Syntax without functional categories*

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Abstract

This paper argues against the notion 'functional category' (a kind of word-class) while accepting that individual words may be described as 'function' words or 'content' words. It focuses on the two least controversial examples of functional categories — 'determiner' and 'complementiser' — and argues that neither of these categories is needed; and if this conclusion is correct, there is even less independent support for the more abstract functional categories like 'Inflection' and its subtypes. There is no word-class of 'determiners', because determiners are simply 'transitive' pronouns; nor do 'complementisers' comprise a word-class because the standard complementisers are all different from each other.

1 Overview and terminology

Do functional categories really exist? In this paper I shall suggest that they do not, so I should start with a little historical background. Recent Chomskian theory assumes a fundamental distinction between two kinds of syntactic categories, 'substantive' and 'functional', which plays a central role both in the theory and in the practice of transformational grammar:

Virtually all items of the lexicon belong to the *substantive* categories, which we will take to be noun, verb, adjective and particle, ... The other categories we will call *functional* (tense, complementizer, etc.), ... (Chomsky 1995:6).

This division continues a long historical tradition. For at least decades, and maybe

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centuries, grammarians have distinguished words like BOOK, RUN and BEAUTIFUL from those like THAT, WILL and BY, on the grounds that the former have 'referential meaning', in contrast with the more 'grammatical' meanings and functions of the latter. The terminology varies — e.g. Trask (1993:123) lists 'grammatical words', 'empty words', 'form words' and 'function words' as synonyms — but the contrast itself is intuitively obvious and probably beyond dispute. It may be somewhat vague, but Cann (1996) gives a useful list of differences which correlate at least in clear cases. The distinction is even recognised in English orthography (Albrow 1972, Carney 1997) through the convention that full words must have a minimum orthographic bulk of three letters (hence the spellings <inn>, <axe> and <ewe>). In spite of a handful of exceptions (<do>, <go> and <ox>) this convention is presumably evidence that the distinction has some kind of psychological reality. For simplicity I shall call the two kinds of word 'full' and 'functional' words; Cann (1996) calls them 'contentive expressions' and 'functional expressions'.

This much is common ground, and is probably a helpful stepping stone for a novice. Furthermore, we could probably agree that full and functional words should be treated differently in the semantics (as Cann again suggests). For example, the semantic analysis of BOOK ought to look very different from that of BY. The consensus breaks down, however, when we consider syntax, and in particular questions of syntactic categories. It is very common to make a further leap to the assumption that a similar distinction can be applied to whole word-classes, with all the functional words in one group of word-classes, and all the full words in another group. (Cann is careful to avoid blurring the two ideas; for him 'functional expressions' belong to 'functional categories'.) This is again quite a traditional view, dating back at least to the structuralist grammarians; for example, Huddleston (1988), a theory-neutral introduction to English grammar, distinguishes 'open' and 'closed' classes:

The parts of speech can be divided into two major sets, commonly called *open* classes and *closed* classes. The open classes are verb, noun, adjective and adverb, the closed classes the rest: preposition, determinative, coordinator and subordinator (1988:23).

The idea behind this distinction is that some word-classes have 'open' membership, in the sense that it is easy to add new members, in contrast with the fixed membership of the 'closed' classes; and this distinction is assumed to correlate with the classification of the member words on our earlier distinction.

This view of word-classes is not obviously correct, and indeed there are some rather obvious objections which its supporters need to address even if we restrict the discussion to English. No doubt problems multiply when other languages are taken into account.

First, some very 'empty' words are clear members of open classes. For example, the English anaphoric ONE is a common noun:

- (1) a. He lost the first game and won the second one.
 - b. He lost the first game and won the other ones.

ONE (in this sense) has no inherent meaning except 'countable', since it borrows its sense from its antecedent. But it behaves in almost every other respect just like an ordinary common noun such as BOOK — it accepts attributive adjectives, it inflects for number, and so on. Similarly for the British English anaphoric DO, which is an ordinary non-auxiliary verb:

- (2) a. He didn't call today, but he may do tomorrow.
 - b. A: Does he like her?
 - B: Yes, he must do just look how he talks to her.

This too is completely empty of meaning — it can borrow any kind of sense from its antecedent, stative or active — and yet we use it syntactically exactly as we use an ordinary verb like RUN.

Second, some of the 'closed' classes are at least arguably subclasses of 'open' classes. The most obvious case is 'auxiliary verb', a good candidate for a closed class, and one whose members are semantically fairly empty. The problem is that the larger class 'verb' is an open class, with semantically full members. One way of reacting to this observation is to deny that auxiliaries are verbs, which raises further questions about how the similarities between the two classes should be captured. For example, why do the non-modal auxiliaries have the same range of inflections as ordinary verbs? Why does the conservative British auxiliary possessive HAVE (as in *Has he a bicycle?*) allow a direct object? Another possible conclusion is that some members of an open class may be functional words, which of course undermines the original assumption that open classes contain only full words.

Third, the closed/open distinction is quite unclear. For one thing openness seems to be a matter of degree. Even the list of pronouns has seen some changes through time (e.g.

with the recent addition of ONE, 'people', and the loss of THOU, and the much older addition of *they, them* and *their*), not to mention major changes in the forms. Chomsky and Huddleston agree that 'noun', 'verb' and 'adjective' are substantive/open classes, but Chomsky's fourth member is 'particle' while Huddleston's is 'adverb'.

Returning to Chomsky's distinction between substantive and functional categories, it faces the same objections as the larger tradition within which it is set. A word's syntactic classification need not show how much meaning it carries, since this will be shown in any case by the semantics; so the semantic distinction between full and functional words does not in itself justify a distinction between 'substantive' and 'functional' categories (in the sense of word-classes). Nor can we take it for granted that a word-class whose members are all functional words is a major, top-level word-class; we saw above that this is not the case with 'auxiliary verb' and 'pronoun', which are widely accepted as sub-classes of 'verb' and 'noun' in spite of their closed and semantically empty membership.

The purpose of this paper is to look critically at the categories 'determiner' and 'complementizer', which are said to be functional categories; and in each case I shall argue for an analysis in which these categories play no part at all — i.e. they simply do not exist as distinct word-classes. The alleged substantive categories that I discuss in this paper are significant because they are among the very few examples¹ of word-sized functional categories in English grammar, so if they do not exist the very existence of the notion 'functional category' must also be at stake.

Suppose my claim is right as far as 'determiner' and 'complementizer' are concerned. What other functional categories would remain? On the one hand there are what Cann calls 'morphological' categories, whose realisation is less than a word — either an inflection, or nothing at all. No doubt these would be functional (rather than substantive)

¹It is hard to find a complete list of supposedly functional categories in transformational grammar, but there are useful lists of closed classes in Quirk et al (1985:67) and Huddleston (1988:32). However their lists are very different. They agree on two classes: preposition and determiner (determinative). In addition, we find the following:

Quirk et al: pronoun, conjunction, modal verb, primary verb (be, have, do)

Huddleston: coordinator, subordinator (aka 'complementizer').

Huddleston's coordinator and subordinator seem to correspond to Quirk's single category 'conjunction'. Some of these word-classes are well-grounded but best treated as sub-classes of larger classes (pronoun, modal verb, primary verb). I shall argue that their agreed class 'determiner' is invalid, as is 'complementizer'. This leaves 'coordinator' as the only candidate for a true functional category, but this is the basis for coordination and has played very little part in recent transformational theories. It therefore remains true that the two categories which I explore in this paper are the most important examples of word-sized functional categories.

if they existed, but the question is whether they are genuine parts of syntactic structure. This question goes to the heart of syntactic theory and isn't worth pursuing in this paper (apart from a few general remarks at the end); if syntactic theory requires every part of syntactic structure to be at least as big as a word, as some of us believe, morphological syntactic categories simply cannot exist, and (conversely), if they really do exist, we must abandon this part of syntactic theory. The other kind of functional categories are what Cann calls 'quasi-lexical'. Apart from 'determiner' and 'complementizer', are there any other quasi-lexical functional categories? No doubt there are plenty of candidates — for example, 'coordinator', 'numeral' and 'classifier' might qualify; but the obvious example is 'preposition'.

As far as 'preposition' is concerned, there was a time when I thought it could be subsumed under 'adverb' in the same way that (I shall argue) 'determiner' is subsumed under 'pronoun'; this is what I claimed in Hudson (1990:169), and indeed in the conference paper on which the present paper is based. I now agree with everyone else² that this is wrong. To the extent that adverbs have any distinctive characteristics they are different from prepositions as can be seen from the following examples:

- (3) a. The discussion was linguistic/about linguistics.
 - b. *The discussion was linguistically.
- (4) a. The discussion about linguistics lasted two hours.
 - b. *The discussion linguistically lasted two hours.
- (5) a. I occasionally make mistakes.
 - b. *I at times make mistakes.

The question with 'preposition' is not whether it is a genuine top-level word-class, but whether it is a functional category. It is unclear whether Chomsky intends 'particle' to cover 'preposition'; but for at least some descriptive grammarians 'preposition' is a closed class (see note 1). Is it a functional category? Cann's list of criteria suggests that it is not. It is true that some prepositions qualify individually as functional expressions — for example TO and OF both have phonologically reduced forms, they don't seem to be

²In particular, I accept the evidence that Bob Borsley paraded before me. A very useful survey of the characteristics of prepositions can be found in Jaworska 1994.

available for word-formation, and they are semantically 'bleached' in some contexts. However there are other prepositions which have very few, if any, characteristics of functional expressions; take ROUND or OUTSIDE, for example, which are always phonologically full, which are involved in derivational relations (to the verb ROUND and the noun OUTSIDER), and which have full referential meanings. Moreover, even the prepositions which do qualify as functional expressions are imperfect examples (as Cann notices); for example, all prepositions allow their complements to be extracted, which Cann lists as a characteristic of contentive expressions. In any case, it isn't even clear that 'preposition' is a closed word-class since many of our prepositions are loans (e.g. VIA, PER, QUA, CIRCA, VERSUS, VIS-A-VIS, SAVE), and the list of prepositions is a relatively large one — Quirk et al 1985: 665 list about seventy clear preposition, as well as a list of marginal cases. The very least we can conclude is that 'preposition' is not a clear and (otherwise) uncontroversial example of a functional category.

The question for the rest of this paper is whether there are any word-classes which qualify as functional categories. Modern grammars of English offer two clear candidates: 'determiner' and 'complementizer'. Their class-hood is generally taken for granted, but I shall argue that they do not exist — linguists have not discovered them, but invented them.

2 A general principle for recognising categories

My main evidence against these two purported functional categories is empirical and theory-neutral, but the argument rests in part on some general principles of categorisation. My first step, therefore, is to present these assumptions. The following principle amounts to little more than Occam's Razor, so it should be sufficiently bland to be acceptable regardless of theoretical inclinations.

Principle 1

A word-class should be recognised only if it allows generalisations which would not otherwise be possible.

The classic word-classes satisfy this principle well. Take 'noun', for example. Without it, we could say that some words can be used as a verb's subject, and that some words can be used as its object, but in each case we should have to simply list all the words

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concerned. 'Noun' allows us to express the generalisation that the lists are the same — not to mention the lists needed for various other facts about distribution, morphology and semantics. Similarly for 'auxiliary verb', a word-class defined by the 'NICE' characteristics (negation, inversion, contraction and ellipsis). Without this word-class it would not be possible to show that these characteristics all applied to the same list of words. In contrast with these very well-established classes, some traditional word-classes have a rather uncertain status, with 'adverb' as the classic case of a dustbin with very few characteristics of its own — though probably enough to justify it among the major word-classes.

For all its apparent innocence, this principle does have important consequences, though I shall start with a very unimportant one. There is no point in recognising a class of 'b-words', words starting with <b->, for the simple reason that this would be its sole distinguishing characteristic. We have a much easier way of showing which words start with <b-> and which don't: in the lexical entry for each word. If each word's lexical form shows (inter alia) whether or not it starts with <b->, there is no point in duplicating this information in a word-class. As far as I know this conclusion will not offend anyone.

However the same logic has much more important consequences when we turn to matters of valency (alias subcategorisation). Here traditional grammar recognises 'transitive verb' as a distinct word-class, but I don't believe that modern grammars should continue the distinction. Most theories³ state valency more or less directly for each lexical item, in much the same way that they state the item's phonological structure. If we can show that TAKE (for example) needs an object by giving it some kind of argument structure or valency description which says this directly, why should we duplicate the information by assigning it to the word-class 'transitive verb'? Unless verbs which take an object also share some *other* unique characteristic, our principle prevents us from recognising 'transitive verb'. Similarly for other valency distinctions, such as the contrast between unaccusative and unergative verbs: rather than attaching these labels to verb-classes, most of us would express the contrast directly in terms of valency statements. Of course, the conclusion is quite different if we find that transitivity or unaccusativity does correlate with some other characteristic which is otherwise unrelated

³The obvious exception is Categorial Grammar, which elevates valency to the sole criterion for categorisation (thereby leaving some major traditional classes such as 'verb' unexpressed). Some versions of HPSG also include 'transitive verb' among their categories — e.g. Kim and Sag (1996). And of course GPSG used arbitrary numbers to link constructions to their potential head-words (Gazdar et al 1985:33).

to the valency differences; but in the absence of such correlations, valency contrasts alone do not provide the basis for contrasts of word-class.

This conclusion is worth recording as a separate principle:

Principle 2

A word-class should not be recognised if its sole basis is in valency or subcategorisation.

These principles provide an important logical link for some of the arguments in the rest of the paper.

3 Determiners

We all agree that determiners are distinct from adjectives, although they both in some sense 'modify' the common noun with which they are linked. So, in contrast with traditional grammar, the two 'noun-modifiers' in *this big book* do not belong to the same word-class. One very clear bit of evidence for this word-class distinction is that a singular countable common noun (such as *book*) must be accompanied by a determiner but need not have an adjective.

- (6) a. *I bought book.
 - b. *I bought big book.
 - c. I bought this book.

One of the achievements of modern linguistics has been to establish beyond doubt that English determiners are not adjectives, whatever the status of their translationequivalents in other languages. The aim of this section is to argue for a further step in the analysis of determiners which will treat them once again as a subclass of another wordclass, namely 'noun'. My analysis will be a blend of existing alternatives, so we must start with a survey of the views that are already popular.

Consider the words *this, book* and *them* in the following example:

(7) This book describes them.

How are these three words related to one another in the system of word-classes? This

question cannot be separated from a question about the structural relation between *this* and *book:* which of these words is the head of the phrase? We can distinguish three widely-accepted views:

- the traditional analysis, in which *book* is the head, and the words belong to three discrete classes: determiner, noun and pronoun respectively (e.g. Quirk et al 1985:67, 245, 335). We can call this the 'DNP' (determiner-noun-pronoun) analysis.
- the conservative analysis, which again takes *book* as the head but treats 'pronoun' as a sub-class of 'noun', with 'determiner' (or 'determinative') as a separate class (Huddleston 1988:85; Pollard and Sag 1994:249). This will be our 'N=P' (noun=pronoun) analysis.
- the 'DP' analysis, which reverses the structural relationship to take *this* as head; in this analysis, 'pronoun' is a sub-class of 'determiner', but 'noun' is a distinct class (Abney 1987). The obvious name is the 'D=P' analysis.

My own analysis is a mixture of the last two: *them* belongs to the same word-class as both the other words. Pronouns are nouns (N=P) but determiners and pronouns also belong to the same class (D=P). I shall call this the 'unified' analysis. I believe I may have been the first to suggest it (Hudson 1984:90), but according to Borsley (1996) Grimshaw has also implied a similar view of determiners as nouns in an unpublished paper (Grimshaw 1991), and Netter (1994) espouses it explicitly⁴.

The four classification systems are shown in Fig. 1, while Fig. 2 presents a Word Grammar structure for example (7).

SyntaX

⁴Thanks to Bob Borsley for the reference to Netter's work.





Fig. 1



Fig. 2

Why should we prefer the unified analysis over the other three? We shall consider the other three analyses in turn.

The DNP analysis recognises three separate word-classes, with *book* as the phrase head. Its one strength is that it allows us to give the same analysis to any phrase containing a common noun, regardless of the presence of a determiner. In particular, it allows us to recognise both *this book* and the one-word phrase *books* as noun-phrases headed by a noun.

It has a number of weaknesses, however. First, the syntactic distribution of *them* is exactly the same as that of *this book* (apart from details of morphology), so some way has to be found to avoid repeating the disjunction 'a noun phrase or a pronoun' for every rule that controls the distribution of such expressions. Traditional grammar achieved this by saying that a pronoun is a word that 'replaces' a noun (phrase), but this procedural view is hard to express in modern terminology, and even harder to justify. The modern view is that *them* is itself a noun phrase. The trouble with this analysis is that the noun phrase *them* must be exocentric, since its head is not a noun. Exocentricity conflicts with X-bar syntax (and with dependency theory) by allowing completely arbitrary mappings between phrasal and lexical categories.

Second, if we omit *book*, we are left with a noun phrase consisting of just one word, *this*. Is this still a determiner, or is it a pronoun? The choice is probably arbitrary, though most traditional analyses take the latter view. This arbitrariness is itself a weakness — if the word-class difference is real, it ought to be possible to decide between the two classifications. Moreover, both classifications involve serious problems. If *this* is a determiner even without *book*, there are two problems:

- Exocentricity is even worse than I said above because noun phrases can be headed by determiners as well as by pronouns or nouns.
- What is the difference between a pronoun and a determiner? If a determiner is any noun-like word which can combine with a following common noun, does this mean that *we* and *you* are determiners, and **not** pronouns, because of examples like *we linguists* and you students? If the only difference between a pronoun and a determiner is the possibility of a following noun, then Principle 1 becomes relevant. Why postulate a distinct word-class if its sole distinguishing characteristic is a distributional pattern which can be stated directly in each lexical entry? Given this amount of power in the lexicon, there is no need to distinguish determiners from pronouns.

Alternatively, if *this* is a pronoun when used without a common noun, but a determiner otherwise, it must belong to two different word-classes. This conclusion is problematic for the following reasons:

- The only systematic difference between the pronoun and determiner uses of *this* lies in the presence or absence of the following noun. The range of possible meanings is the same⁵, as is the morphology (*this/these*). Once again we have an infringement of Principle 1, but in this case the one distinguishing feature is the fact of actually occurring with a following noun, rather than the ability to do so.
- The word-class alternation is not peculiar to *this*, but applies equally to almost all the determiners with just three exceptions: *a*, *the* and *every*. All the determiners listed below can occur either with or without a common noun, though in some cases this triggers a change in the word's form.
- (8) any, each, either, her(s), my/mine, neither, no/none, one?, our(s), 's, some, this, that, their(s), we/us, what, which, whose, you, your(s).

In conclusion, the DNP analysis misses a number of important generalisations which apply equally to *them* and to *this book*, and to *this book* and *this*. We shall also see below that *book* may not in fact be the head of *this book*, but it will be easier to consider that

⁵It is not quite true that the determiner and pronoun uses of *this* have the same meaning. The pronoun is restricted to non-human referents, whereas the determiner can have human or non-human referents. (Compare *I married this (woman) twenty years ago*, with and without *woman*!) However this change cannot be linked to the change of word-class, because it is shared with only two other determiners: *that* and *what*. Moreover it only applies to the singular *that*; *those* and *these* can refer to humans.

evidence in relation to the next analysis. The one strength of the DNP analysis, which is worth preserving, is the possibility of a surface analysis of one-word phrases like *books* or *wine* which has just the same kind of head (a noun) as an example like *this book*. We shall return to this point in discussing the next analysis.

The N=P analysis recognises *them* and *book* as members of the same super-class, 'noun', but is otherwise like the DNP analysis in taking *book* as the head of the phrase *this book*. The N=P analysis has two strengths, both of which involve reductions in the exocentricity problem. First, like the DNP analysis it allows both *this book* and *books* to be headed by a noun, i.e. noun phrases. Second, the one-word phrase *them* is also a noun phrase because it too is headed by a noun.

Its weaknesses are as follows. It shares all the problems noted above that stem from the possibility of using *this* without *book*. Either *this* changes word-class from determiner to pronoun, or it is a determiner in both uses. In this analysis the principle of endocentricity strongly favours the former, with *these* as a (one-word) noun-phrase headed by a noun. However, either way there are serious problems, not least the infringements of Principle 1. All these problems arise from the assumption that 'pronoun' and 'determiner' are distinct classes.

Another problem which the N=P analysis shares with the DNP analysis is that it has nothing helpful to say about the semantic effects of omitting *book*. As noted above, the basic deictic meaning of *this* is unaffected by the presence or absence of the common noun, but what we did not mention there is that a common noun is always 'understood', i.e. reconstructed. This raises the question of the correct structural analysis of *this book*: which of these words depends on the other? In the N=P analysis *this* depends on *book*, because the noun-phrase needs a noun (not a determiner) as its head, but there are strong reasons for doubting this. For example:

(9) I like both the paintings, but this is cheaper than that.

In this case, *this* means 'this painting'. In other words, *this* allows an identity-of-sense anaphoric link to a previous word. Why? This is possible for all determiners that can be used without a common noun, so it is not just a lexical peculiarity of *this*:

- (10) a. They both bought ice-creams, but he dropped *his*.
 - b. I could buy this book or that, but I don't know *which* I prefer.

However, it is not a general characteristic of all pronouns (for example, *it* only allows identity-of-reference anaphora), so it is not an automatic effect of changing a determiner into a pronoun. On the other hand, it is found with other word-classes such as auxiliary verbs, catenative verbs, numbers and quantity nouns.

- (11) a. John hasn't finished his thesis, but I have.
 - b. I don't know whether I can do it, but I'll *try*.
 - c. I like apples, so I bought *five*.
 - d. I like apples, so I bought a *kilo*.

What *this* has in common with all these examples is that the anaphorically reconstructed meaning could also have been made explicit by means of a following expression; e.g. *his* means the same in (10)a as *his ice-cream*, just as *have* in (11)a means the same as *have finished my thesis*. But according to the N=P analysis, the structural relationships between the words are quite different. In all the other examples the understood phrase, if reconstructed, would be an optional complement of the anaphoric word (e.g. *finished my thesis* is complement of *have*); but if the anaphoric word is a determiner, the reconstructured noun would have been the head of its phrase (e.g. *ice-cream* is the head of *his ice-cream*) — a completely different relationship. It should be possible to give a unified account of the other examples based on their shared head-complement relationship: an elided complement may always be reconstructed by identity-of-sense anaphora (if the head allows it). But it is hard to see how this could be extended to *this* under the N=P analysis.

To sum up, the N=P analysis has one strength and two weaknesses. Its strength (compared with the DNP analysis) is that pronouns are classified as nouns, so that nounphrases that contain a common noun or pronoun are endocentric. It shares both its weaknesses with the DNP analysis. First, it is forced to give two quite distinct analyses to each determiner according to whether or not it accompanies a common noun; and second, it misses the generalisation that a missing common noun is reconstructed according to just the same anaphoric principles as any missing complement.

The D=P analysis takes *this* as the head of the phrase *this book*, giving a determinerphrase (DP). Pronouns are all determiners. This has several strengths, all of which are complementary to the strengths of the N=P analysis:

• It solves the problems related to the optionality of *book*. According to this analysis, *this* belongs to the same word-class whether or not *book* follows it.

- It avoids the conflicts with Principle 1 by simply merging the word-classes 'determiner' and 'pronoun'. This is correct if the only differences between them are their compatibility with a following noun; but it is even more clearly correct if these differences involve the presence or absence of a complement, since this is a straightforward matter of valency. To distinguish the word-classes under these circumstances would infringe Principle 2 as well as the more general Principle 1.
- Moreover, since *book* is the complement of *this*, it now falls into just the same pattern as the other examples considered above where identity-of-sense anaphora is possible. It may even be possible to limit this kind of anaphora to a very small range of possibilities: either optional (and omitted) complements, or to certain words dedicated to identity-of-sense anaphora such as the words ONE and DO mentioned earlier, as in:
- (12) I don't think the black sock belongs to me, but the grey one may do.
 - The D=P analysis predicts the usual kind of lexical variation in complement patterns. As we have already seen, a complement noun is obligatory with *a*, *the* and *every*, whereas it is optional with all the other determiners. This is just what we would expect in a head-complement pattern.

However, the D=P analysis also has weaknesses. Unlike the earlier analyses, it assumes that the similarity between *this book* and *them* lies in their both being DP's, i.e. phrases headed by a determiner. (As I shall explain below, it is doubtful that *them* should be classified as a determiner, but for the present we can ignore the problem.) This brings out the similarities between *this book* and *them*, but obscures the relationship between *this book* and *them*, but obscures the relationship between *this book* and *books* which we discussed above, as in the following example:

(13) I like books/wine.

The trouble is that English allows nouns to occur without a determiner provided they are either plural or non-countable. How can the D=P analysis be extended to examples like these?

The standard answer is to assume a zero determiner before the noun in such examples: [] *books* or [] *wine*. But there is no independent evidence for this zero determiner, and some of us believe that zero words are best avoided unless the evidence for them is overwhelming. There is some weak empirical evidence against the zero determiner,

namely that we need either to distinguish two different zero determiners, or to recognise that it is a very odd determiner in other respects as well as in being inaudible and invisible. According to the zero-determiner analysis, we also need a zero determiner before proper nouns such as *John*, because this constitutes a DP. But this zero determiner is quite different from the one we have to assume before *books* or *wine* in terms of the important contrast of definiteness: the DP *John* is clearly definite, while *books* and *wine* are indefinite. Every other determiner can be classified as inherently either definite or indefinite, so either we must recognise two distinct zero determiners, one definiteness from its complement noun. Either analysis is awkward in its own way, and would be better avoided.

The only positive evidence that has been offered for this zero determiner is its ability to extend the D=P analysis to examples where there is no overt determiner; this evidence is at best indirect and theory-dependent, and carries weight only in the absence of any alternative to the D=P analysis. But we have already considered an analysis which avoids the problem altogether: the N=P analysis, in which *books* is a noun-phrase just like *the books*, by virtue of being headed by a noun. This analysis faced other problems, but it shows that the D=P analysis's problems are not inevitable. What we shall pursue is an analysis which has the best of both worlds.

The second major weakness of the D=P analysis is partly a matter of terminology. We assume that *this* and *them* belong to the same word-class, so what is this word-class? According to this analysis it is 'determiner', but there is another logical alternative: 'pronoun' — i.e. instead of saying that pronouns are determiners, we could say that determiners are pronouns. This may sound like hair-splitting, but it is a crucial step in reconciling the competing analyses because we have already seen that in one tradition pronouns are nouns; so if determiners are pronouns we may be able to reclassify them completely as nouns.

Why should we prefer to name the super-class 'pronoun' rather than 'determiner'? The most obviously relevant fact is that the class of pronouns is far larger than the class of determiners. We have already considered a complete list of determiners⁶, presented as (8) plus the exceptional *a*, *the* and *every* — 23 lexical items in all. For comparison, here

⁶The list of determiners includes 's, the possessive marker. Like most linguists (until recently) I consider this to be a separate (clitic) word, which combines freely with complete noun-phrases. It is a possessive pronoun which in other respects is just like *his*, *her* and so on. For further arguments, see Hudson (1990:276, 1995a).

is a fairly complete list of words which are (at least arguably) pronouns, in which I have starred the determiners:

(14)	personal	me/I, *you, him/he, her/she, it, one, *us/we, them/they		
		(there?)		
	possessive	*my/mine, *your(s), *his, *her(s), *its, *our(s), *their(s)		
	reflexive	myself, yourself, himself, herself, itself, ourselves,		
		yourselves, themselves		
	demonstrative	*this/these, *that/those		
	relative	who(m), *which, *whose, where, when, why (that?)		
	reciprocal	each other, one another		
	interrogative	who(m), *which, *what, *whose, where, when, why		
	basic indefinite	*some, *any, *each, *either (one?)		
	negative	*neither, *no(ne)		
	compound	nothing, no-one, nobody, nowhere, never		
	_	anything, anyone, anybody, anywhere, ever		
		something, someone, somebody, somewhere,		
		everything, everyone, everybody, everywhere, always		

There are 48 pronouns which are not determiners, and only three determiners which are not 'pronouns' (in the traditional sense). It seems at least perverse to call the super-class 'determiner', implying as it does that the typical member is a word which can act as 'determiner' in the traditional sense. This is clearly not true.

It should be noticed, incidentally, that the above is a surprisingly large and complex membership for a supposedly 'closed' class. This is not what we should expect of a functional category, but this is precisely what is claimed for the 'determiner' of the DP analysis.

To summarise this review of analyses, we have identified the following strengths distributed among the various analyses:

- Revealing the distributional similarity between *this book* and *books*, without positing a zero determiner for the latter (DNP, N=P).
- Allowing an endocentric analysis of *them* as a phrase of the same class as *this book* (N=P).
- Allowing a single classification of *this* regardless of whether it is followed by a common noun (D=P).

Revealing the similarities between *this book* and other head-complement patterns (D=P).

What is needed is an analysis which combines these strengths and which lacks the weaknesses of the other analyses.

The unified analysis gives the same structural analysis to *this book* as the D=P analysis, with *book* as complement of *this*, but its classification of *this* is more like that of the N=P analysis: *this* is a pronoun, and pronouns are nouns. Let's see how these assumptions allow us to have the best of all the worlds considered so far:

- If *this* is a noun, the phrase *this book* is headed by a noun, just like the one-word phrase *books*. What these phrases have in common is not that they are DPs, but that they are NPs. DPs and NPs are no longer distinct.
- If *them* is a pronoun, and pronouns are nouns, the single-word phrase *them* is an endocentric noun phrase.
- If valency is handled separately from word-class, the fact that *this* allows a complement noun is irrelevant to its classification as a pronoun, and the choice between using the complement and omitting it is even less relevant to the classification. Thus *this* is covered by a single lexical entry which says that it is a pronoun and that its complement is optional. There is no need for a second 'determiner' entry.
- If *book* is the complement of *this*, we should expect it to behave in some respects like complements in other constructions. As expected, we find that if we replace *this*, as head, by other pronouns the complement may become obligatory (e.g. *(*the*) *book*) or impossible (e.g. **it book*); and when the complement noun is optional, we find that it is interpreted by the same principles for identity-of-sense anaphora that apply to other constructions.

My claim is that a classification of determiners as some kind of pronoun, with the possibility of a common noun as complement, leaves no role at all for the word-class 'determiner'. Let us consider two possible counter-arguments. First, as mentioned earlier, singular countable common nouns need a determiner. How can this fact be stated without referring to 'determiner'? It can easily be restated in terms of the unified analysis: a singular countable common noun must have a pronoun as its parent, a requirement which is satisfied in *I bought a book* but not in **I bought book*. There is no need to say that a pronoun such as *it* cannot satisfy the requirement, because its valency already prevents it from having a complement. The list of words that will satisfy a singular countable common noun as its parent, a requirement which can take a singular countable common noun as its complement.

Second, it could also be objected that the word-class 'determiner' allows the generalisation that only one determiner is allowed per noun phrase (e.g. unlike Italian, we cannot combine *the* and *my* to give **the my house*). But again this restriction is easily covered — in fact, is already covered — by the unified analysis, which allows a pronoun to have a common noun (but not another pronoun) as its complement. Thus, **the my house* is bad because *my* would have to be complement of *the*, but *the* only accepts a common noun as its complement, and *my* is not a common noun.

The conclusion of this section is that determiners are pronouns, and therefore nouns. Among the pronouns their only distinctive characteristic is the fact that they have a common noun as complement, which is a matter of valency rather than of wordclassification. Therefore the word-class 'determiner' does not survive even as a subclass of pronoun, so one of our putative functional categories disappears.

4 Complementizers

Next we turn to the word-class 'complementizer', whose misleading name reflects its precarious empirical basis⁷. Even the membership is unclear, which is presumably because of uncertainty about its distinctive characteristics. Its current membership certainly includes 'clausal' THAT, whose clause may be not only a complement, but also a subject (or a topic, depending on analysis):

- (15) a. I know that it's raining.
 - b. That it's raining surprises me.

Another standard complementizer is IF, but unlike that-clauses, if-clauses cannot be used before the verb and can be used as conditional clauses. It is unclear whether IF is a complementizer in such cases.

⁷In its earliest uses, such as Rosenbaum 1967, the term alluded to the fact that words like THAT could be used in order to allow a sentence to act as the complement of a verb, which is of course only one of many ways in which that-clauses may be used.

- (16) a. I wonder if it's raining.
 - b. *If it's raining is unclear.
 - c. I'll come if you want.

The third complementizer which most people seem to agree about is infinitival FOR, which is always followed by TO.

- (17) a. I longed for it to stop raining.
 - b. I'm keen for it to stop raining.
 - c. For it to stop raining is important.

Once again it is unclear whether the same analysis would apply to its adverbial uses, as (for example) in clauses after ENOUGH.

(18) It's cold enough for it to snow.

This complementizer is perhaps the least convincing one because it has also been classified as a preposition (e.g. Haegeman 1991: 155), in order to explain the existence of the following NP (i.e. *it* in the above examples). It is quite unclear how the two classifications can be reconciled, since complementizers and prepositions generally have quite different distributions.

The original complementizers included two others: 'POSS ING' and WHETHER. POSS ING (possessive + ing-form verb) was the gerund, where nobody would nowadays recognise any kind of complementizer. As for WHETHER, its classification is currently a matter of debate. At least some linguists (e.g. Larson 1985) argue that it is in fact a whpronoun because, unlike its synonym IF, its distribution is just like that of ordinary whpronouns. For example, a clause introduced by WHETHER can be used as subject/topic, or even as the complement of a preposition:

- (19) a. Whether/*if it's raining is unclear.
 - b. We were talking about whether/*if it's raining.

I agree with this conclusion (Hudson 1990:374), and it is the assumption which is most favourable to the standard analysis of complementizers because it minimizes the diversity of complementizers. I shall therefore assume that WHETHER is a wh-pronoun, not a complementizer, leaving the putative word-class 'complementizer' with just three

members: THAT, IF and FOR.

As with determiners, I have no quarrel with the idea that complementizers are heads of their phrase — i.e. head of the clause that they introduce, as expressed by the 'CP' analysis; I have assumed similar analyses for some time (Hudson 1984:107). Once again, though, I recognise that this is controversial; for example, Pollard and Sag (1994:44) reject it in favour of an analysis in which complementizers are 'markers'. As in the CP analysis, I take the following verb(-phrase) as the complement of the complementizer, giving Word Grammar structures like the one in Fig. 3.



Fig. 3

Fig. 3 also illustrates another important characteristic of the Word Grammar analysis, namely the absence of 'zero' complementizers. In the sequence *know that you think* the object of *know* is *that*, but in *think I like Mary* the object of *think* is *like;* so a verb's object may be either a tensed verb, or THAT (which in turn has a tensed verb as complement). I mention this as one alternative (among many) to the standard assumption that there is a zero complementizer which alternates with *that*. I shall assume for simplicity that if zero can be justified, it will be classified in the same way as *that*.

The arguments of this section should be seen against the background of the two main assumptions just outlined: that the complementizer is the head of its phrase, with the next verb as its complement, and that if 'complementizer' does exist, it has just the three members THAT, IF and FOR. I shall suggest that there is no word-class which contains all these three words and no others — in short, that 'complementizer' is not a valid word-class. I shall now contrast the two classification systems shown in Fig. 4, the 'C-analysis' and the 'non-C analysis'.



Fig. 4

The C-analysis is the standard one in which 'complementizer' is recognised as a wordclass. The non-C analysis has no place at all for 'complementizer', but unlike determiners I do not believe that the complementizers can all be subsumed under a single larger class. On the contrary, they have so little in common not only with each other but also with other word-classes that I see no point in assigning them to any word-class at all. Principle 1 requires every word-class to allow generalisations, but there are no generalisations which apply to all three complementizers. They are 'syncategorematic' — words which comprise the sole member of a unique category, alongside miscellaneous words such as NOT, EVEN, PLEASE and HELLO (Trask 1993:272). The following comments will point out the advantages of adopting the non-C analysis.

The C-analysis gives 'complementizer' a status like that of 'noun', and (especially in view of its name) we should expect it to play an important part in complement-selection (i.e. valency). Thousands of verbs take any noun-headed phrase as complement, so we should predict the existence of some verbs which allow any complementizer-headed phrase (i.e. a clause introduced by a complementizer) as complement. And yet this is not what we find: not a single verb allows all and only our three complementizers to introduce its complement. Table 1 illustrates a few typical examples. What this means

is that the word-class 'complementizer' will never be mentioned in the valency even of one verb, let alone of a group of verbs. Unless some other generalisation is found which does turn on this word-class, it infringes Principle 1.

The non-C analysis is fully compatible with the facts, because all complements can be defined either in terms of recognised word-classes (WH pronoun) or in terms of individual unclassified words (THAT, FOR or TO). The only problem is the need to recognise a class of 'interrogative words' which would include IF as well as WHETHER and the other WH pronouns; this may indeed require a revision to the non-C analysis presented in Fig. 4, but the recognition of 'complementizer' would not help.

verb	complement clause			
	THAT/zero	IF (WHETHER, WHO,)	FOR TO	
THINK	+	0	0	
WONDER	0	+	0	
LONG	0	0	+	
KNOW	+	+	0	

Table	1
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Another position where subordinate clauses are allowed is before the main verb, either as its subject or as its topic:

- (20) a. That he came late surprises me.
 - b. For John to be late is unusual.

According to the C-analysis we might again expect some relevant generalisation in terms of complementizer-headed phrases. As mentioned earlier, THAT and FOR may introduce a pre-verb clause; but IF cannot occur in this position though the non-complementizer WHETHER and other WH pronouns can. In short, the situation is similar to what we found in complement clauses but even worse for the C-analysis: one of the complementizers never occurs in this position, and the other two pattern with WH

pronouns and TO. With or without the word-class 'complementizer' we end up listing the forms that are possible in each position.

A third relevant context is extraposition, which favours subordinate clauses. In this case the C-analysis fares better because all three complementizers can be extraposed:

- (21) a. It surprises me that John is late.
 - b. It is unclear if it rained.
 - c. It surprises me for John to be late.

However, we might expect from the C-analysis that this would be the end of the possibilities, but it is not. The same is also true for TO and all the WH pronouns, including WHETHER:

- (22) a. It is unclear whether/when it rained.
 - b. It surprises me to see John here.

Indeed, extraposition is even possible for some noun-headed phrases, such as those containing nouns like WAY (but not MANNER) and NUMBER:

- (23) a. It is astonishing the way/*manner she drinks.
 - b. It is astonishing the number of beers she can drink.

These nouns can only be extraposed if they are modified by what is at least syntactically a relative clause:

- (24) a. *It is astonishing the clear way.
 - b. *It is astonishing the incredibly large number.

Once again both analyses involve a disjunction, so neither can claim to capture any profound underlying syntactic unity. The category 'complementizer' does not prove particularly helpful. If there is a single thread running through all the phrases that can be extraposed, it may be semantic rather than syntactic.

If the C-analysis were right, then we might expect CP ('complementizer-headed phrase') to play a similar role to DP or NP in defining the total distribution of its members. We have already considered a number of specific environments — complement of a verb, subject/topic of a verb and extraposition — in which subordinate

clauses can occur, and found that CP has no special role in any of them, contrary to the C-analysis. However it is possible that CP is a 'prototype' category whose members have some basic total unity, with these differences as minor exceptions in the total picture. Even this view of the word-class 'complementizer' is not supported by the facts, however. Each of the three complementizers has a completely different total distribution, as predicted by the non-C analysis. The following examples illustrate their differences.

- (25) a. *It's cold enough that/if it snows.
 - b. It's cold enough for it to snow.
- (26) a. I'm so cold that/*if my fingers are blue.
 - b. *I'm so cold for my fingers to be blue.
- (27) a. I'll help you if/*that you want.
 - b. I'll help you for the work to be done well.

These differences are to be expected in the non-C analysis, where each word has its own lexical properties, but again it is problematic for the C-analysis because there are so few generalisations which apply to all and only the complementizers.

In conclusion, there are **no** environments in which all and only clauses introduced by one of the complementizers can occur; the word-class does not support any generalisations at all about the external distribution of the introduced clause. Everything that needs to be said about the distribution of subordinate clauses will be said either in terms of individual words (THAT, FOR or IF), or in terms of a general class of 'interrogative word'. Let's turn now to another possible justification for the word-class 'complementizer', in terms of generalisations about the subordinate clause's **internal** structure. Maybe the C-analysis allows us to make the important generalisation that all (and only) the complementizers introduce subordinate clauses? This generalisation would reflect the fact that the complementizers all take a verb as their complement.

The weaknesses of this justification are obvious. On the one hand, the complementizers do not all take the same kind of complement.

- THAT takes a tensed verb, which in some environments may be uninflected (a socalled 'subjunctive'):
- (28) I recommend that you be there half an hour early.

- IF always takes a tensed verb
- FOR takes TO. This may be a verb (Pullum 1981), but it may also be another syncategorematic word. A Word Grammar structure for FOR is shown in Fig. 5, with *to* as the complement of *for* and *it* as subject of both⁸.



Fig. 5

A second weakness is that the complementizers have no special status in relation to these verb-classes.

- All the WH pronouns (relative or interrogative, including WHETHER) allow a tensed verb.
- With the exception of WHY, the interrogatives also allow TO as interrogative pronouns.
- Every 'subordinating conjunction' such as BECAUSE and ALTHOUGH also allows a tensed verb as complement.

We have considered all the 'external' relations of complementizers, which they contract as heads of phrases in relation to the rest of the sentence, and also their 'internal' relations to their verbal complements (and implicitly to the rest of the clause that they introduce). What we have found is that none of these relations is unique to our three complementizers. In some respects, 'complementizer' is too small a category because the words concerned pattern with a large number of other words; but in other respects it is too large a category. We have not found a single rule or distributional fact which applies to all and only the three complementizers THAT, IF and FOR. The only justifiable conclusion is that these three words do not in fact form a natural class.

This need not be the end of the debate, of course. The abstract category CP has played an important role in recent work in transformational grammar, so it could still be

⁸This diagram illustrates the richness of WG syntactic structures, which is distributed between the 'surface structure' — a tangle-free structure of arrows drawn above the words — and the 'extra structure' drawn below the words.

objected that the crucial element missing from the above arguments is the abstract functional category 'Comp', which is often not filled overtly by a complementizer. Even this abstract category or position is problematic (Hudson 1995b), but these problems are

really irrelevant to the status of 'complementizer' as a word-class except for the historical link between the name of the position and that of the word-class. Even if Comp is a valid category, we cannot use this as evidence for 'complementizer' for the simple reason that Comp need not be occupied by complementizers. Most obviously, some occupants of Comp are verbs which move into this position from a lower position as in the English and German examples below:

- (29) a. Have you a moment?
 - b. Kennst du Berlin? 'Do you know Berlin?'

Nobody (to my knowledge) argues that this proves that tensed verbs are complementizers. If anything, it proves that Comp is a 'verbal' position; and this is precisely what Grimshaw has suggested (1991).

In conclusion, the word-class 'complementizer' does no work at all in a grammar of English. Admittedly all complementizers introduce subordinate clauses, but the clauses they introduce occur in environments where other kinds of subordinate clause can also occur, so complementizer-headed clauses have no special status. Nor are they unique in terms of the internal structure of the subordinate clause. The irrelevance of 'complementizer' is as predicted by the non-C analysis, but a critical embarrassment for the C-analysis. If the non-C analysis is right, English has no word-class 'complementizer', but it does have a large range of individual words (some syncategorematic, others belonging to more general classes) which take a tensed verb or TO (i.e. the body of a subordinate clause) as their complement.

5 Conclusion

Our starting question was 'Do functional categories really exist?'. Logically it is of course impossible to prove that something does not exist, so the best we can hope to achieve is to evaluate the evidence for the best possible examples of functional categories. I chose 'determiner' and 'complementizer' for two reasons: there is no doubt at all about the reality of the words which are supposed to belong to them, and they are not tied to any

particular theory. The discussion of 'determiner' showed that this word-class is redundant, because all its members can more easily be identified simply as pronouns that allow noun complements. As far as 'complementizer' was concerned, I showed that the three standard examples do not even belong to a single word-class. In both cases the supposed word-class failed the basic test of allowing generalisations which would not otherwise be possible. Either I have overlooked the crucial evidence that supports these categories, or they don't exist and should be abandoned forthwith.

Where does this conclusion leave 'functional categories'? It certainly does not prove their non-existence, as I noted above, but it surely leaves them on a much less secure footing. Maybe there are functional categories whose members are full words, but we need the evidence — for example, we considered 'preposition', but decided it was at best a marginal functional category. Perhaps the most hopeful candidate is 'coordinating conjunction' (Huddleston's 'coordinator'), with a handful of members whose meanings are purely logical. If on the other hand there are no 'quasi-lexical' functional categories, we are left with nothing but Cann's 'morphological' examples - categories whose members are either inflectional affixes or zero. These are even more controversial, and consequently need even more careful evaluation before any conclusions are built on them. Compared with 'noun' and so on, they are very strange syntactic categories indeed: first, their members are not words, and may not even exist; second, each 'category' contains precisely one member, which makes them indistinguishable from single, syncategorematic, lexical items; and third, they do not contrast with 'substantive' (i.e. non-functional) categories with similar members. That is, without 'quasi-lexical' functional categories as a bridge, we are left with a simple binary contrast between substantive categories whose members are words, and functional 'elements' which are single morphemes (or zero). The latter can no longer be seen as simply another small step up a ladder of abstraction whose first rungs are the functional categories 'determiner' and 'complementizer' — those rungs are no longer there, so it is possible that the higher rungs are supported by nothing but faith.

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