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GEOFFREY K. PULLUM

LEXICAL CATEGORIZATION IN ENGLISH DICTIONARIES AND TRADITIONAL GRAMMARS

Abstract: English grammar as presented to schoolchildren, university students, and the general public is in a state resembling what biology might be like if teachers had paid no attention at all to *On the Origin of Species* (1859) or anything that followed. In fact that may be an understatement: English grammar has been drifting along unrevised not just since Darwin published his magnum opus, but since before he was born. The main outlines of English grammar are presented in 2009 just as they would have been in 1909, when Jespersen produced the first volume of his magnificent but mostly ignored 7-volume grammar, or in 1809, the year of Darwin's birth. In this short article I lay out a small amount of the evidence for this claim, concentrating on the very basic topic of the 'notional' definitions of grammatical categories or 'parts of speech'.

1. The primary confusion

Most of the deepest blunders in English grammar as traditionally presented over the past two or three centuries stem from a single longstanding confusion between (i) grammatical categories or word classes; (ii) syntactic functions or grammatical relations; and (iii) semantic and discourse-related notions.

It is surprising to see the tenacity of this confusion. It does not appear in other domains. People do not confuse butter knives with screwdrivers, even though occasionally someone who cannot find a screwdriver may use a butter knife to turn a screw. Yet in grammar people just cannot keep syntactically relevant categories or classes of words separate from the relational properties they have when used in particular constructions, and cannot keep either separate from meaning. They insist on trying to define the first of these in terms of the other two, and they have done so since the very earliest attempts to write grammars of English.

The familiar story of the "notional" definitions of grammatical categories is just the simplest and most basic example of this.

Here is a brave admission made by the philosopher John Wilkins in a blog post[1] concerning his understanding of English grammar:

(1) I got through 12 years of state funded schooling with the sum total of my grammatical knowledge being – Nouns are thing words, verbs are doing words, and adjectives are describing words. I suspect we never covered adverbs.

Sadly, he probably isn't exaggerating. Indeed, at least he is sophisticated enough to draw the distinction between things and "thing words", and between deeds and "doing words". Not everyone is. American TV personality Jon Stewart told a college graduating class that *terror* "isn't a noun".[2] He must surely mean that it isn't a person, place, or thing. Numerous Christians have used the phrase *faith is a verb*, and it is the title of at least one book. They must surely mean that faith involves taking actions rather than merely possessing something.

Examples of this sort suggest that ordinary members of the public scarcely know enough to distinguish word classes from the things that the words are supposed to denote. At least traditional grammarians knew that they were trying to define classes of words. The trouble is that the whole basis of their attempt to provide those category definitions was a conceptual disaster, mainly because of an almost willful state of confusion concerning category, function, and meaning.

2. Defining nouns and verbs

It should not need to be pointed out again, yet apparently it must: nouns do not necessarily name things. We certainly cannot decide nounhood by first examining the world to see if we have a thing, and then concluding that the word naming it must be a noun. Leonard Bloomfield's familiar example (1933, 266) is as good as any after 75 years: what is fire, exactly? It is of course a process – rapid oxidation producing heat release. It is something that happens. But that does not make the word *fire* a verb; it is a noun. How can we tell that *burn* is a verb but *fire* is a noun? Not by reference to the nature of combustion, that's the point.

The test of a word's being a noun is not our intuition that it names a kind of thing, but the forms it has. Take *failure* for example. To decide whether *failure* is a noun, you can't examine instances of it to see whether they provide a basis for calling it a kind of thing. If failure is what you want, what you have to do is screw everything up. That doesn't sound like naming a thing at all. In fact it sounds like taking action.

One could ask of many other nouns how on earth they could be identified as things on the basis of first principles and sensory data. *Absence*, for example –

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[1] 14 June 2008; http://scienceblogs.com/evolvingthoughts/2008/06/grammar_wars_in_queensland.php.

[2] See the Language Log post "Terror: not even a noun (says Jon Stewart)", at http://itre.cis.upenn.edu/~myl/languagelog/archives/000932.html.

the state of being missing from in a certain location. Likewise *lack*, *emptiness*, *method*, *assistance*, and so on.

Consider also nouns that occur only in idiomatic phrases, like *sake* (as in *Do it just for my sake* 'Do it out of concern for me') or *dint* (as in *It was achieved by dint of hard work* 'It was achieved through the means of hard work'). These words do not have denotations in any ordinary sense. The world cannot really be said to contain any lacks or assistances; and it certainly contains no sakes or dints.

The traditional view has it backwards: it is not that these are things, so we named them with nouns; it is just that we have named them with nouns, and in that sense we have (in a way) classed them with things.

To classify words on a rigorous basis, so that within a language we can definitively place words in lexical categories, we have to use **parochial** criteria – not universal concepts like "thing" or "substance" but facts that are local to one language. The right definition of nouns in English depends on morphological facts like having forms for **plain** and **genitive case** and forms expressing **singular** and **plural number**, and syntactic facts like occurring as **Subject** or **Object**, or as **Complement** of a preposition.

It may well be true that every human language will have a large and open class of words among which, as central and typical members, will be all of its names for natural kinds of thing like trees, leaves, cats, dogs, houses, water, salt, the sun, and the moon, and it will be appropriate to call that class its "noun" class. But that is not a definition of nounhood. It is a rough rule-of-thumb idea of how to track categorisation across languages. It is not (of course) immune to error, and within a language it is not really of any use at all.

Finding accurate criteria for classifying words as nouns internal to some other language, different in its typology from English (and I am thinking of languages like Chinese or Vietnamese here) will be a significant challenge. It cannot be done entirely on the basis of the old notion that the nouns are the thing words.

For verbs, traditionally conceived of as names of actions or activities, very similar remarks apply. The old definition is similarly hopeless. Manipulation is an action; but the word *manipulation* is a noun. Yoga is an activity; agriculture is an activity; osculation is an activity: but all these words belong solely to the category of nouns. Internal to English, verbs are defined by their showing (in all the central cases) tense inflections and participial forms, not by their relation to activity or process.

3. Distinguishing adjectives from nouns

Traditional definitions of *adjective* are even less adequate than traditional definitions of *noun*. Adjectives (a category) are standardly defined as words that modify nouns (a syntactic function), or "add to the meaning of" nouns (a semantic notion). This fails utterly as a definition.

First, it is clearly not true that if a word is an adjective then it modifies a noun. Consider a sentence like (2):

(2) *The good die young*.

It contains two adjectives, and no nouns. This sort of example was well known to Jespersen (1924, 59). It was also known to Sweet, who distinguishes "absolute" (noun-modifying) from "free" occurrences of adjectives (1898, 65-7).

Second, more importantly, it is not true that if a word modifies a noun then it is an adjective. Surely the list of adjectives should not include all the cities of Europe (because of phrases like *Edinburgh architecture*), all the states of the USA (because of *California girls*), all the other place names that will ever be invented (*Manhattan rents*, *London traffic*), every name of a chemical element (*gold cufflinks*) or chemical compound (*ibuprophen tablets*), every tree name (*mahogany table*), every computer make (*Dell laptop*), every date (*the 1812 overture*), every number name (*her prestigious 10025 zipcode*), every abbreviation or acronym (*BBC newsreader*), and so on.

Many dictionaries actually do – quite wrongly – include subentries for numerous nouns that list them as adjectives. And in doing so, they frequently ignore both their own definition of noun and the definition of adjective.

Take as an example the *American Heritage Dictionary* (*AHD*). I pick it for no other reason than that it is excellent and there happens to be a copy beside my desk – it is not in any way being singled out from others for its policies in this regard. When it comes to writing an entry for the word *head*, the *AHD* makes it not only a noun but also an adjective, because of phrases like *the head librarian* or *the head name on the list*. The only justification is that here the word is "used to modify a noun or other substantive by limiting, qualifying or specifying": it is an attributive modifier. But adding words to the adjective category simply because they sometimes modify nouns is going to result in every place name, every family name, and every abbreviation or acronym being redundantly entered as an adjective.

Noun would no longer be the largest lexical category, in fact: the adjective category would beat it very substantially, since it would include first all of the traditionally recognized adjectives and then every single common or proper noun in the language as well. This is a completely absurd result.

It is also in partial conflict with the *ADH* definition of *adjective*, which says this:

(3) Definition of *adjective* in the *AHD*
Any of a class of words used to modify a noun or other substantive by limiting, qualifying or specifying and distinguished in English morphologically by one of several suffixes, such as *-able*, *-ous*, *-er*, and *-est*, or syntactically by position directly preceding a noun or nominal phrase, such as *white* in *a white house*.

The word *head* does not end in an adjective-specific derivational suffix like *-able* or *-ous*; it does not permit the inflectional comparison suffixes *-er* and *-est*. And

much more important indicators of adjectivehood are also lacking for *head*. The default for an adjective (with a few exceptions) is for it to be permitted as a predicative complement, not only with the copula but also with verbs like *seem*. It is also normal for adjectives to be permitted as postpositive modifiers, after the head. And the pre-head modifiers for adjectives are regularly and overwhelmingly adverbs. Yet consider the contrast between the typical adjective *competent* and the alleged adjective *head*:

(4) a. *She seems competent. *She seems head.*
b. *Anyone competent could do that. *Anyone head could do that.*
c. *She's a clearly competent librarian. *She's a clearly head librarian.*

The fact is that the lexeme *head* has no adjective properties other than the one that *Amsterdam* or *Bourne* also have, namely, the possibility of occurring as an attributive modifier in the structure of a noun phrase. The *ADH*, like many other dictionaries, both American and British, is making a mistake with the double categorization of a large number of words like *head*. The right treatment is to categorize them as nouns but to mention their sometimes special meanings when used as attributive modifiers.

Adding adjective entries for such nouns introduces needless categorizational conundrums. In *cotton fields* it would be an adjective; in *picking cotton* it would be a noun; and in *That shirt is cotton* there would be a structural ambiguity despite the lack of a meaning difference: adjectives and nouns overlap in their distribution in that they can both be predicative complements of the copula.

And a puzzle would arise. Why are **The shirt was flimsily cotton* and **It was a flimsily cotton shirt* not grammatical? Given that adverbs normally modify adjectives, they are exactly what we should expect to find.

The right answer is simply that adverbs do not function as pre-head modifiers in noun phrases. Treating nouns as being also adjectives simply because they function as attributive modifiers is indefensible. It stems solely from a desperate effort to stick with the traditional but misguided functional definition of *adjective* as a noun-qualifying word.

Words like *head* and *cotton* have no syntactic properties in common with adjectives other than those that nouns happen to have. They are not like the adjective *fun* in the dialects of those many young Americans who say not only *a fun thing to do* but also *so fun*, *funner than that*, and *the funnest thing I ever did*. *Fun* has definitely developed a second use as an adjective for these younger speakers. *Head* and *cotton* (and hundreds of similar items) have not. They lack all the distinguishing features of adjectives, both morphologically and syntactically, overlapping with them only in being usable as an attributive modifier and in some cases (when they are not count nouns) being usable as bare predicative complements.

4. Distinguishing adjectives from determinatives

Another widespread dictionary categorization practice that bloats up the adjective class with redundant extra members is that of including among the adjectives a variety of classes of words illustrated in (5).

(5) (a) articles: *a(n)*, *the*
(b) demonstratives: *this*, *that*
(c) quantifiers: *all*, *any*, *each*, *every*, *few*, *many*, *most*, *some*, ..., *one*, *two*, *three*, ..., *457*, *458*, ...
(d) the dependent genitive forms of the personal pronouns: *her*, *his*, *its*, *my*, *one's*, *our*, *their*, *your*

Of these, (5a-c) are treated in *The Cambridge Grammar of the English Language* (Huddleston and Pullum 2002, henceforth *CamG*) as belonging to the class of determinatives. These are words that typically (but not invariably) function as Determiner in the structure of a noun phrase (NP). The dependent genitive pronouns are treated as pronouns inflected for genitive case, and represent another kind of constituent that can function as Determiner in an NP: genitive NPs.

Some determinatives (*few*, *little*, *many*, *most*, *some*, *that*, *this*, *which*, ...) can stand on their own as NPs. These are additionally also categorized as pronouns in the dictionaries: words like *many* an *few* would be treated as adjectives in *Many applicants were seeking few jobs* but as a pronoun in *Many are called but few are chosen*. In *CamG* such occurrences are treated as determinatives, and analyzed in terms of Determiner-Head fusion (where a single item serves as both Determiner and Head of an NP); see Payne, Huddleston and Pullum (2007) for a thorough exposition.

It is singularly unfortunate that some authors interchange the terms *determinative* and *determiner*. As the authors of *The Oxford Dictionary of English Grammar* correctly note, various authors have used the contrasting terms *determiner* and *determinative* to distinguish the class of words under discussion here from the function that they commonly serve, but "[u]nfortunately there is disagreement as to which is used for which" (Chalker and Weiner 1994, 112-3). There is indeed.

Determinative is used in Harold E. Palmer's *Grammar of Spoken English* (1924; 2nd edition Palmer and Blandford 1939), where it is taken to be a shortening of *determinative adjectives* and is linked to the French *d'eterminatifs* (Palmer and Blandford 1939, 26). Huddleston (1984) also uses *determinative* for the category, contrasting it with the function term *determiner*. The same usage is found in Huddleston (1989), and later *CamG*. But exactly the opposite usage was adopted by Quirk et al. (1985) – despite the fact that Huddleston (1984) is in its bibliography. The resultant confusing terminological disagreement is an unfortunate fact to be kept in mind when consulting the literature. (As a mnemonic for the *CamG* terminology, notice that *adjective* and *determinative* are

both categories and both end in *-ive*, while *modifier* and *determiner* are both functions and both end in *-er*.)

Palmer and Blandford (1939, 48) cite the following criteria for identifying determinatives:

(a) they cannot be used both epithetically [= attributively – GKP] and predicatively;
(b) they are rarely or never susceptible of comparison;
(c) they are rarely or never susceptible of modification by other words.

These are not the best diagnostics; they hold only for the bulk of determinatives:

(a) is important, but has exceptions such as *many*, which has a slightly archaic predicative use (*My reasons are many*);
(b) is largely true, but again *many* is an exception (it inflects for comparison: *many / more / most*); and
(c) has some exceptions that yield a marginal category of determinative phrases (*almost all*, *nearly every*, *not many*, *at least three*).

But several more robust criteria can be added.

1. No stacked determinatives In general, determinatives do not co-occur, whereas the default for attributive adjectives is that they can be freely stacked subject only to certain preferences for certain classes of adjectives to come closer to the head: we get *nice little old ladies* and *stupid, thoughtless, spiteful comments*, but not **several certain some ladies* or **the these both comments*.

There are certain limited exceptions that can be specified. First, the universal quantifiers *all* and *both* occur as predeterminer modifiers (*all the contents*; *both these ideas*). Second, *every* in phrases like *her every wish* is an isolated exception (it does not exemplify a productive construction). And third, there are items that occur both as determinatives and as adjectives, and these can sometimes occur after an article with a similar sense to their determinative sense: *a certain smile*; *the many favours I've done for you*; *those few honest bankers*; *the little food we had*. The numerals are among these: *our three main weapons*, etc.

Despite these three sources of apparent exceptions, we do not find general free stacking up of determinatives in the way that we find stacking of attributive adjective modifiers.

2. Singular count nouns need a Determiner Adding a determinative can make a singular count noun into a grammatical NP, by filling the Determiner functional slot, but adding an adjective cannot:

(6) a. **Story was plausible*. [singular count noun not grammatical as an NP]
b. *Neither story was plausible*. [*neither*: determinative as Determiner]
c. *Each story was plausible*. [*each*: determinative as Determiner]
d. **Long story was plausible*. [*long*: adjective, no Determiner]
e. **Curious story was plausible*. [*curious*: adjective, no Determiner]

3. Determinatives can count as whole NPs A substantial proportion of the determinatives participate in what *CamG* calls the **fused determiner-head** con-

struction, where a determinative serves as Determiner and Head simultaneously, but no adjective does:

(7) a. *Some were more promising.* [*some* = determinative serving as Determiner and Head]
b. *All work in their own way.* [*all* = determinative serving as Determiner and Head]
c. **Wealthy were not helpful.* [*wealthy* = adjective]
d. **Clever work in their own way.* [*clever* = adjective]

In some of these the determinatives occur with *of*-headed PPs to make NPs of the partitive type, but plain-grade adjectives[3] do not allow this:

(8) a. *I could use all of them.* [*either*: determinative]
b. **I could use small of them.* [*small*: adjective]
c. *You know which of them?* [*which*: determinative]
d. **You know rich of them?* [*cheap*: adjective]

There are about 35 lexically basic determinatives, plus the numerals, and if the arguments of Payne, Huddleston and Pullum (2007) are accepted, also the compound determinatives *once*, *twice*, and *thrice*. The list in (9) omits the numerals. Boldface italics means that the item is a variable lexeme (for example, *this* has the agreement forms *this* and *these*; *no* has the forms *no* with a head noun and *none* in Determiner-Head fusion; and *we* as in *we Japanese* has the accusative case form *us*). A suffixed plus sign means that the form also occurs as a representative of a different category.

The determinative *said*, as in *The assembly shall elect a chairman, and said chairman shall officiate at all meetings*, was not noted in *CamG*; it was pointed out to Huddleston and me by Brett Reynolds. The inclusion of *various* is necessary, as shown by partitive NPs like *various of the members* (stigmatized as an "error" by some usage manuals, which shows it is indeed well established!).

One could perhaps quibble with one or two of these choices, hence the vagueness of "about 35". The figure is certainly good enough to provide a rough guide to the size of this fairly small category.

(9)

a few	*a(n)*	*enough*	***much***	*several*	*the*	*whatsoever*$^+$
a little	*both*	*every*	*neither*	*some*	***this***	*what*$^+$
all$^+$	*certain*$^+$	***few***	***no***	*such*$^+$	*various*$^+$	*whichever*
another	*each*	***little***$^+$	*one*$^+$	*sufficient*$^+$	***we***$^+$	*which*$^+$
any	*either*	***many***	*said*$^+$	***that***	*whatever*$^+$	*you*$^+$

All of the above items should be listed in dictionaries as determinatives. They should of course be entered as adjectives too in some cases, if and only if it can be established that there is a separate adjective lexeme with the same spelling. The clearest cases of the determinatives with homophonous adjectives are *certain*

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[3] The plain grade is the form that does not show inflection. The comparative and superlative adjectives do form partitives: *the cheaper of them*, *the smallest of them*.

('definite'), *little* ('small'), *one* ('unique'), *sufficient* ('adequate'), and *various* ('diverse').

5. Distinguishing prepositions from adverbs and conjunctions

The broadest and most significant failing of current dictionaries with respect to their lexical categorizations has to do with the prepositions and two other categories.

As the traditional story has it, prepositions relate noun meanings to other noun meanings, so they simply have to be accompanied by nouns (actually NPs, so I will say that from now on). Of course, because of stranding, the preposition may come later in the clause, perhaps at some distance from its NP complement (and for present purposes I will completely ignore the benighted folk who imagine that preposition stranding is ungrammatical in Standard English, as large numbers of educated Americans apparently do). But under the traditional view, if there is a preposition in a sentence there must also be an NP that is understood as its complement. Any occurrence of what might appear to be a preposition in a context where there is no NP complement, the traditional view claims, must be an occurrence of the word in question in a different guise.

Some 18th-century authors wrestled with this apparent overlap, and with related questions like the way prepositions seem to contribute to the meanings of verbs in verb + preposition idioms, but by the 19th century they had settled down to a struggle to preserve the idea that prepositions must be relational. Prepositions "serve to connect words with one another, and to show the relation between them", as Lindley Murray puts it (47th edition, 1834, 123).

Murray notes that in cases like *They had their reward soon after* or *He died not long before*, the underlined prepositions "appear to be adverbs, and may be so considered". But of the conjunction-like cases he observes that "if the noun *time*, which is understood, be added, they will lose their conjunctive form; as, 'After [the time when] their prisons,' &c."; and of the adverb-like cases he remarks similarly that "if the nouns *time* and *place* be added, they will lose their adverbial form; as, 'He died not long *before that time*,' etc." In neither case can he possibly mean "form", unless in some sense I do not follow; there is no matter of morphology or phonology involved. He means the words will lose their appearance of not being incorporable into the class of prepositions on grounds of their function.

Murray was struggling to keep the unity of words like *after* and *before* without giving up the idea that prepositions had to occur with following nouns. And those who followed him during the next century gave up even this small amount of struggle, presenting the tricategorial analysis of prepositions as something the student simply had to learn. Thus Nesfield (1900, 41) warns that "[a] Preposition must not be confounded with an Adverb, though the two words are often identical in form." How is the student to avoid confounding these allegedly separate words of identical form and identical meaning? According to Nesfield,

"[t]he only way to distinguish them is to look to the *work that each of them does*" (note the confusion of function and category in its purest form). When it "affects" two elements it is a Preposition, and when it affects only one it is an Adverb. He then gives a list of 21 paired examples that are said to contrast in part of speech:

(10) Examples from Nesfield of the alleged Adverb/Preposition contrast:

Go along quickly.	*Let us walk along the bank.*
He is standing near.	*Your house is near mine.*
Sit down here.	*The boat floats down the stream.*
Stand up as straight as you can.	*Walk up the hill.*

Otto Jespersen cogently questioned the wisdom of any such distinction, and saw clearly what should replace the traditional analysis. In *The Philosophy of Grammar* (1924, 87-9), after giving copious examples of verbs taking various kinds of complement (and in some cases no complement), Jespersen observes that nonetheless "no one thinks of assigning them to different parts of speech": we count verbs as verbs, whether they take clause complements or NP complements or no complements. And he goes on:

> If now we turn to such words as *on* or *in*, we find what is to my mind an exact parallel to the instances just mentioned in their employment in combinations like "put your cap on" and "put your cap on your head," "he was in" and "he was in the house"; yet *on* and *in* in the former sentences are termed adverbs, and in the latter prepositions, and these are reckoned as two different parts of speech.

He gives further examples, and then remarks:

> Nor is there any reason for making conjunctions a separate word-class. Compare such instances as "after his arrival" and "after he had arrived," "before his breakfast" and "before he had breakfasted," [...] The only difference is that the complement in one case is a substantive, and in the other a sentence (or a clause) [...] the difference between the two uses of the same word consists in the nature of the complement and nothing else; and just as we need no separate term for a verb completed by a whole sentence (clause) as distinct from one completed by a substantive, so it is really superfluous to have a separate name for a "conjunction"; if we retain the name, it is merely due to tradition, not to any scientific necessity, and should not make us recognize conjunctions as a "part of speech."

(Jespersen means "subordinating conjunction" here: he notes on p. 90 that his arguments do not apply to the coordinating conjunctions *and*, *or*, etc. – the items that *CamG* calls **coordinators**.)

Jespersen even finds a sentence in a Thackeray novel where *after* is used with a complement consisting of an NP coordinated with a content clause. It does not sound entirely acceptable to my ear:

(11) *After the Baden business and he had dragged off his wife to Champagne, the Duke became greatly broken.* (Jespersen 1924, 89)

But Jespersen is right to see that if it is grammatical it provides a very nice argument: *after* presumably cannot be a preposition and a "subordinating conjunction" at one and the same time. And *CamG* (1327, [15iiib]) cites a similar attested case of mixed coordination with *after* which sounds somewhat better, perhaps because the clause comes first:

(12) *After* [*their rubber plantation failed*], *and her husband's death on the Upper Rewa in 1885*], *she maintained her three young children with a tiny store.*

If we accept the grammaticality of such examples, dividing the occurrences of *after* into the preposition and "conjunction" instances becomes not just awkward and pointless but actually impossible.

No one took up Jespersen's suggestions. Nearly fifty years went by, and still not a single grammar or dictionary had taken the line he was suggesting. But then there appeared a paper – perhaps the most important work on this topic – that took the argument somewhat further, adding new syntactic arguments.

6. Syntactic arguments for prepositionhood

Joseph Emonds's "Evidence that indirect object movement is a structure-preserving rule" (1972), despite its title, is most notable not in connection with whether the "dative shift" movement transformation moves NPs into NP positions in a structure-preserving way (such issues are now largely forgotten), but because of its evidence about the nature of prepositions. What Emonds adds to Jespersen is some new syntactic arguments that the "adverb" Doppelgangers of prepositions should not be regarded as adverbs. Some further elaboration of this view is provided by Jackendoff (1973). I will review the most important of these arguments, paraphrasing and adapting Emonds's exposition.

6.1 Strict subcategorization

Some intransitive verbs like *glance* and *dart*, and some transitive verbs like *put* and *sneak*, select a directional phrase, usually a PP, as an obligatory complement. (There are also NP directional phrases, as in *Excuse me while I dart next door*. This does not affect the argument.)

(13) a. *The lizard was seen darting into that hole.*
b. **The lizard was seen darting.*
c. *We'll have to sneak some beer into the dorm.*
d. **We'll have to sneak some beer.*

Yet various items classified as adverbs under the traditional account serve satisfactorily in that complement role:

(14) a. *The lizard darted in.*
b. *We'll have to sneak some beer in.*

The traditional analysis, therefore, would have to say that adverbs can also be complements of these verbs. But in the overwhelming majority of cases this is obviously not true:

(15) a. **The lizard darted immediately.*
b. **We'll have to sneak the beer immediately.*

The "adverbs" allowed are, of course, precisely the ones that look exactly like prepositions and have the meanings of the prepositions with which they are identical. The puzzle is entirely dissolved, and a generalization is captured, if words like *in* are prepositions whether they have NP complements or not, so that the complements in (14) are simply directional PPs.

6.2 *Into the bin with it*

The construction seen in (16) involves a directional preposition phrase (PP) followed by a *with*-headed PP.

(16) a. *Into the bin with it!*
b. *Up the stairs with you!*

Call this, for convenience, the "PP *with it*" construction. We also find closely parallel expressions like these:

(17) a. *Down with capitalist greed!*
b. *Out with the old, in with the new.*
c. *Off with his head!*

These show that if *down*, *out*, and *off* are regarded as adverbs, there needs to be a separate "Adverb *with it*" construction in addition. But adverbs in general do not allow this:

(18) a. **Fiercely with capitalist greed!*
b. **Slowly with the old, immediately with the new.*
c. **Locally with it!*

Again, the "adverbs" that allow it are those that look exactly like prepositions and have the meanings of the prepositions with which they are identical. The description is clearly simplified if items like *down* and *off* are treated as prepositions that head PPs but do not licence an obligatory NP complement.

6.3 Fronted directionals

English has a construction involving interchange of positions between a directional PP and a subject NP around a verb of motion. More precisely, the PP is fronted, but (Emonds notes) without any comma-pause after it such as is commonly found with other fronted PPs (*To him, we must be forever grateful*); and the subject NP is postposed provided it is not a pronoun. Thus the canonical clause (19a) corresponds to the non-canonical (19b).

(19) a. *The terrified townspeople ran into the church.*
b. *Into the church ran the terrified townspeople.*

But the following examples show that the same alternation is found with constituents like *in*:

(20) a. *The terrified townspeople ran in.*
b. *In ran the terrified townspeople.*

The traditional account therefore has to posit adverbs participating in this construction; but the overwhelming majority of adverbs do not, as illustrated in (21).

(21) a. *The terrified townspeople ran immediately.*
b. **Immediately ran the terrified townspeople.*

Once more, the adverbs that allow the construction are those that look exactly like prepositions and have the meanings of those prepositions. The problem is dissolved if *in* is a preposition and the examples in (20) both involve a fronted directional PP complement.

6.4 *Right* as modifier

Certain items such as *right*, *straight*, and *bang* occur in modern Standard English as pre-head modifiers only with prepositions. The data for *right* are particularly robust and general (Emonds credits Edward Klima for this observation):

(22) a. **The planned location is right the same place.*
b. **They're siting a superstore right staring in our windows.*
c. **They're siting a superstore right local.*
d. **They're siting a superstore right locally.*
e. *They're siting a superstore right in our neighbourhood.*

But sentences like these are fine:

(23) a. *She leaned over and fell right in.*
b. *The price went right down when the recession started.*
c. *Does this road go right through?*

Yet data like (22d) shows that *right* does not normally modify adverbs. It modifies only those adverbs that look exactly like prepositions and have the meanings of those prepositions.

7. Extending the class of prepositions

The cumulative effect of all of the arguments in the foregoing sections should be overwhelming to anyone who can follow a syntactic argument. It cannot possibly be sensible to classify words like *in*, *off*, *down*, *through*, etc., as adverbs. They have to be classified as prepositions even when they have no complements. But a

number of other items that never take NP complements can now be brought under the scope of the same analysis.

7.1 *Out*

The word *out* is an interesting case. It would be very easy to assume that if *up* and *down* are both prepositions, and *over* and *under* are both prepositions, and *to* and *from* are both prepositions, then surely *in* and *out* must both be prepositions. But in British English as I originally learned it, this cannot be true under the standard analysis, since *out* never takes an NP: it takes an of-PP (*out of the building*, *out of the window*, *out of luck*). Many dictionaries finesse this by asserting that *out of* is the preposition, as if it were a compound like *outside*, but spelled with a space. But this cannot be right, since it would suggest the asterisked example in (24) should be grammatical:

(24) a. *Is the milk still outside, or did you bring it in?*
b. *Is the milk in the fridge, or did you leave it outside?*
c. *Did you leave the mower out of the shed, or did you put it back in?*
d. **Is the lawnmower still in the shed, or did you get it out of?*
e. *Is the lawnmower still in the shed, or did you get it out?*

If *out of* were a word, we would expect (23d) to be fine in exactly the same way that (23b) is; and we would expect (23e) to be ungrammatical, since part of a word has been omitted. In fact it is the other way round.

The right analysis would treat *out* as a preposition that in more conservative British English takes either an *of*-PP complement or no complement. In American English (and in many British dialects that have adopted the same usage) *out* sometimes does take NP complements. The NP (most commonly definite) generally has to denote an avenue of egress from an enclosed space, so we get:

(25) a. *He ran out the door.*
b. *Throw it out the window.*
c. *The dog ran out the gate.*
d. *It flew out the hole in the ceiling.*

But in other cases American English is like British English:

(26) a. **I'm afraid you're out luck.* (*out of luck*)
b. **Well, it looks like we're out time.* (*out of time*)
c. **I'll tell you once he's out earshot.* (*out of earshot*)
d. **Do it out consideration for others.* (*out of consideration for others*)

7.2 Prepositions that never take NP complements

Other items find their best categorization as prepositions even though they never take NP complements. The following examples illustrate:

(27) a. *We should really head home.*
b. *The lizard darted away.*
c. *We'll have to sneak some beer back.*
d. *Let's hold the meeting right here.*
e. *They went right upstairs.*

In addition to these basically spatial prepositions, there are temporal prepositions that never take NP complements:

(28) *Dear Lord, grant me your precious gift of patience, and grant it right now.*

8. Distinguishing prepositions from subordinators ("conjunctions")

A further generalization brings into the class of prepositions a subset (the majority, in fact) of the traditional class of "subordinating conjunctions": words like those listed in (29) are correctly categorized as prepositions taking bare declarative content clause complements (though some of them also take NP or PP complements). The traditional category of "adverbial clauses" disappears completely under this analysis, since the relevant constituents are PPs; see Huddleston and Pullum (2004).

(29) *after*, *although*, *because*, *before*, *if* (in its conditional sense), *since*, *though*, *unless*, *while*

Jespersen recommended this analysis, and he was right. Half a century later it was endorsed and argued for in an MIT doctoral dissertation (Geis 1970). The occurrence of right as modifier confirms the correctness of this analysis in some cases; for example, *Things changed right after I arrived* is just as grammatical as *Things changed right after my arrival*.

What the traditional view says is that certain words appear in two or even three different lexical categories despite having a single set of semantic, morphological, and phonological properties, and differing solely in what is usually called valency or strict subcategorization. As an example, consider *since*. Merriam-Webster classifies it as belonging to three categories: preposition, adverb, and conjunction. The only reason is that it can be found with an NP complement or with no complement or with a clause complement.

It is true that there is a special meaning for *since* that is only found with a clausal complement: it can mean 'for the reason that' or 'because of the fact that'. This is a relatively new development (deprecated by some prescriptivists, incidentally, and proscribed by the *Publication Manual of the American Psychological Association*; see the fifth edition, 56-57). It involves a sense that semantically requires a proposition-denoting clause, so it is limited to the syntactic situation where the complement is a clause. But setting that aside, the temporal meaning of *since* is identical regardless of its complement.

The word means 'in the time intervening between some indicated past time and the present'. When there is a finite complement that supplies the past time providing the starting point for the period (*since we first met*). If the complement

is an NP, it must denote a time point, and that provides the starting point (*since our first meeting*). And if there is no complement, we understand a contextually referenced past time point (*at all meetings since*) – in other words, it means 'since then'.

We therefore have an item that has been multiply categorized for no reason that is even remotely plausible semantically. There are no phonological or morphological differences. And syntactically the only thing at issue is valency. *Since* is being treated as if it were like *cosy*, which is genuinely a noun in *We need a new cosy for the teapot* (with forms *cosy*, *cosies*, *cosy's*, *cosies'*), and a verb in *You'll have to cosy up to him* (with forms *cosy*, *cosies*, *cosied*, *cosying*), and an adjective in *That looks like a cosy cottage* (with forms *cosy*, *cosier*, *cosiest*).

The idea that prepositions are simply prepositions, and do not have adverb and conjunction Doppelgangers, is certainly not new. In fact it goes back into the earliest century of English grammars. The distinction between prepositions and "conjunctions" is discussed by Michael (1970, 446-7), where it is noted that Kirkby (1746) complains: "we have several instances of the same word being used at one time as a conjunction and at another time as a preposition", and John Hunter (1784) argued in a paper presented to the Royal Society of Edinburgh that neither conjunctions nor adverbs were in all cases usefully distinguished from prepositions in English (or in Latin and Greek). He stressed that classifications were being based on "merely *accidental*" differences such as the different complementation in these examples:

(30) a. *I came after he departed*.
b. *I came after his departure*.

By the time of Lindley Murray, this had not yet been forgotten. Murray noted that some prepositions, in cases like *after their prisons were thrown open* or *before I die*, "have the appearance and effect of conjunctions".

It is important, though that not all the "subordinating conjunctions" are assigned to the preposition category in the *CamG* analysis. The **subordinators**, a small class of meaningless grammatical markers, are treated very differently. In particular, it is assumed that they do not function as Head, ever.

The main subordinators are the declarative subordinator *that*, which is optional in some contexts (particularly, when following a matrix verb of which it introduces the complement), and is clearly meaningless; the interrogative subordinator *whether*, which may be replaced by *if* in some contexts (largely the same ones that permit *that* to be optional); the item *for* in clauses like *for there to be any more trouble*; and perhaps also the VP-marking element *to* of certain infinitival clauses (after *be made*, for example, but not after *make*: *I was made to love you* is not equivalent to **I was made love you*; *You made me love you* is not equivalent to **You made me to love you*).

9. Conclusion

It is time to revise the conception of grammatical categories that is currently built into all dictionaries of English. The traditional categorizations given in the dictionaries for numerous items are simply in error. Some brave dictionary publisher must take the risk of being the first to abandon mistaken but well entrenched traditions, and of being out of step with all other dictionary publishers for a while as a result. That is not a small thing to ask: no publisher wants to have a dictionary written up in library magazines as too radical for a school librarian to recommend for purchase. But the problem is that in the area of English grammar the educated world has ceased to evolve, learn, or rethink; the whole subject has been frozen in time for the best part of 200 years.

No other subject would tolerate this degree of stagnation and outdatedness. We simply do not find pre-Darwinian biology departments.[4] Yet the world's English dictionaries – all of them – are founded on grammatical analysis that was first questioned before Darwin was even born. Their categorization practices are not informed by the work of Emonds, or of Jespersen, or even of the astute observations 18th-century grammarians like Kirkby (1746) or Hunter (1784). This is simply not intellectually respectable. It is not a situation that philologists, descriptive grammarians, theoretical syntacticians, or lexicographers should continue to accept.

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[4] Events in places like Wichita, Kansas, and Dover, Pennsylvania, should not be overinterpreted. Highly conservative religious fundamentalists have sometimes gained temporary power on school boards and tried to add "intelligent design" to the curriculum. But such policies have been rapidly overturned by re-elected moderates or overturned by the courts as incompatible with the separation of church from state in the USA. Nowhere have the biologists in an educational institution actually reverted to teaching pre-1859 biology.

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