan attributes to Chomsky. Instead, Chomsky uses lexical entries that are unspecified for lexical category to allow derivationally related words to share subcategorization frames. This allows Chomsky to express common properties of derivationally related words without word formation rules. Thus, the theory of Remarks is lexical in the idiosyncratic sense of the term and not

in the categorial sense, as Bresnan implicitly claims. The fact that the theory is recalled as being lexical in the categorial sense must be due to the confusion between the two senses that is one legacy of Aspects.

If, however, we can make ourselves overcome this confusion, then Aspects leaves us with an interesting question: are the two senses of lexical conceptually related in some way? In particular, are members of major lexical categories necessarily listed in the lexicon? Many authors assume that they are. Thus, Anderson (1988) says that stems, or words minus productive inflectional affixes, function as the base of word formation rules. He assumes that these stems are "the lexical items that are entered in the dictionary of a language" (28), and that productive inflection applies to these lexical items. Given this much, it would appear that Anderson is using lexical here in its categorial sense. Later on in the same article, though, Anderson makes the following argument. He first notes that idiosyncratic realizations of inflectionally relevant properties must be present in lexical representations. He then concludes that "nonregular (hence lexical [inflectional MA]) morphology may appear in derivational forms or compounds because it is in the lexicon" (40). But this conclusion, which Anderson calls a theorem, follows only if the two senses of lexical define the same object. If they do not, then there is no logical reason to assume that idiosyncratic inflected forms will interact with uninflected stems. They may interact, but this does not follow from any theory. David Perlmutter (1988) makes exactly the same argument in a closely related paper in the same volume.

The reader might object here that there is a good deal of evidence showing that irregularly inflected forms do appear in compounds and derivatives. But the reader should also realize that this observation, if it is true, does not follow from any current theory of morphology. If it is true that the two senses of lexical are extensionally equivalent, that elements which are lexical in the categorial sense and elements which are lexical in the idiosyncratic sense are members of the same set, then we do not have any idea why this should be. Thus, what Anderson characterizes as a "rather precise claim [that MA] follows as a theorem from the proposed organization of the grammar" (42), is in fact an important empirical question that is yet to be answered.

Let me close with some observations on this empirical question. It is not at all obvious that irregular inflected forms are as malleable as they

might appear to be. Most do not, in fact, interact with derivation or compounding. So, Anderson cites mice and left as irregularly inflected forms, but notice that neither of these words is derivationally or compositionally active. It is also important to distinguish compounding from derivation and to distinguish first and second members of compounds, since the restrictions on the positions differ. In English at least, the few inflected forms that do appear as first members of compounds are suppletive: e.g. menfolk, womenfolk, peopleeater, alumni relations. Furthermore, since even phrases may appear quite freely as first members of compounds (Botha 1980, Hoeksema 1985), the lexical status of this position (in either sense of the term) does not provide a firm foundation for any argument.

As for second or head position, it is quite common to find irregularly inflected words here (e.g. postmen, fieldmice, motheaten), but that is due to an independently motivated head operation, as shown by Hoeksema. In a morphological head operation, the head, rather than the entire construction, receives the appropriate morphophonological marking. When the head is irregular with respect to a particular category (e.g. plural or past tense), then this irregular inflected form will appear. The appearance of irregular inflected forms in head position of compounds thus has no bearing on the question at hand.

In derivation, the numbers are also very small in English, with the added curiosity that irregularly inflected verb forms are exceedingly rare as bases. Goner is the only example that comes to mind quickly (hasbeen and leftover are lexicalized phrases). Another problem worth mentioning is the status of borrowings. Many of the examples of derivationally active inflected words that we find in the literature involve borrowed words, especially learned borrowings (see, for example Perlmutter's discussion of Hebrew borrowings in Yiddish). Surely such cases should not form the basis for a major theoretical claim, given their marginal status in the language under study.

As I said at the outset, I do not know whether all idiosyncratic lexical items and all categorial lexical items are members of the same set, though I have given a few reasons for doubting that they are or at least questioning the existing evidence. My major point, though, has been only to show that the claim that they are necessarily or logically members of the same set is based on a confusion of senses, so that whether they are is an empirical question and not a logical one.

We have indeed been fooled by our own terminology. The solution, as Zwicky suggests in his contribution to this volume, is terminological. We need to distinguish the two senses of lexical by giving them different names. It seems to me that the idiosyncratic sense is well enough attached to the word lexicon that we don't need two new terms: we can keep lexical to mean 'idiosyncratic', though Zwicky feels otherwise. We do, however, need a new term for the categorial sense. I will make a suggestion here which is based on practice in natural science, that is, rather than use a term that carries its history on its back, like S-structure, and so may lead to confusion, I suggest instead that we instead coin a completely novel term, as the physicists did with quark and its congeners. My candidate is umlical. Its etymology is as follows: the term member of a major lexical category has become fairly common. In my own work, I have often abbreviated this as MMLC. It is often useful to refer to an uninflected MMLC, This term is clearer than lexeme, since it makes it clear that we are talking only about uninflected MMLC's rather than about any idiosyncratic lexical word. It is better than stem, since some MMLC's have more than one stem. It also makes no claims about whether such items are always stored in a lexicon (and surely some are not). This expression may in turn be abbreviated as UMMLC, which is easily pronounced as umlic. The adjectival derivative of umlic is umlical.

Let me ask my original question again, but this time in the new terminology: are lexical items umlical? This,it seems to me, is now quite clearly an empirical question.

FOOTNOTES

1. Baudouin defines the morpheme as "that part of a word which is endowed with psychological autonomy and is for the very same reasons not further divisible" (Baudouin 1972 [1895], 153). Thanks to Przemyslav Pawelec for locating this definition.

2. Later in the book Bloomfield goes on to "extend the term lexical to cover all forms that can be stated in terms of phonemes, including even such forms as already contain some grammatical features (e.g. poor John or duchess or ran)..." 264. This is certainly nonstandard, but it shows the extent to which, for Bloomfield, lexical had lost its connection with words.

On the other hand, this use of the term may be defended as a return to its etymological origin.

3. Bloomfield's use of this term is more restricted than that of Chomsky, who extended it to all morphemes, thus obliterating a useful distinction.

4. In a footnote, Chomsky discusses, without conclusion, the question of whether Modal should be considered as a lexical category.

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