Affected-topic *have*: An applicative account*

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Abstract

This paper proposes a new analysis of sentences like *The tree has a bird's nest in it,* and *The garden has had many flowers planted in it.* I argue that *have* in these sentences spells out a previously unnoticed applicative head, which occupies a position below T and above the head hosting viewpoint aspect, and whose specifier receives an affected-topic interpretation. This account correctly accounts for the interactions between *have* and the spellout of other auxiliaries in the clause, and brings the number of distinct applicative heads in English to at least three. Parallels are observed between the behaviour of these three applicative heads and Voice, raising the question of whether Voice and Applicative heads are better thought of as forming a unified class of argument introducers. The account of affected-topic *have* also lends support to the dynamic theory of phases, and to a postsyntactic, realizational view of morphology.

Keywords: Applicatives, Auxiliaries, *Have*, Phases, Argument introducers.

1. Introduction

This paper focusses on a particular English construction with the verb *have,* illustrated in (1).

(1) a. The tree has a bird's nest in it.
b. The garden has had many flowers planted in it.

These sentences have several properties that distinguish them from other clauses where *have* appears, either as a main verb or as part of the auxiliary sequence, while at the same time having other properties in common with one or more of the other constructions. I will argue that in sentences like those in (1), *have* spells out a peripheral applicative (Appl) head (Kim 2011) above the head hosting viewpoint aspect, which I represent as Asp.[1] The subject of the clause merges in

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[1]This head should not be confused with Inner Aspect (Travis 2010 and many others), which determines situation aspect. The higher Asp head encodes the difference between imperfective and perfective viewpoint aspect, while the lower one encodes properties like telicity, punctuality and durativity. Only the higher Asp head appears in this paper.

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the specifier of this peripheral Appl head, where it receives an affected interpretation,[2] and then moves to the specifier of TP. As the most structurally prominent argument, the subject is also interpreted as the aboutness Topic (Gundel 1974, 1988; Vallduví & Engdahl 1996). I refer to this as the "affected-topic *have*" construction.[3]

The primary focus of this paper is the syntactic structure of sentences like those in (1). Specifically, I will argue in §4 that *have* in this construction should not be analysed as a main verb, but rather as the spellout of an argument-introducing functional head relatively high in the clause. At the same time, *have* in this construction does not pattern with so-called auxiliary *have*, as discussed in §3.

2. Observations and descriptive considerations

Before turning to the analysis, it is worth taking note of some of the descriptive properties of affected-topic *have*. First, the pairs of sentences in (2) are essentially synonymous, evoking previously noted similarities between existential, locative, and possessive constructions (Freeze 1992, among others). Notice that the sentences with *have* contain an extra constituent—the final PP—which cannot be omitted without degrading the grammaticality of the sentence or at least altering its meaning, as shown in (3).

(2) a. i. My living room room has children sleeping in it.
ii. There are children sleeping in my living room.
b. i. The table has a plant on it.
ii. There is a plant on the table.
c. i. That woman has a baby with her.
ii. There is a baby with that woman.

(3) a. ?? That room has children sleeping.
b. ?? The table has a plant.
c. ≠ That woman has a baby.

2.1. The locative PP

As noted by Harley (1997), sentences like (3a) and (3b) cannot be interpreted as expressing (alienable) possession, because only animate DPs can appear as alienable possessors. The locative PP in (2) allows the sentences to express a location rather than a possessive relation. The difference in interpretation between (2c) and (3c) also reflects the locative/possessive distinction between the constructions.

Also, notice that the subject of an affected-topic *have* sentence is not necessarily identical to the object of the preposition in the locative PP, as shown in (4b). The difference illustrated in the pairs of sentences in (4)–(6) has to do, not with the truth-conditional meaning of the sentences, but rather with their topic–comment structure. While (4a) is about the living room, (4b) is about the house.

[2]The affected interpretation may be attributable, not to the semantic content of the Appl head alone, but also to the binding relation (Harley 1997, 1998) between the subject and the element in the locative PP.

[3]As will be seen, this head is syntactically distinct from, and higher than, both Kim's (2011) peripheral Appl and Cuervo's (2003) affected applicative.

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(4) a. The living room of that house has children sleeping in it.
b. That house has children sleeping in the living room.

(5) a. The teacher's desk has a plant on it.
b. The teacher has a plant on her desk.

(6) a. His pocket has a hole in it.
b. He has a hole in his pocket.

The locative PP also has some interesting properties. First, the pronoun it contains cannot be reflexive, as shown by the ungrammaticality of (7b), although the pronoun is always coreferential with the subject of the clause. In this respect, the topic-*have* construction differs from ordinary clauses with PPs whose object is coreferential with the subject, as seen in (8).

(7) a. My pocket has a hole in it.
b. * My pocket has a hole in itself.

(8) a. ? Anna$_i$ listened a story about her$_i$.
b. Anna$_i$ listened to a story about herself$_i$.

Harley (1997) argues that in locative *have* sentences, as in the experiencer *have* construction shown in (9), the subject of *have* must bind a (possibly covert) referential element (Reinhart & Reuland's (1993) [+R]) in the complement of *have*. Since *self*-reflexives are [–R], they cannot satisfy this requirement.

(9) George had a bicycle crash into him/*himself yesterday.

Notice, however, that the nominal in the locative PP need not be fully coreferential with the subject; it can also refer to a subpart of the subject, as shown in (10a) and (11a). This part-whole relation cannot be reversed, as shown in (10b) and (11b).

(10) a. The new sofa has a stain on the back.
b. * The back has a stain on the new sofa.

(11) a. That table has a scratch on one of the legs.
b. * The leg has a scratch on the table.

Asymmetries like these are discussed by Brunson & Cowper (1992), based on Brunson's (1992) theory of thematic discontinuity. We set aside the question of whether Harley's (1997) binding relation or Brunson's notion of thematic discontinuity provides a better account of the data, noting only that under either view, there is a close relation required between the subject of *have* and the nominal in the locative PP.

2.2. Have: a main verb or a functional element?

While *have* is the only verb in many affected-topic *have* clauses, there are also cases where it seems to form part of the auxiliary sequence, as in (12).

(12) a. The garden has had many flowers [planted in it]. (=(1b))
b. The hotel has several hundred people [staying in it.]
c. That room can only have one person [being interviewed in it at a time.]

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This is the primary focus of the present paper: is affected-topic *have* a "main" verb heading the main predicate of its clause, or does it instead spell out a higher functional head? Ideally, the same answer should hold for all instances of affected-topic *have*.

If *have* in these constructions is a main verb, then the sentences in (12) are biclausal, containing a main verb *have,* with the bracketed final constituent in each case treated as a reduced relative clause. Alternatively, one could claim that the sentences are monoclausal, and that *have* somehow fits into the sequence of auxiliary verbs.

Under the biclausal approach, sentences like those in (12) would be reduced versions of those in (13), while under the monoclausal view, they would be expanded versions of those in (14).

(13) a. That hotel has several hundred people [who are staying in it].
b. That room can only have one person [who is being interviewed in it] at a time.

(14) a. Several hundred people are staying in that hotel.
b. Only one person can be interviewed in that room at a time.

One way to consider this question is through the lens of constraints on the distribution of reduced relative clauses, as discussed by Deal (2009). As Deal shows, in clear cases of reduced relative clauses, the reduced relative cannot be separated from the head it modifies by a full, finite relative clause. This is illustrated by the sentences in (15), adapted from Deal (2009: 30).

(15) a. The teacher scolded the student [laughing in the hall].
b. The teacher scolded the student [who was wearing a red cap].
c. The teacher scolded the student [laughing in the hall] [who was wearing a red cap].
d. * The teacher scolded the student [who was wearing a red cap] [laughing in the hall].
e. The teacher scolded the student [wearing a red cap] [who was laughing in the hall].
f. * The teacher scolded the student [who was laughing in the hall] [wearing a red cap].

In the well-formed (15c), the reduced relative clause immediately follows the noun, while in the ungrammatical (15d), the reduced relative clause is separated from the head noun by a full, finite relative clause. The semantic content of the two relative clauses places no restrictions on their order, as can be seen in (15e) and (15f). As before, the reduced relative clause cannot follow the full, finite relative clause.[4]

Returning to the sentences in (12), we predict that if the bracketed constituents are reduced relative clauses, then it should not be possible to insert a full, finite relative clause before them, as has been done in (16).

(16) a. The hotel has several hundred people [who voted for the Liberals] [staying in it].
b. That room can only have one person [who needs a chair] [being interviewed in it at a time].

The fact that these sentences are perfectly well-formed suggests that the phrases *staying in it* and *being interviewed in it at a time* should not be treated as reduced relative clauses. We will therefore pursue the monoclausal approach, under which *have* spells out a functional head outside the verb phrase. We thus depart from Brunson & Cowper's (1992) account, in which *have* was

[4](15f) is well-formed if *laughing in the hall* is analysed as a participial adjunct to the verb phrase, meaning something like 'while laughing in the hall'. This reading is irrelevant to the point at hand.

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claimed to be a main verb assigning underspecified θ-roles to its internal and external arguments.[5] However, we retain their claim that the subject of *have* in what Harley (1997) calls the locative *have* construction is the topic of the sentence, while the rest of the clause is the comment (Gundel 1974). Essentially, then, a sentence like (17a) has an interpretation similar to that of (17b).

(17) a. My pocket has a hole in it.
b. As for my pocket, there is a hole in it.

2.3. *Have*-sentences and presentational *there* constructions

Having rejected the biclausal account of sentences like (12), and taking note of the near-synonymy of the two sentences in (17), it makes sense to compare affected-topic *have* sentences to presentational *there* sentences. Could they perhaps have a common source?

In fact, while the sentences in (18) express very similar meanings, there are crucial differences between the two constructions.

(18) a. Johan's garden has six kinds of tulips in it.
b. There are six kinds of tulips in Johan's garden.

First, while *there* sentences, like those in (19), exhibit the well-known Definiteness Effect (Milsark 1974), no such effect is observed with topic *have*, as shown in (20).

(19) a. There is a trophy in that box.
b. * There is all the food in that box.
c. * There are the trophies in that box.
(20) a. This box has a trophy in it.
b. This box has all the food in it.
c. This box has the trophies in it.

Second, while the relation between the associate and the locative in a *there*-sentence can be completely incidental—in fact the locative can be absent altogether—the subject in a topic-*have* sentence must bear a closer relation to the object.

(21) a. There have been many heated arguments in this room.
b. There are frequent tornadoes in Oklahoma.
c. There are many excellent museums in New York.
d. There are no more wooly mammoths.
(22) a. * This room has had many heated arguments in it.
b. * Oklahoma has frequent tornadoes in it.
c. * New York has many excellent museums in it.
d. * It$_{expl}$ has no more wooly mammoths.

I conclude that the affected-topic *have* construction is not just an alternate form of the existential/ presentational *there* construction.

[5]See also Cowper (1989), Belvin (1993), Ritter & Rosen (1996), and Harley (1997) for other implementations of the insight that the interpretation of *have* depends on the nature of its arguments.

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On the other hand, the affected-topic *have* construction cannot be treated as simply a way of indicating aboutness topics, since it is subject to constraints that do not hold, for example, of the *as-for* topic construction. As shown in (23) and (24), many *as-for* sentences cannot be rephrased as topic-*have* sentences.

(23) a. As for the soccer game, I'm playing my new vuvuzela at it.
b. * The soccer game has me playing my new vuvuzela at it.

(24) a. As for Her Majesty's visit, there's a lot of work to do at it.
b. * Her Majesty's visit has a lot of work to do at it.

In addition, unlike *as-for* topics, the subject in a topic-*have* sentence must be affected in some way by the situation described, as illustrated in (25).

(25) a. Lake Ontario has many zebra mussels in it.
b. ?? Lake Ontario has my boat in it.
c. O brave new world, that has such people in it!
d. ?? Toronto has some new cars in it.

Having shown that the topic-*have* construction is not simply a variant of these other two constructions, let us now explore the syntactic structure of affected-topic *have* sentences.

3. WHERE IN THE CLAUSE DOES TOPIC *HAVE* APPEAR?

Before looking at the structure of sentences containing affected-topic *have* in particular, I will first make explicit some assumptions about how inflectional elements work and how the English clause in general is structured.

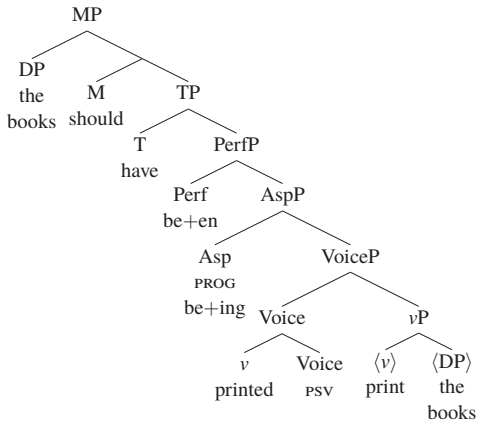
I assume a realizational approach to morphology (Halle & Marantz 1993, 1994, Marantz 1997), in which auxiliary verbs like *be, have,* and *do* are inserted postsyntactically to spell out heads bearing marked inflectional features (Cowper 2010; Bjorkman 2011). Lexical verbs, by contrast, consist of an acategorial root merged with a category-determining head *v* (Harley 2005, among others). External arguments are introduced by a Voice head above *v*P (Kratzer 1996), and the lexical verb moves to Voice, but no higher. This last assumption is consistent with standard assumptions about verbs in English since at least Pollock (1989). Finally, I assume that *v* has an unvalued inflectional feature that, if not valued by Voice, probes upward (Zeijlstra 2012; Bjorkman & Zeijlstra 2014) and Agrees with the lowest inflectionally marked head it finds, spelling out that head as verbal morphology on *v*. If no such head is found, the verb is spelled out as a bare stem.

An English clause containing all possible auxiliaries is shown in (26). Here, the verb moves to Voice and is realized as *printed,* spelling out the marked feature PSV of Voice. The Asp and Perf heads are spelled out by *be,* which permits their inflectional features to be realized. T is realized by *have*, and the modal *should* occupies the Modal head. The presence of all of these auxiliary elements will make it possible to determine where affected-topic *have* fits into the picture.

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(26) a. The books should have been being printed.

b.



First, we can see from the simple passive clauses in (27) that affected-topic *have* appears above the passive VoiceP, since it precedes the passive participle in (27a). However, notice that it seems to replace the usual passive auxiliary *be,* carrying the past-tense morphology borne by *be* in (27b) and (27c).

(27) a. That park **had** several benches vandalized in it yesterday.
b. There **were** several benches vandalized in that park yesterday.
c. Several benches **were** vandalized in that park yesterday.

Now consider the active progressive clauses in (28).

(28) a. That park **had** many people sleeping in it.
b. There **were** many people sleeping in that park.
c. Many people **were** sleeping in that park.

The fact that it is the main verb *sleep* that bears the progressive participial morphology tells us that affected-topic *have* merges above the progressive Aspect head, since it does not block the establishment of an Agree relation between the lexical verb and Asp. As in (27) above, affected-topic *have* seems to take the place of auxiliary *be,* carrying the past-tense morphology borne by *be* in (28b) and (28c). The same holds of the progressive passive constructions in (29); note that here *have* stands in for the progressive auxiliary, while the passive auxiliary appears as usual.

(29) a. That room **has** a man being interviewed in it.
b. There **is** a man being interviewed in that room.
c. A man **is** being interviewed in that room.

Interestingly, however, sentences like (30) are possible. Here, *have* seems to be substituting for the lower, passive auxiliary *be*, while the higher, progressive auxiliary *be* remains.

(30) a. ? That room is **having** a man interviewed in it.
b. The teacher is **having** several students relocated near her.

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However, these sentences are interpreted as either experiencer or causative *have* constructions (Bjorkman & Cowper 2013), not as affected-topic *have* constructions. I assume, uncontroversially, that experiencers, unlike other affected arguments, are necessarily sentient. This means that the subject of an experiencer *have* construction must somehow be interpreted as sentient, resulting in the slightly strange status of (30a) compared to (29a). The room – perhaps its availability – is affected in (29a), but it must *experience* the state of affairs described by the passive verb phrase in (30a). I return to the structural differences between experiencer *have* and affected-topic *have* constructions in §4.1.

Now, consider the sentences in (31). Here, it can be seen that affected-topic *have* – shown in boldface – appears between the perfect auxiliary *have* and the progressive Asp head, again replacing the progressive auxiliary *be*. In (32) we see again see affected-topic *have* below the perfect auxiliary *have*, but this time replacing the passive auxiliary *be*.

(31) a. That house has **had** several drug dealers living in it.
b. There have **been** several drug dealers living in that house.
c. Several drug dealers have **been** living in that house.

(32) a. That yard has **had** many flowers planted in it.
b. There have **been** many flowers planted in that yard.
c. Many flowers have **been** planted in that yard.

Putting all the inflectional pieces together, we have the pattern shown in (33).

(33) a. That prison may have **had** people being interrogated in it since the Civil War.
b. There may have **been** people being interrogated in that prison since the Civil War.
c. People may have **been** being interrogated in that prison since the Civil War.

To sum up what we have observed so far, affected-topic *have* appears below Mod and T, which host the modal *may* and the perfect auxiliary *have* respectively, but above Asp, which is spelled out in (33) by *being*, and Voice, where the passive participle appears. The relation between affected-topic *have* and the Perf head is not yet entirely clear; while in the sentences in (31) and (32) it seems to occupy the position of the Perf head, it also appears in sentences that lack this projection, such as (27), (28), and (29). When affected-topic *have* appears, it can replace copular, passive, or progressive *be*, if that instance of *be* would otherwise immediately follow *have*.

Given its position within the auxiliary sequence, a logical question to ask at this point is whether affected-topic *have* should be treated as an auxiliary.[6] If it is an auxiliary, then we would expect it to behave like the modals, perfect *have*, and progressive and passive *be*: if it is the first element in the verbal sequence, it should appear in T, and thus invert in matrix questions, precede clausal negation, and host the dependent negative marker *n't*. We would also expect that it should be unable to co-occur with *do*-support. None of these expectations is borne out, as can be seen in the following examples comparing the perfect auxiliary *have* with affected-topic *have*.[7]

[6]It is not obvious that the distinction between auxiliaries and main verbs per se has any real status in the theory, given the number and variety of functional heads in the clause, but for the moment the traditional nomenclature will do. I assume that the canonical auxiliary properties are observed when the auxiliary in question appears in T, and are thus more properly thought of as properties of T.

[7]For the purposes of this paper, I set aside those (primarily British) varieties of English in which main-verb *have* hosts *n't*, and inverts in questions.

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(34) Perfect *have* with negation and in questions:
  a. The money **has** been deposited in the account.
  b. i. **Has** the money been deposited in the account?
     ii. * **Did** the money **have** been deposited in the account?
  c. i. The money **hasn't** been deposited in the account.
     ii. * The money **didn't have** been deposited in the account.

(35) Affected-topic *have* with negation and in questions:
  a. That account **had** a lot of money deposited in it last week.
  b. i. * **Had** that account a lot of money deposited in it last week?
     ii. **Did** that account **have** a lot of money deposited in it last week?
  c. i. * That account **hadn't** a lot of money deposited in it last week.
     ii. That account **didn't have** a lot of money deposited in it last week.

This non-auxiliary-like behaviour is shared by two other uses of *have:* Causative and Experiencer *have.*

(36) Causative *have:*
  a. The teacher **had** the children clean the blackboard.
  b. i. * **Had** the teacher the children clean the blackboard?
     ii. **Did** the teacher **have** the children clean the blackboard?
  c. i. * The teacher **hadn't** the children clean the blackboard.
     ii. The teacher **didn't have** the children clean the blackboard.

(37) Experiencer *have:*
  a. The boxer **had** his nose broken by his opponent.
  b. i. * **Had** the boxer his nose broken by his opponent?
     ii. **Did** the boxer **have** his nose broken by his opponent?
  c. i. * The boxer **hadn't** his nose broken by his opponent.
     ii. The boxer **didn't have** his nose broken by his opponent.

The proposal to be presented in the next section builds on the similarities between these two constructions and affected-topic *have.*

4. Proposal

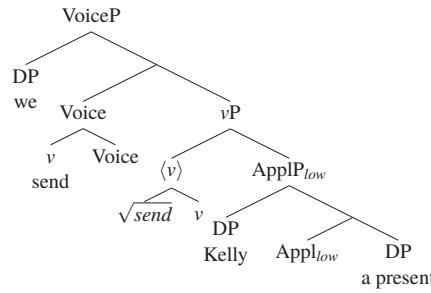
I propose that affected-topic *have* spells out an applicative head that merges immediately above viewpoint Aspect. To place this proposal in context, it is useful to first review other applicative heads that have been proposed for English, beginning with Pylkkänen's (2008) low Appl, and then turning to Kim's (2011) peripheral Appl, also discussed in Bjorkman & Cowper (2013).

As a class, applicative heads provide a specifier position in which an additional argument can be introduced. They also typically add a case feature, which usually checks case on a lower argument, but sometimes assigns case to the specifier of the applicative head itself. Finally, applicative heads carry semantic information that determines the role of the argument they introduce in the eventuality described by the clause.

The low applicative head, proposed by Pylkkänen (2008), merges below the main verb and takes two nominal arguments. It relates the direct object and the indirect object, with double-object verbs like *give* and *send*, as illustrated in (38).

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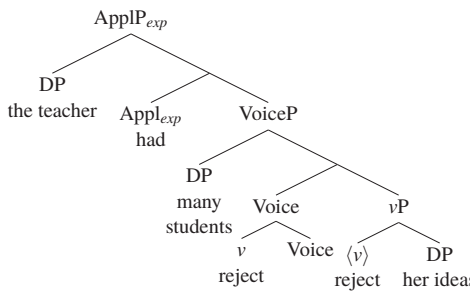
(38) We sent Kelly a present.



Pylkkänen also argues that in some languages, though not in English, there is also a high Applicative head, merging above *v*P but below Voice. We set this head aside.

An even higher applicative head, peripheral Appl, was proposed by Kim (2011). She argues that this Appl appears in adversity passive constructions in Japanese and Korean. Peripheral Appl appears above Voice, and relates the eventuality described by VoiceP to an individual positively or negatively affected by the event. As argued by Bjorkman & Cowper (2013), this Appl head is also used in English, and is spelled out by *have*, giving the so-called experiencer *have* construction illustrated in (39).

(39) The teacher **had** many students reject her ideas.

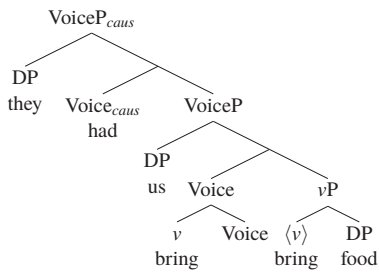


To complete the picture, consider the causative *have* construction in (40), which is similar in some respects to the experiencer *have* construction. The difference, as Bjorkman & Cowper (2013) propose, is that instead of a peripheral Appl, causative *have* sentences have a second, higher Voice head whose specifier is the causer. I shall refer to this higher Voice head as Voice$_{caus}$.[8]

[8]It is entirely possible that all argument-introducing heads form a single class, with their differences following from the different interpretable features that characterize the members of a single category, or from contextual properties. See Wood & Marantz (to appear) for a concrete proposal along the latter lines. A full exploration of this possibility is beyond the scope of this paper; I therefore keep to the familiar category labels for convenience and clarity.

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(40) They had us bring food (for the party).



We now turn to a detailed account of the affected-topic *have* construction, arguing that it cannot be reduced to any of the applicative or Voice constructions already proposed for English.

4.1. The structural position of affected-topic Appl

Our working hypothesis is that affected-topic *have* spells out some kind of Applicative head, just as causative and experiencer *have* do. For concreteness, I refer to this head as Affected-topic Appl (Appl$_{a-t}$).

Consider the meaning difference between the sentences in (41).

(41) a. The country club is **having** all the new members **visit** its facilities today.
b. The country club **has** all the new members **visiting** its facilities today.

Sentence (41a) can be interpreted as causative, where the country club invited all the new members, or – less plausibly – as an experiencer *have* construction, where somehow all the new members turned up unexpectedly and are straining the resources of the club. In contrast, (41b) describes, in a relatively neutral way, the fact that all the new members are visiting the facilities today. This meaning difference is due to the position of *have* relative to the other inflectional elements in the clause. In (41a), *have* bears the participial morphology determined by Asp, which indicates that the causative Voice head, or the peripheral Appl head, merges either in or below the Asp head. In (41b), on the other hand, it is the main verb *visiting* that carries the participial morphology, indicating that Appl$_{a-t}$ does not intervene between v and Asp. It must therefore merge above AspP.

We can conclude from this that Appl$_{a-t}$ is not the same element as either the Voice$_{caus}$ head found in the causative *have* construction, or Kim's (2011) peripheral Appl$_{exp}$, found in the experiencer *have* construction. Rather, it is an even higher applicative head, merging no lower than immediately above Asp.[9]

We now turn to the relation between Appl$_{a-t}$ and the Perf head. Consider the sentences in (42).

(42) a. Our attic has **had** squirrels living in it in recent months.
b. There have **been** squirrels living in our attic in recent months.
c. Squirrels have **been** living in our attic in recent months.

[9]It is also distinct from Cuervo's (2003) affected applicative, which appears below Voice.

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Comparing (42a) with (42b) and (42c) shows that affected-topic *have*, shown in boldface in (42a), carries the perfect participial morphology that would otherwise be carried by *be.* This means that Appl_{a-t} must merge either in or below the Perf head, so as to enter into an Agree relation with it and spell out the perfect participial morphology.

We now know roughly where Appl_{a-t} appears in the structure, and that this position is distinct from that occupied by the heads that characterize causative and experiencer *have* constructions. Appl_{a-t} merges either in or below Perf, but above Asp, while Appl_{exp} and Voice_{caus} merge either in or below Asp. Let us now consider the precise structural relation between Appl_{a-t} and Perf on the one hand, and between Appl_{exp}/Voice_{caus} and Asp, on the other. Specifically, are the applicative/voice heads structurally separate from the aspectual heads, or are they part and parcel of the aspectual heads?

First, note that the applicative/voice heads can appear in clauses that lack their corresponding aspectual head. The sentences in (43) exhibit causative/experiencer *have* but no progressive aspect, while those in (44) include affected-topic *have* but no perfect aspect. In these sentences, the applicative head carries the matrix tense morphology.

(43) a. The manager **had** the workers close the store.
b. The teacher **had** several students heckle him during the class.

(44) a. This house **had** a red car sitting beside it.
b. That table **had** a bicycle disassembled on it this morning.

It is clear from these examples that in all of the constructions under examination – causative, experiencer, and affected-topic *have* – *have* can enter into an Agree relation with a higher inflectional head. The fact that in none of these constructions can *have* undergo subject-aux inversion or precede clausal negation tells us that these instances of *have* do not appear in T. Rather, like main verbs, they enter into an Agree relation with an inflectional head, and spell out the features of that inflectional head in situ.[10] Thus, if the applicative heads form their own projections, with peripheral Appl between Asp and Voice, and Apple_{a-t} between Perf and Asp, we expect that they will enter into an Agree relation with whatever inflectional head appears above them. Once this Agree relation has been established, the feature of the higher inflectional head will be spelled out on *have* in the Appl head, obviating the need to spell them out on the higher head.

This account, together with the realizational account of English auxiliaries proposed by Cowper (2010) and expanded by Bjorkman & Cowper (2013), explains why affected-topic *have* seems to substitute for various instances of *be*, as seen in (42) and many earlier examples. The relevant parts of the structures for (42a) and (42c) are shown in (45).

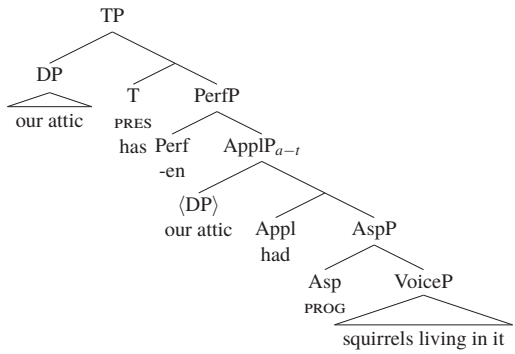
In (45a), there are two Agree relations established: one between the main verb *live* and Asp[PROG], and the other between Appl_{a-t} and Perf. The verb is therefore spelled out inside VoiceP as *living,* and Appl_{a-t} is spelled out as the participle *had.*

In (45b), the main verb still Agrees with Asp[PROG] and is spelled out as *living,* but Appl_{a-t} is absent from the structure. There is no lower verbal head for Perf to agree with, and its inflectional features are therefore spelled out in Perf, supported by the default copula BE. The complementarity of affected-topic *have* and auxiliary *be* thus follows automatically.

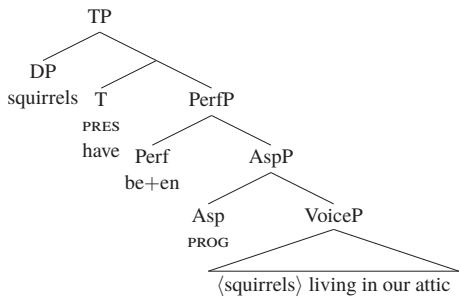
[10]Main verbs arguably move as far as Voice; the point here is that they spell out the features of a higher inflectional head without moving to that head.

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(45) a. Our attic has had squirrels living in it.



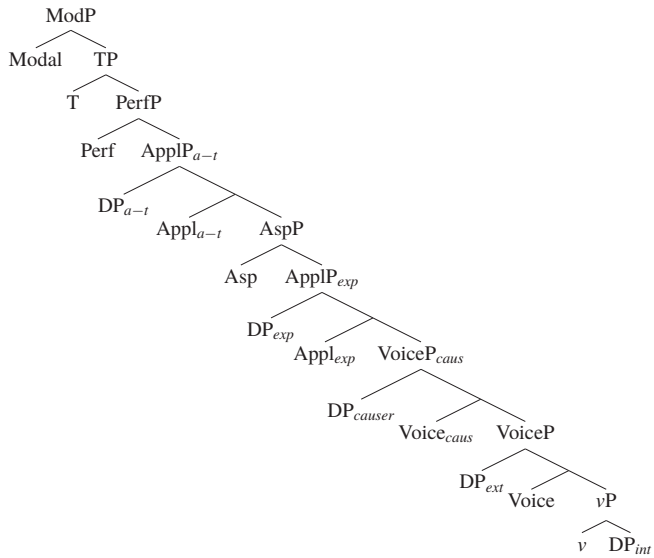
b. Squirrels have been living in our attic.



We have arrived at the articulated structure in (46), omitting non-thematic specifier positions for the moment. I turn next to the syntactic position of the DP following affected-topic *have*.

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(46)



4.2. The position of the deposed subject

I have argued that affected-topic *have* constructions contain a high applicative head, Appl$_{a-t}$, which licenses a specifier that surfaces as the subject of the clause. This raises the question of what happens to the nominal that would otherwise have been the subject of the sentence, which I shall refer to as the deposed subject. Does it remain in its Merge position, or does it move to some other non-thematic specifier position? Assuming that the affected-topic DP receives the case normally assigned to the subject, how does the deposed subject receive case?

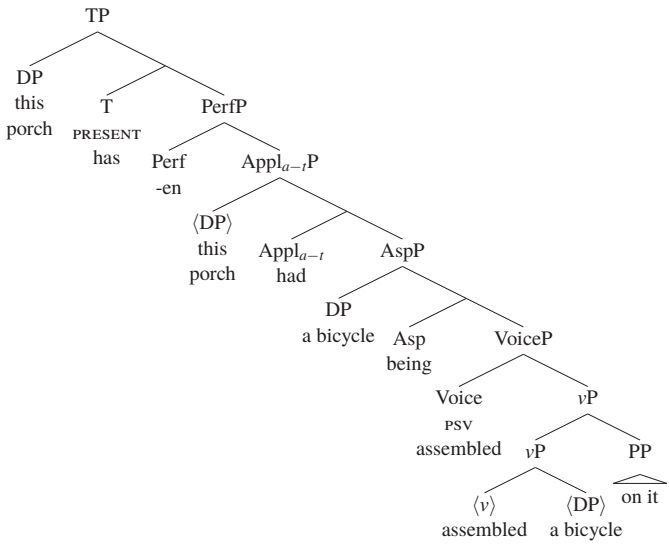
As with affected-topic *have* itself, the ordering of the deposed subject relative to the elements of the auxiliary sequence can help to diagnose its structural position.

In the affected-topic *have* construction in (47a), the deposed subject is *a bicycle*. Since the clause is passive, and since *a bicycle* precedes the main verb, we know that *a bicycle* cannot have remained in its Merge position as the internal argument. Moreover, it cannot have moved only as far as [Spec,VoiceP], since it precedes *being*. Crucially, *a bicycle* must appear between Appl$_{a-t}$, spelled out by *had,* and Asp, spelled out by *being*. Since we know that Appl$_{a-t}$ is merged immediately above AspP, we can conclude that *a bicycle* must have moved to [Spec,AspP], as shown in (48).

(47) a. This porch has (always) **had** a bicycle being assembled on it.
b. A bicycle has **been** being assembled on this porch.

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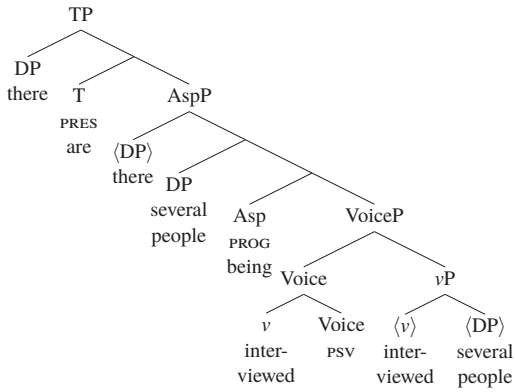
(48)



Why should the deposed subject move to this position? The answer, I propose, can be found in the phasal structure of the clause. I follow Wurmbrand (2013: 623) in assuming a dynamic theory of phases, according to which "the highest projection of a cyclic domain constitutes a phase." Wurmbrand assumes two cyclic domains in the clause, the Aspect domain and the T+C domain. This is consistent, *mutatis mutandis,* with Harwood's (2013) proposal that the progressive Aspect head determines the inner phase of the clause. Movement to [Spec,AspP] thus places the deposed subject at the edge of the inner phase, sufficiently local to the Appl$_{a-t}$ head to receive case from it. This result also parallels evidence adduced by Bjorkman & Cowper (2015) that in *there*-constructions like (49), the associate, also effectively a deposed subject, moves to [Spec,AspP], thereby becoming accessible for case-checking with T.

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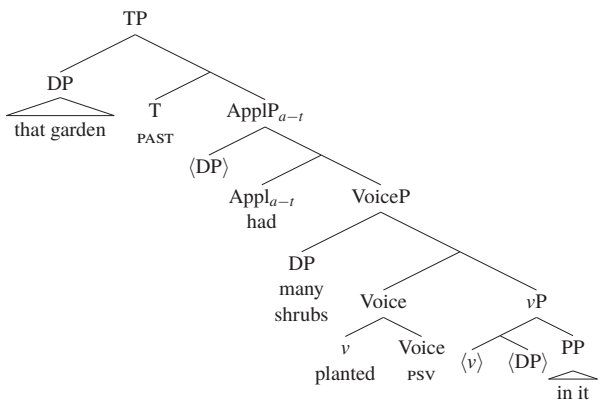
(49) There are several people being interviewed (in that room).



To illustrate the dynamic definition of phases, consider the non-progressive affected-topic *have* sentence in (50). Here, the highest projection in the Aspect domain is the passive VoiceP, and the deposed subject is the thematic object of the passive verb. Again, it has moved to the edge of the inner phase, this time to [Spec,VoiceP].[11]

(50) a. That garden had many shrubs planted in it.

b.



Let us return briefly to affected-topic *have* sentences like (51) in which *have* is the only verbal element.

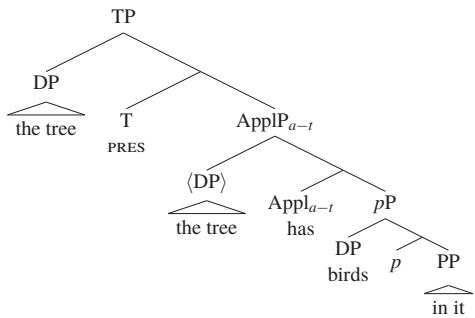
[11] As pointed out by a reviewer, this derivation raises the question of whether [Spec,VoiceP] functions as an escape hatch for the lower clausal phase. Indeed, given most versions of phase impenetrability, the internal argument in a biphasal passive clause would need such an escape hatch. However, [Spec,VoiceP] is not just an escape hatch; in active clauses, it is the merge position of the external argument, and in passive clauses with expletive *there* subjects, it is the surface position of the thematic internal argument and the merge position of *there* (Bjorkman & Cowper 2015).

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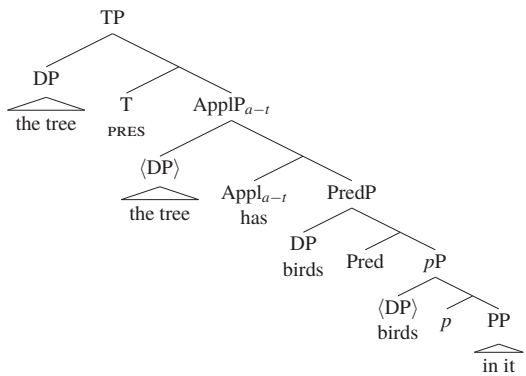
(51) The tree has birds in it.

The immediately foregoing discussion raises the question of whether a sentence like (51) has an inner phase, and if so, what category heads the phase. There are two possible approaches, illustrated by the two structures in (52).

(52) a. Monophasal clause: deposed subject remains in situ.



b. Biphasal clause: Pred determines the inner phase.



In either structure, *birds* surfaces as the specifier of the projection immediately below Appl$_{a-t}$, and is thus local enough to receive Case from it. The question of how much functional structure is required for small clauses goes beyond the scope of this paper, and I therefore set it aside.

5. CONCLUSIONS AND RESIDUAL QUESTIONS

If the account just provided for affected-topic *have* is on the right track, then English has a fairly wide range of heads spelled out by *have,* occupying distinct positions in the clause. It is possible, if slightly contrived, to construct a single sentence containing four instances of *have*, spelling out the perfect auxiliary, Appl$_{a-t}$, Appl$_{exp}$, and Voice$_{caus}$ respectively. For clarity, the sentences in (53)

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build up the structure step by step, and the tree in (54) shows the final result. In the sentences in (53), the material present prior to the current step is bracketed where it makes the steps clearer.

(53) a. Starting point:
Several students' parents sprayed maple syrup on the teacher in that classroom.

b. Adding Voice$_{caus}$:
Several students had [their parents spray maple syrup on the teacher in that classroom.]

c. Adding Appl$_{exp}$:
The teacher had [several students have their parents spray maple syrup on her in that classroom.]

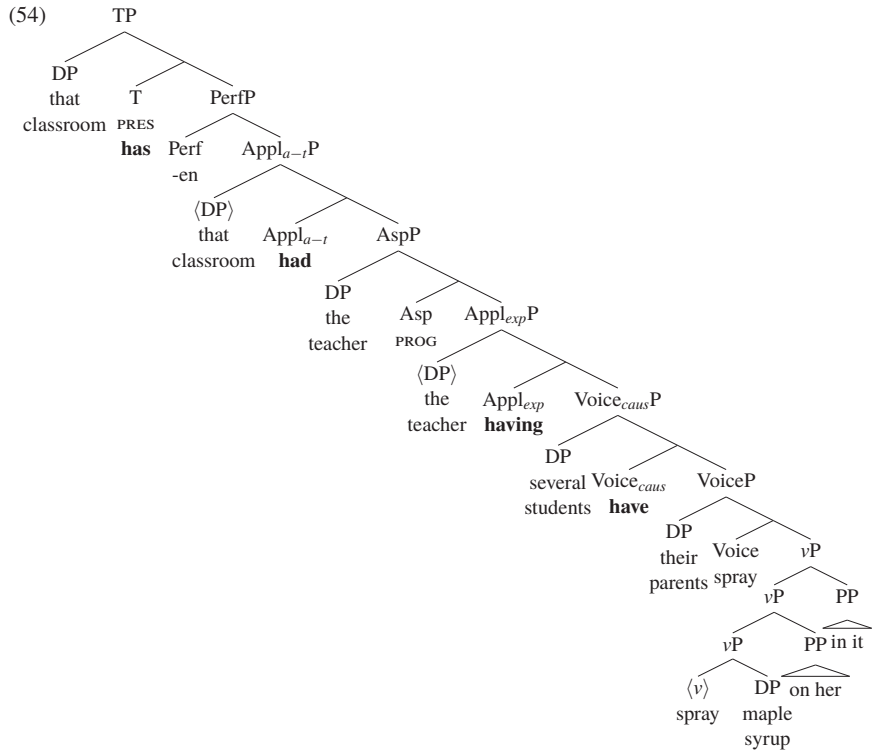
d. Adding Progressive aspect:
The teacher was having several students have their parents spray maple syrup on her in that classroom.

e. Adding Appl$_{a-t}$
That classroom had [the teacher having several students have their parents spray maple syrup on her in it.]

f. Adding Perf:
That classroom has had the teacher having several students have their parents spray maple syrup on her in it.

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(54)



It would be useful at this point to take stock of the argument-introducing heads we have seen, and also to consider whether a generalization can be drawn about the heads spelled out by *have*. The argument-introducing heads are listed in (55), along with the role assigned to their specifier, the highest complement they can select, their morphological spellout, and their case-assigning properties, if any. They are ordered from highest to lowest in the clause structure. The categorizing head *v* has been included to make the structural hierarchy clear, though it does not always introduce an external argument.

(55)

Name	**Specifier**	**Complement**	**Spellout**	**Case assigned to**
Appl$_{a-t}$	affected topic	AspP	*have*	deposed subject
Voice$_{caus}$	causer	VoiceP	*have*	[Spec,VoiceP] (causee/lower agent)
Appl$_{exp}$	experiencer	VoiceP	*have*	[Spec,VoiceP] (transitive subject)
Voice	agent/doer	*v*P	none	highest internal argument
v	theme/none	Appl$_{lo}$/theme	none	N/A
Appl$_{lo}$	recipient	theme	none	notional direct object

The table is divided into three sections. The top three heads all merge above Voice, and are all spelled out with *have*. The next two merge above (or, in the case of *v,* include) the lexical verb,

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and the last, $Appl_{lo}$, appears as the complement of the lexical verb. The two Voice heads fit neatly into the picture, being spelled out in exactly the same way as applicative heads merged near them, and having essentially the same argument-structure and case-assigning properties as applicatives. This pattern suggests that the division between Voice and Appl might be artificial, and that all of these heads, with the possible exception of the category-determining head *v*, should be seen as belonging to a single class of argument-introducing heads. Pursuing this idea, and assuming that the functional heads of a given language are characterized in terms of interpretable formal features (Chomsky 2000), a reasonable question to be asked is what features characterize the heads listed in (55), and to what extent the features characterizing argument-introducing heads differ from language to language.

Alternatively, one could pursue the line of thinking put forth by Wood & Marantz (to appear), who propose a single argument-introducing head they call i*, and derive the categorial, semantic, and morphological properties of any given instance of i* from the structural context in which it appears.

Setting aside the technical implementation, at this point we can observe that in English, argument-introducing heads that merge above Voice are consistently spelled out by *have*. This is not particularly surprising, since arguably the main verb moves from its merge position in *v* to the Voice head. Intriguingly, though, *have* also spells out whatever head expresses clausal possession, as well as what Bjorkman & Cowper (2016) have called possessive modality.[12] Both of these constructions, like the heads spelled out by *have* in (55), take a complement and introduce an external argument. Essentially, then, one might propose that *have* is the default spellout, in English, of a transitive head. However, this leaves aside the perfect auxiliary *have*, which spells out a T head, behaves in all respects like a true auxiliary, and does not introduce an argument in its specifier. The possible assimilation of auxiliary *have* into the analysis just presented must await further work.

Abbreviations

a-t = affected topic; Appl = applicative; Asp(P) = aspect (phrase); caus = causative; D(P) = determiner (phrase); exp = experiencer; expl = expletive; ext = external argument; int = internal argument; M(P) = modal(phrase); PSV = passive; Perf(P) = perfect (phrase); P(P) = preposition(al phrase); PRES = present; PROG = progressive; [±R] = ±Referential; Spec = specifier T(P) = tense (phrase); *v* = verbalizing head; *v*P = verb phrase; Voice(P) = voice (phrase).

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[12]There is a large literature on the syntax of clausal possession, and specifically on its expression by either *have* or *be*. See Boneh & Sichel (2010) and Bjorkman & Cowper (2016), and the references cited therein.

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