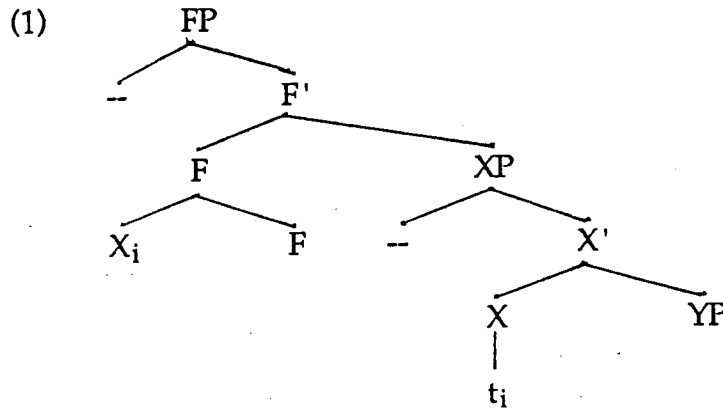


SYNTACTIC MORPHOLOGY: A THIRD OPTION*

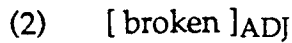
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1 Introduction

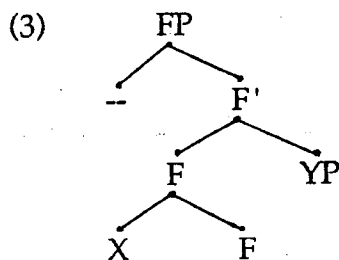
In this paper, I argue that inflectional affixes can attach to their hosts in three different ways. One involves the syntactic head movement of a lexical item to the position occupied by the affix, as shown in (1).



Another involves morphological word formation. This gives a syntactic atom at D-structure, making the affix inaccessible to syntactic processes. This is shown in (2).



These two modes of affixation are commonly assumed in current work on inflectional morphology, such as that of Borer (1991). I will argue here for a third way in which inflectional affixation can take place. This involves base-generated head-adjunction, which gives a syntactically transparent X° at D-structure, as shown in (3).



This last possibility is neither contemplated nor explicitly ruled out by Borer (1991), but is proposed in a different framework by Fabb (1988). The structure in (3) is similar to the structure derived by syntactic head movement, except that the word to which the affix attaches does not head its own XP at any stage in the derivation. We will see that this difference has consequences for the syntax.

The paper is structured as follows. In section 2 I will argue briefly that (3) is a permissible D-structure according to X-bar theory. In sections 3-6 I will turn to a specific affix in English, namely participial *-en*, and show that it has three different sets of properties. I will show that the three structures outlined above, together with some fairly simple assumptions about the lexical entry for *-en*, provide a straightforward account of the apparently disparate properties of *-en*. The conclusion will be that a unified account of *-en* in English is possible only if the three modes of affixation are possible. If only two modes of affixation were available, then the lexicon would have to contain two basic lexical entries for *-en*, thus contributing to the unmotivated proliferation of homophonous, synonymous morphemes.

2 X-bar theory and D-structure head adjunction

The role of X-bar theory has changed radically since it was first introduced. While Jackendoff (1977) explicitly presented it as a system of rule schemata, or constraints on phrase structure rules, it has since come to be taken as a theory of phrase structure itself. Stowell (1981) argued that specific phrase structure rules should be eliminated in favour of lexical projection. This change made it possible for the structure-preserving nature of syntactic derivation to follow from X-bar theory, assuming that not only D-structures, but also S-structures, were subject to its constraints. Set against this background, the advent of syntactic head-movement has rather interesting consequences. If, indeed, X-bar theory holds of all syntactic representations, then any structure that is well-formed at S-structure must also be permitted at D-structure, at least as far as X-bar theory is concerned. Any other state of affairs would require a more complex version of X-bar theory, with different well-formedness conditions for different syntactic levels. Since (3) is identical (leaving aside traces) to the structure that arises from (1) after move- α , it does not violate X-bar theory, and as such must be permitted at D-structure, provided that it does not violate any other conditions on representation. A structure similar to (3) is proposed for incorporated objects in Persian by Massam and Ghomeshi (this volume).

Having shown that a structure such as (3) could at least plausibly occur at D-structure, let us turn to the English affix *-en*.

3 The properties of *-en* in English

-en occurs in the perfect (4a), in lexically derived adjectives (4b), and in the passive (4c).

- (4) a. I have broken several glasses.
b. The children found the broken glass.
c. The glass was broken at exactly two o'clock.

It exhibits different properties in the three constructions. For the purposes of this paper I will focus on its temporal effects and its effects on the case and θ -assigning properties of the stem it attaches to. In the perfect, *-en* has the temporal effect of backshifting the event in its scope, but, at least superficially, seems to have no effect on the case or θ -marking properties of the verb it attaches to. Thus, in (4a), the verb *break* apparently still assigns the agent θ -role to *I*, and structural object case to *several glasses*. The time of the event of breaking is placed earlier than the moment of speech, despite the fact that the sentence is in the present tense (viz. *have*, not *had*). By contrast, in the passive, *-en* absorbs structural case and the external θ -role from the verb it attaches to, but has no temporal effect whatsoever. As such, in (4c), the verb can no longer assign case to *the glass*, forcing *the glass* to move to subject position to receive nominative case. The external θ -role has been absorbed, allowing the agent to remain unspecified. Temporally, the sentence is exactly the same as the corresponding active, shown in (5).

- (5) They broke the glass at exactly two o'clock.

Both the active and the passive sentence are in the past tense (*was*, *broke*), and in both cases the adverbial specifies the time at which the breaking event took place. *-en* makes absolutely no temporal contribution.

The lexically derived adjective has a stative meaning, and typically of adjectives, assigns no case. I assume without argument that the adjective is derived by morphological affixation; the question is whether it can be derived by the affixation of the same affix that derives the perfect and the passive participles without further stipulation.

I adopt (6) as a working hypothesis as to the lexical entry for *-en*.

- (6) *-en*: [[V] ___]
[-finite, +past]
[+N] (requires Case and θ -role)

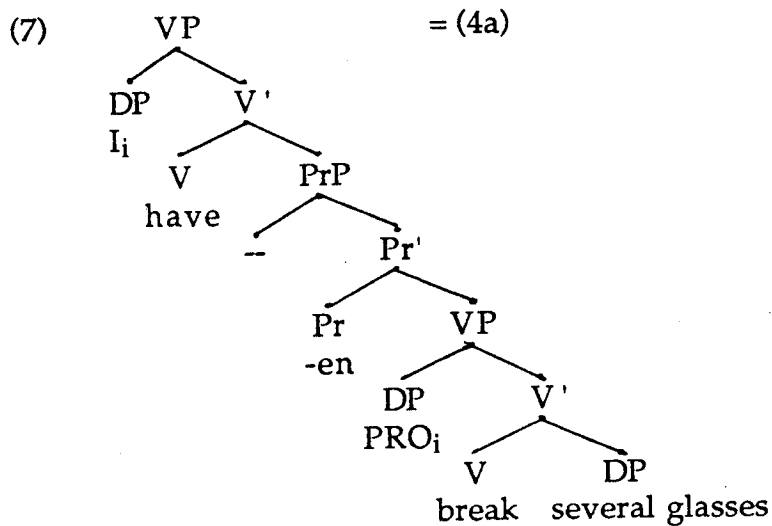
The first line of the entry states that *-en* is an affix which attaches to verbs. This requirement is checked at PF. The second line identifies *-en* as a non-finite past tense marker. I have argued for this elsewhere

with respect to the English perfect construction (Cowper 1989, 1991). What a past tense morpheme does is to place the VP it governs earlier on the time line than the verb or other temporal structure governing it. The third line of the entry stipulates that *-en* requires both Case and a θ -role. I have implemented this with the feature [+N].

Let us now see how this lexical entry fits into the three available structures. I will begin with the structure involving head movement.

4 *-en* and syntactic head movement: the perfect

The D-structure of (4a) is as shown in (7). All structure above the VP dominating *have* has been omitted for simplicity.

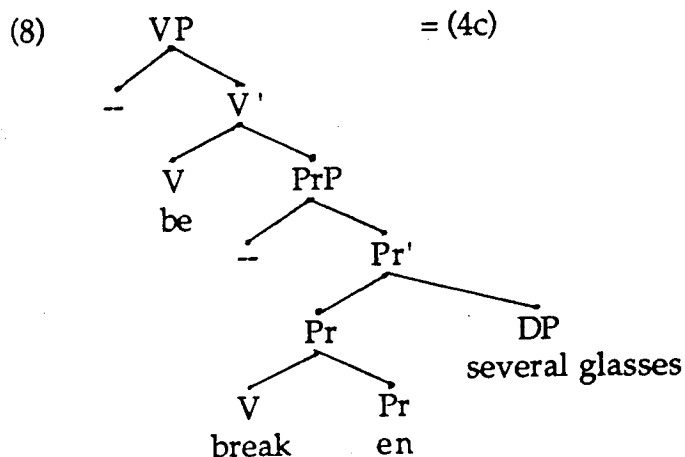


I have argued elsewhere (Cowper 1989) that the verb *have* assigns two fully underspecified, or variable, θ -roles. In this case the external θ -role is assigned to *I*, and the internal θ -role to the participial phrase headed by *-en*. In this way, the thematic requirements of *-en* are satisfied. The case requirements of *-en* are also satisfied by *have*, which assigns object case to the participial phrase, and thus to the head of the phrase, namely *-en*. Finally, the *-en* places the VP it governs earlier on the time line than the verb *have*, which is situated by its present tense morpheme at the moment of speech.

If this analysis is correct, then in the perfect, the participial suffix *-en* receives both case and θ -role, despite superficial appearances to the contrary. We have thus eliminated one apparent difference between the passive and perfect uses of *-en*, namely that only passive *-en* absorbs case and θ -role.

5 -en and D-structure head-adjunction: the passive

Let us now turn to the case of D-structure head-adjunction. This gives a D-structure such as (8) for (4c), ignoring the temporal adverb and all structure above the VP dominating *be*.



Unlike *have*, the verb *be* assigns neither Case nor θ -roles. In this instance, the Case and thematic requirements of *-en* are satisfied by the verb *break*, which is a sister of *-en*. Since *break* has only one case to assign, it is straightforward that *-en* absorbs it. However, it remains a stipulation that *-en* absorbs the external θ -role, rather than the internal θ -role.

With the object case and the subject θ -role assigned to *-en*, there remains a θ -role, but no case, for assignment to *the glass*. This means that *the glass* will have to move to a non-thematic case position at S-structure. The closest available position in this sentence is nominative subject position.

It remains to be explained why *-en* has no temporal effect in the passive construction. The answer is straightforward, but requires an understanding of exactly how tense morphemes work. Basically, they are functions, taking temporal constituents as arguments, and locating these constituents within a larger temporal structure.

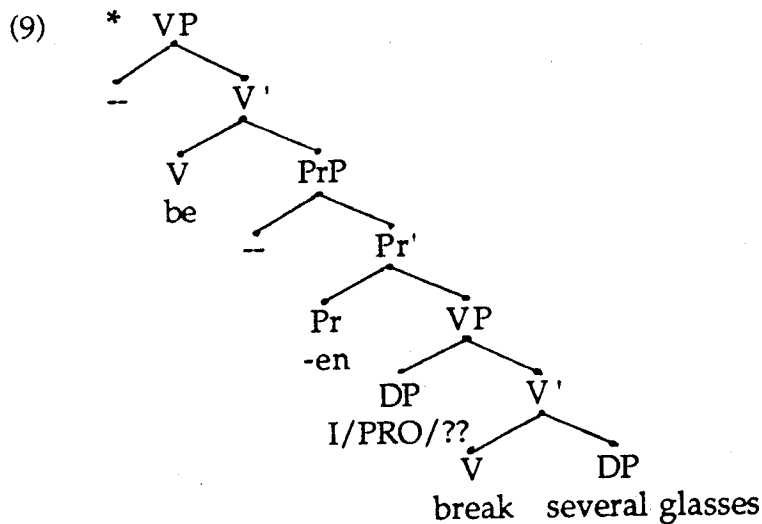
A temporal constituent is a syntactic constituent which can be located on the time line. In order to be located on the time line, it must be able to refer to some moment or interval in time. Just as only certain kinds of syntactic constituents can refer, in the traditional sense, to entities in the real world, only certain kinds of syntactic constituents can refer to moments or intervals in time. In both cases, referential expressions must be complete functional complexes. The only things which can be located on the time line are events and non-permanent states. The syntactic category corresponding to events and states is the thematically complete VP. Thus only thematically complete VP's can serve as temporal constituents, and can be located on the time line.

The consequence of this is that when *-en* takes anything other than a thematically complete VP as its argument, it cannot locate its complement on the time line. If it cannot locate its complement on the time line, it will have no temporal effect on the sentence in which it appears. Thus in a passive sentence, where the structure in (8) appears, the temporal structure is exactly the same as for the corresponding active.

6 Why passives have be and perfects have have

It must now be shown that the analysis just sketched for passives and perfects is not ad hoc. For example, I must show that if the perfect participial phrase is embedded under *be*, it does not derive a well-formed passive, while if the passive participial phrase is embedded under *have*, it does not derive a well-formed perfect. In other words, I must demonstrate that *-en*, not the auxiliary verb, is responsible for the differences between the perfect and the passive.

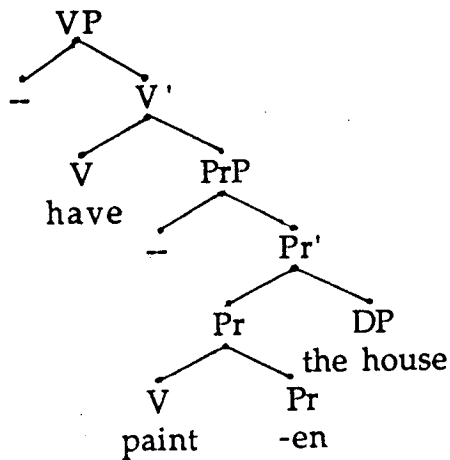
Consider first what happens if the perfect participial phrase is embedded under *be*. The structure is shown in (9).



In (9), the verb *break* assigns both its θ -roles within VP. In addition, the only constituent to which *break* can assign case is the object, *the glass*. Let's assume that it does so. Now, where will *-en* get its case and θ -role from? We said earlier that *be* assigns neither θ -role nor case. It therefore seems that the perfect participial phrase will only produce grammatical results if it is embedded under a verb which can provide it with case and a θ -role.

Now consider what happens if the passive participial phrase is embedded under *have*. This gives the structure in (10).

(10)



Here, *-en* absorbs the agent θ -role and the object case from *paint*. This leaves *the house* with a θ -role, but without a case. It therefore must move so as to receive case. The question is, why can it not move to subject position, deriving (11)?

(11) *The house had painted. (cf. The house was painted.)

The problem with this movement is twofold. First, *have*, as I said earlier, assigns a θ -role to its subject. Any sentence in which some other argument moves to become the subject of *have* will therefore be ungrammatical. In addition, *have* assigns case to its object. The participial phrase in (10) already has case, assigned to its head by the verb *break*. If *have* also assigns case to PrP, then under some versions of the chain condition, the sentence will be ruled out.

There is, however, another possible outcome for a structure like (10). Suppose that instead of moving all the way to subject position, the object noun phrase moved only as far as the specifier position in PrP. It could then receive case by exceptional case marking from *have*. If *have* had another argument in subject position, the result would be a sentence like (12).

(12) We had the house painted.

We can conclude from this that the difference between passive and perfect constructions in English derives from the behavior of the participial affix, and not from the auxiliary verb involved. The choice of auxiliary follows entirely from the theta and case requirements of the participial phrase.

7 Verbal and Adjectival Passives

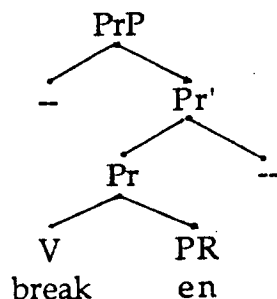
I have shown that a unified account of the passive and perfect uses of *-en* requires that *-en* appear in two different structures. However, I am claiming that not two, but three structures are available,

and in fact necessary, for *-en*. I will now turn to the lexically derived *-en* adjective, and show that its structure differs from both the perfect and the passive participles.

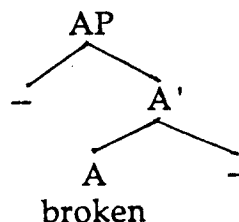
Of the two structures I have proposed for the participle, the most likely candidate for the adjectival form is the one with D-structure head-adjunction. I will now show that this structure cannot be the one underlying the so-called passive adjective, and that the passive adjective must be derived morphologically.

The two structures under consideration are given in (13).

(13) a. Verbal passives



b. Adjectival Passives



There are two differences between these structures: the category label, and the opacity or transparency of the internal structure of the participle. The category label is of no serious consequence, but the other difference can be shown to make correct predictions in an interesting case. Consider the sentences in (14).

- (14) a. I had the washer repaired.
 b. I had the washer repaired by lunchtime.

Both of these sentences appear to have a passive small clause complement. However, there is a clear difference in interpretation. In (14a), the most felicitous interpretation is that someone other than myself did the repairing, while in (14b), the most natural interpretation is that I did the repairing myself. A correlated difference between these sentences is that in (14a), *repaired* normally has an eventive reading, while in (14b) it normally has a stative reading.

Note that both sentences are potentially ambiguous, and that speakers differ as to the ease with which they perceive the non-salient reading. The point to be made here is the correlation between the stative reading of the participle and the availability of the matrix subject as the understood agent of the passive small clause.

The difference in interpretation can be explained on the basis of the difference in structure given in (13), using the theory of thematic discontinuity developed in Brunson (1992). Brunson shows that in passive sentences, there is an asymmetry between the participial affix

and the by-phrase, in that the affix must m-command the by-phrase. This is shown to be a special case of a much wider phenomenon, in which two elements sharing a θ -role exhibit a consistent structural asymmetry, with the coarser-grained, or more general element m-commanding the finer-grained, or more specific element. In passives, as shown by Brunson, *-en* behaves as a maximally coarse-grained, or most general, agent.

Now consider (14a). If *I* is interpreted as the agent of the repairing event, then *I* and the participial affix will be subject to Brunson's constraint. Since the affix does not m-command *I*, the constraint will be violated and the sentence will be ruled out. The only possible interpretation is therefore that someone other than myself did the repairing.

Why does the same constraint not hold of (14b)? If the passive participle and the passive adjective had the same structure, the constraint ought to hold equally of both sentences. If, on the other hand, (14b) contains a morphologically, rather than syntactically, derived participle, and if morphologically derived elements are syntactic atoms, then the facts are explained. The participial affix in (14b) is inaccessible to syntactic processes and constraints, and as such is not subject to Brunson's constraint on role-sharing elements. It is therefore entirely natural for (14b) to be interpreted as involving the most direct causation possible, namely that I did the repairing myself.

7 Conclusion

I have shown that the three uses of *-en* in English require three different structures. However, I have also shown that if these three structures are available, exactly the same affix can be involved in all three structures. The differences between the three uses of *-en* follow directly from the structures involved. On the other hand, if only two modes of affixation are available, then there must be at least two *-en* morphemes in English -- a less desirable result.

The consequence of this is that for any inflectional affix, it is an empirical question, not only whether it is affixed by the morphology or by the syntax, but also whether in the syntax it takes a maximal projection as its complement, or simply takes a lexical head. As we have seen with *-en*, the answer may be that the affix does all three things.

Footnotes

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