A Simpler Analysis of English Negation (and the Bulgarian Definite Marker)

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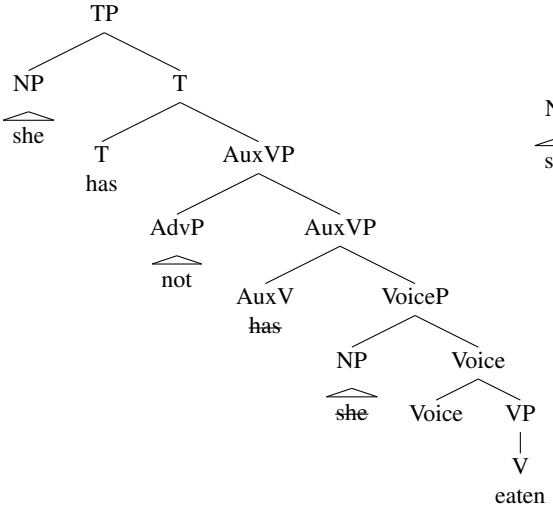
Abstract

I propose a maximally simple analysis of English negation in which both *not* and *n't* are adjuncts. *Not* is a phrasal adjunct that can attach to any category, while *n't* is a head adjunct that strictly selects the category AuxV. I show that this proposal captures all the facts of English negation, without needing a NegP or even multiple NegPs, as other recent work proposes (e.g., Thoms et al. 2023). There is also no need for a distinction between sentential negation and constituent negation. *Do*-support follows from the same mechanisms as insertion of auxiliaries generally. I also extend the analysis of *n't* to the definite marker in Bulgarian, and show that it accounts for the placement of this element without the need for post-syntactic mechanisms (as in, e.g., Adamson 2022). Crucial to the proposal is the idea that the syntax is built top-down or left-to-right rather than bottom-up as in most approaches.

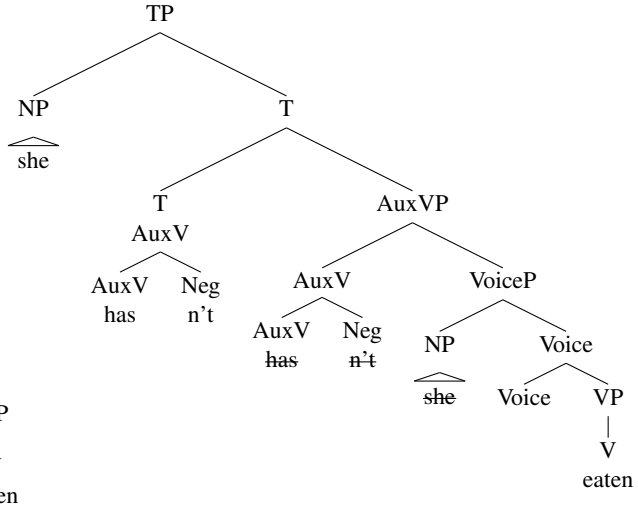
1 Introduction

In this paper, I propose a maximally simple analysis of negation in English. I propose that negation is always an adjunct. It comes in two forms: a phrasal adjunct *not*, and a head adjunct *n't*. The phrasal adjunct attaches to a phrase, while the head adjunct attaches to a head (always an auxiliary verb). The following diagrams illustrate the proposal with one possible placement of *not*, that typically referred to as "sentential negation":

(1) a. *syntax of English* not:



b. *syntax of English* n't



I assume a fairly standard clause structure, with the subject originating in Spec-VoiceP (Kratzer 1996) and moving to Spec-TP, and the highest auxiliary moving to T, but nothing hinges on this particular structure. I spell out all aspects of the proposal in more detail in sections 2–3.

This proposal is to be contrasted with those current in the literature, which postulate multiple NegPs that have both a head position and a specifier position for negation. Proposals differ, but they all have in common that there is a Neg head that heads a NegP and NegP has a specifier. In many proposals, there is more than one NegP. For instance, Thoms et al. (2023) propose that there is a low NegP and a high NegP in English. The low NegP occurs below T, while the high NegP occurs above TP. The actual pronounced negative elements (*not*, *n't*, and dialectal items) are "Neg-OPs" occurring in the specifiers of these projections. The Neg heads of these projections are null.

The chief advantage of the proposal I make here is its simplicity. Semantically, negation is a single operator, ¬. In the semantics literature, that is all it is (see section 4). Proposing a NegP with two potential positions for negative elements—head and specifier—is already postulating much more than is necessary. Proposing two NegPs only compounds this redundancy. As I will show, the claim in Thoms et al. (2023) that there is semantic motivation for two distinct NegPs is mistaken. Both the low and the high negations in English have to be able to have the same semantics.

In my proposal, both phrasal *not* and head *n't* are semantically ¬. From both positions in (1), negation takes scope over everything below T. If an auxiliary with *n't* moves to C, its scope domain becomes even larger. As I will show, this plus the possibility of reconstruction suffices to explain all of the facts of English negation. Postulating multiple NegPs is unmotivated.

A further simplification is achieved by making no distinction between sentential negation and constituent negation. Both have the phrasal adjunct *not* adjoined to some phrasal constituent. *Not* is in fact totally non-selective and can adjoin to any phrase. What is referred to as "sentential negation" is just *not* adjoining as high as it can subject to the following constraint:

(2) * *not* H[T] (a head bearing T features), where *not* precedes and c-commands H[T] and every CP node that dominates H[T] also dominates *not*

The only place *not* is banned in the clause is a position to the left of the finite verb and/or T. The highest *not* can adjoin given this constraint is to the highest AuxVP, as in (1a), since the highest AuxV can move across *not* to T (and must, given 2). This constraint, combined with otherwise free placement of *not*, accounts for all of the facts, as I will show. These facts include *do*-support, which is implemented using only the same mechanisms as insertion of any auxiliary.

I also extend the analysis of English *n't* to the Bulgarian definite marker, which has a distribution strikingly similar to that of English *n't*. The Bulgarian definite marker has been very problematic and has previously been analyzed as requiring post-syntactic movement (Embick & Noyer 2001, Harizanov 2018, Adamson 2022). The analysis that I propose requires nothing more than what we need for the syntax anyway. I assume that there is only a single component of grammar for putting complex forms together. This is the syntax. It puts both complex heads together, in what is the traditional domain of morphology, and phrases, which is the traditional domain of syntax. Unlike other syntactic approaches to morphology (e.g., Distributed Morphology, Halle & Marantz 1993), I do not assume the existence of post-syntactic operations that perturb the output of the syntax. I assume that morphemes are put where they appear by the syntax. As I will show, all the facts of English negation and the Bulgarian definite marker are compatible with such a view. We do not need post-syntactic operations of any kind, or any post-syntactic level of grammar.

Sections 2 and 3 spell out the proposal in detail and show how it accounts for all the facts of English negation. Section 2 analyzes phrasal *not*, while section 3 analyzes affixal *n't*. Section 4 addresses "high" and "low" negation from the semantics literature and shows that all the facts are compatible with the current proposal. Importantly, they do not motivate two distinct NegPs in the clause, contra Thoms et al. (2023). Section 5 shows how the Scots data presented in Thoms et al. (2023) can be captured in the proposal. The Scots facts also do not motivate two distinct NegPs. Section 6 extends the proposal to the placement of the definite suffix in Bulgarian, whose distribution is strikingly similar to that of English *n't*. Section 7 concludes with some implications and further possible extensions.

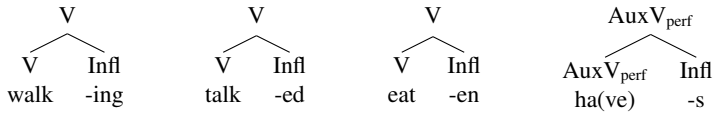
2 The Proposal for *Not*

The basic idea of the proposal here is that negation in English is an adjunct. This is a very old idea; it is probably the traditional one, since at least Jespersen (1917). It has been revived more recently in the theoretical literature in the work of Zeijlstra (2004) and in the analysis of *do*-support in Baker (1991), Bruening (2010b). I adopt the adjunct view here, and argue that it suffices to explain all of the facts. I start by spelling out the proposal for the phrasal adjunct *not* in this section, and then moving on to the head adjunct *n't* in section 3.

2.1 A Brief Note on Verbal Morphology

Before turning to *not*, it is necessary to provide as background an analysis of verbal morphology in English. I assume that all English verbs have to have an inflectional suffix, although this is often null. I formalize this by saying that everything of category V selects an Infl head. Merge is largely driven by selection (as I spell out below), so whenever a V is merged into the syntax, an Infl node has to be merged with it to satisfy its selectional requirements. AuxVs are a subcategory of V, so they, like main verbs, will always select and merge with an Infl head:

(3)



I assume that the features on V contributed by the Infl node are licensed through an Agree relation (Chomsky 2000) with the next higher head, as in Wurmbrand (2012). This licensing could take the form of feature checking (Chomsky 1993) or feature valuation (Wurmbrand 2012), it does not matter here. For instance, any V immediately below the perfect AuxV *have* will Agree with *have*, which will license the *-en* Infl. The highest AuxV in a finite clause Agrees with T, which licenses tense and subject agreement features (for instance, present tense, third person singular in the final tree in (3)). In this analysis, there is no affix hopping, and head movement is not what assembles an inflected verb. There is only Merge (driven by selection) plus Agree.

With this background, we can turn to *not*.

2.2 The Distribution of *Not*

The proposal here is that *not* is an adjunct. In fact, it is a completely non-selective adjunct that can attach to any phrasal category. It can combine with NPs, PPs, APs, AdvPs, VoicePs, AuxVPs, CPs:

(4) a. not a novel, but a novella (NP)
b. not in the drawer (PP)
c. not red (AP)
d. not completely (AdvP)
e. They can't simply [**not** [do their homework]]. (VoiceP)
f. They couldn't have [**not** [been doing that]]. (AuxVP)
g. not that she would do that even if I told her to (CP)

There is one constraint, which is that *not* has to attach to the *left* of whatever it merges with.

Additionally, there is one location that *not* is banned from: to the left of the finite verb within a CP, either before or after the subject:

(5) a. * They not have been to Kazakhstan.
b. * Not they have been to Kazakhstan.

The order in (5a) is usually ruled out by saying that the finite verb must move across sentential negation *not*. It is not clear why (5a) would not be acceptable as an instance of constituent negation, however (it is not; it is simply ungrammatical). As for (5b), which is also not acceptable as constituent negation, one might say that the only category that *not* cannot attach to is TP. However, *not* actually is acceptable in this position if the verb has moved to C. This position is common in earlier English, for instance the writing of Jane Austen (Bruening 2017), but in current English it is still acceptable in a particular—formal—register (Schütze 2004):

(6) Have not the tens of thousands of words we have written on city planning sunk in? (Schütze 2004: 502, (20b))

It appears that the restriction here is relative: *not* cannot appear to the left of the highest verb. In (6), *not* can adjoin to TP when it follows the highest verb.

All of the examples so far have involved finite clauses, but a similar restriction holds in non-finite clauses, as well. *Not* is banned before the subject but allowed elsewhere:

(7) a. For it not to be obvious that we have tampered with this, ...
b. For it to not be obvious that we have tampered with this, ...
c. For it to be not (too) obvious that we have tampered with this, ...
d. * For not it to be obvious that we have tampered with this, ...

One might claim that the order in (7d) is ruled out because of an adjacency requirement between *for* and the subject, but this position is also ruled out in a variety of other non-finite clauses that lack *for*:

(8) a. Her not having done her part yet,...
b. * Not her having done her part yet,...
(9) a. What?! Me not worry?!
b. * What?! Not me worry?!

I take this to show that negation can never precede the subject if it does not follow a preposed finite auxiliary. If we follow Pullum (1982) in taking *to* to be an auxiliary verb, then the order in (7a) indicates that the highest non-finite verb can follow *not*, unlike the highest finite verb (the orders in (8a) and (9a) also indicate this).

I suggest that the generalization here is that *not* cannot precede any head with T-features. In my analysis, the morphology on each verb is the result of an Agree relation with the next higher head, as outlined in section 2.1. In finite clauses, the highest verb Agrees with T and bears T features. T, of course, bears T features inherently. So *not* cannot precede T or the highest verb in a finite clause. In non-finite clauses, I suggest, there is no Agree relation between T and the highest verb. So *not* can precede *to* in (7a) and the highest verb in (8a) and (9a) but cannot precede T in (7d), (8b), (9b). In (6), the verb that Agrees with T has moved to T, and then the complex head that includes both that verb and T has moved to C. All heads with T-features therefore precede *not*. In (5a), *not* precedes the verb that Agrees with T, which is not allowed. In (5b), *not* precedes both that verb and T itself.

I formalize the constraint as follows:

(10) * *not* H[T] (a head bearing T features), where *not* precedes and c-commands H[T] and every CP node that dominates H[T] also dominates *not*

This constraint does not rule out *not* adjoined to a CP, as in (4g) or a non-finite version:

(11) What would be strange is [$_{CP}$ not [$_{CP}$ for her to do that]], but ...

This is not ruled out because not every CP node that dominates H[T] also dominates *not*. The constraint also allows *not* to the left of any H[T] if it does not c-command H[T]:

(12) a. Not once has she ever shown off her wealth.
b. Not a single person came to my Flag Day party.

In these two examples, *not* is inside an XP (AdvP and NP), and so it does not c-command any H[T].

Note also that movement of the finite verb across negation is obligatory. In contrast, movement across adverbs is not (see Baker 1991, Bruening 2010b and references there):

(13) a. The students will not be told what the answer is.
b. * The students not will be told what the answer is.

(14) a. The students will probably be told what the answer is.
b. The students probably will be told what the answer is.

I take this to show that movement across negation is not just a side effect of a general head movement that takes place in English, it is specifically a response to the constraint in (10).

The constraint in (10) is, I believe, sufficient to describe the distribution of *not*, if *not* is otherwise a non-selective adjunct that can attach to anything. Of course, this description only holds if we make no distinction between sentential negation and constituent negation.

2.3 Sentential Negation versus Constituent Negation

Most researchers make a distinction between sentential negation and constituent negation, either explicitly or implicitly. However, work that has tried to actually justify such a distinction has been hard-pressed to do so. Various phenomena have been proposed to distinguish them, starting from Klima (1964), but these have never yielded consistent results (Jackendoff 1969, 1972, Ross 1973). Part of the problem is that it is not clear if the notion of sentential negation is a syntactic one, or a semantic one (see the discussion in Zeijlstra 2004). The question that concerns us here is the narrow one of whether we need to distinguish a sentential negation *not* from a constituent negation *not*. The broader question of whether there is a principled distinction between sentential negation and constituent negation in general is not something that I will attempt to answer definitively here (although I suggest that the distinction is only one of scope).

The description that is usually given for *not* is that sentential negation *not* must follow the first auxiliary verb of the (finite declarative) clause, and it triggers *do*-support if there would otherwise be no auxiliary verb. Constituent negation *not* appears elsewhere and does not trigger *do*-support.

The first thing to note is that the tests that have been proposed to distinguish sentential negation from constituent negation do not align with this description. For instance, constituent negation adjoined to the subject, which does not immediately follow the first auxiliary and does not trigger *do*-support (15a–c), passes all the tests for sentential negation. It passes Klima's (1964) tag question test, where only sentential negation can have a positive tag (15a); it passes Culicover's (1981) negative parenthetical test, where only sentential negation allows a negative parenthetical (15b); and it passes Zeijlstra's (2004) universal quantifier test, where only sentential negation takes scope over subsequent universal quantifiers (15c):

(15) a. Not a single student passed the exam, did they?
b. Not a single respondent said, I don't think, that they would prefer lead in their water.

c. Not a single student answered every question. (Neg > every)

The second thing to note is that it is also not true that constituent negation does not trigger *do*-support. Many instances do not, for instance *not* adjoined to the subject in (15), and the examples below:

(16) a. She loved not wisely but too well.
b. The eggplant turned not purple but a strange shade of brown.
c. The eggplant not only turned black, it burst into flame.

However, Embick & Noyer (2001) observe that, when constituent negation attempts to modify the VoiceP or VP, it is actually unacceptable without an auxiliary:

(17) a. John can always not agree.
b. * John always not agrees. (Embick & Noyer 2001: 585, (71a))

Embick & Noyer (2001) claim that *do*-support does not rescue (17b), but this is not correct. *Do* is acceptable with constituent negation, but it prefers to follow an adverb if one is present:

(18) John always does not agree.

Embick & Noyer (2001) do not present such a sentence, but they claim that *John does always not agree* is ungrammatical. I do not agree with this, and find it relatively acceptable, although the order in (18) is better. The reason for this is stress: An auxiliary before an adverb prefers to be unstressed, but *do* needs to be stressed in constituent negation. This conflict can also be resolved with an additional adverb, since *do* can follow that one and naturally be stressed:

(19) She probably does always not reply.

(This example must be pronounced with stress on *does*, stress on *always*, and stress on *not*.)

What Embick and Noyer's (2001) observation shows us is that *do*-support is not limited to sentential negation. It occurs with constituent negation, too, and under the same circumstances: When (10) would otherwise be violated. The order in (17b) violates this constraint, since it has *not* preceding the verb that Agrees with T. The sentences in (15) and (16) do not violate (10) because *not* does not c-command the heads that have T features. I take these facts to show that there is no difference between sentential negation and constituent negation regarding *do*-support; they both trigger *do*-support. This means that there is just one item *not*, which is subject to the constraint in (10).

Moreover, the constraint in (10) explains *do*-support without any additional stipulations. Suppose what people call "sentential negation" is just *not* adjoining as high as it can given (10) (presumably the desire is to negate the entire proposition). In a simple clause with only a main verb like *She left*, all available positions for *not* are ruled out. If it adjoins to TP, it precedes T as well as the verb with T features; if it adjoins anywhere lower it will precede the verb with T features, since it must adjoin on the left, and main verbs do not move to T in English. On the other hand, if an AuxV is used, *not* can adjoin to that, or lower. If it adjoins to AuxVP and the AuxV moves across it, then both T and the verb with T features precede *not* (*She did not leave*). If *not* adjoins lower, to VoiceP say, then the result will be indistinguishable (also *She did not leave*). If the speaker does not wish to use one of the contentful AuxVs of English, then only the semantically contentless AuxV *do* will work.

In this account, *do*-support does a have "last resort" character, as it is a response to a constraint. However, it is not about disruption of adjacency between T and the verb or the blocking of affix hopping, as in the usual account following Chomsky (1957). This analysis also does not have syncategorematic insertion of *do*

in the course of the syntax. Rather, the syntax will select *do* from the lexicon and merge it into the syntax, exactly as it would do with a contentful AuxV like *have* (see section 3.10 for a description of the derivation).

To summarize so far, the typical description of sentential negation *not* versus constituent negation *not* does not actually distinguish them. Both trigger *do*-support when (10) would otherwise be violated, and *not* in positions other than immediately following the highest verb can pass the semantic tests for sentential negation, meaning that any independent way of identifying sentential negation does not pick out just that position. They also both license negative polarity items (NPIs) in their scope (Klima 1964, De Clercq 2013):

(20) a. You should not have replied to any of those messages.
b. You should have not replied to any of those messages.

Acquaviva (1994) proposes that sentential negation is the closure of the event variable by a negated existential operator. However, this definition does not pick out all and only the *not* that immediately follows the highest verb, either. Many clauses with what appears to be sentential negation do not negate the existence of the event. For instance, the most natural understanding of *I did not eat my peas with honey* is not that no eating event took place, but rather, that one did, it just did not involve any honey. Conversely, many instances of constituent negation do negate the existence of an event. For instance, in *You can't not do that*, in all the banned worlds, there is no event of you doing that.

One might propose that sentential negation takes scope over the whole proposition, but this also fails to pick out just the *not* that follows the highest verb. The *not* that follows the highest verb fails to take scope over some parts of the clause (typically, things to its left), the same as many instances of constituent negation. Conversely, constituent negation can take scope over the whole proposition, as in (15). (See more on scope in section 3.13.)

I conclude that there is no phenomenon that distinguishes *not* in the position immediately following the highest verb from *not* in any other position. What people call "sentential negation" *not* appears to be nothing more than *not* being adjoined as high as it can in the clause given the constraint in (10). Constituent negation is just the name for any other scope position.[1]

2.4 Summary

Once we recognize that there is no distinction between sentential negation *not* and constituent negation *not*, then the adjunct analysis becomes not just plausible, but the *most* plausible analysis. English *not* is the freest of all adjuncts: It can adjoin to any grammatical category. It has uniform properties wherever it adjoins, for instance in licensing NPIs and taking scope. It can even iterate, although this quickly becomes hard for humans to interpret. The only constraints are that it adjoins on the left rather than the right, and it cannot precede and c-command a head with T features. The latter constraint explains *do*-support and movement of the finite verb across negation. All facts about negation with *not* follow.

Note in particular that positing a NegP is not a plausible analysis for constituent negation *not*. This would require that the head Neg be able to take any category as its complement, and then the distribution of that NegP would have to be the same as the distribution of its complement. This is essentially the same as saying that NegP *is* the category of its complement, and then the analysis is indistinguishable from the adjunction analysis. I conclude that a NegP analysis is not workable for constituent negation, and since there is no difference between sentential negation *not* and constituent negation *not*, it is not a good analysis for sentential negation, either. The best analysis for both is a uniform adjunction analysis.

[1]Note that adjoining *not* to the subject as in (15) actually gives it scope higher than it would have in a position immediately following the highest verb. The fact is that quantifiers inside an XP can often take the sister of XP as their scope, as in (15). How this happens is beyond the scope of this article, but the fact that it does clearly shows that it is not possible to maintain a distinction between sentential negation *not* and constituent negation *not* in English.

3 The Proposal for *n't*

I turn now to *n't*, which is much more restricted than *not*. It only appears on the highest finite auxiliary in the clause, and is banned altogether from non-finite clauses. Nevertheless, I analyze it as an adjunct, just like the phrasal *not*.

3.1 *n't* is an Affix, not Contraction

It is important that English *n't* is a head adjoined to a head and is not simple phonological contraction of *not*, comparable to contraction of auxiliaries. When auxiliaries contract, they contract onto whatever is to their left, whether that is a subject NP or another auxiliary:

(21) a. These things've been put away.
b. These things should've been put away by now.

If what is to the left of the auxiliary moves away, the auxiliary contracts onto whatever is now to its left, for instance the complementizer in a relative clause:

(22) the things that've already been put away

In contrast, English *n't* is very selective: it only attaches to an auxiliary verb. We can see that *n't* is not just a reduced version of *not* from contrasts like the following:

(23) a. These things have probably not been put away.
b. * These things have probablyn't been put away.

To use *n't*, the word order has to change:

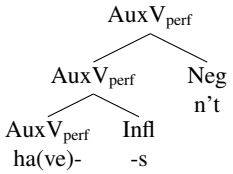
(24) These things probably haven't been put away.

If the auxiliary verb that *n't* would attach to moves away, *n't* has to go with it (Zwicky & Pullum 1983):

(25) a. Shouldn't you have given me that?
b. * Should youn't have given me that?

English *n't* also shows arbitrary gaps (there is no **amn't*) and morphophonological idiosyncrasies (*won't* rather than **willn't*; Zwicky & Pullum 1983). It therefore behaves like a canonical affix rather than like phonological contraction (which I assume is a purely phonological process). I assume that *n't* is a head that combines with an auxiliary verb as a complex head:

(26)



Since the AuxV still has the distribution of an AuxV (appearing between the subject and the verb in a declarative but in C in an interrogative, and in its relative position among the AuxVs), the AuxV must be the label of the complex head, as shown.

3.2 *n't* is an Adjunct

Recall that Vs select Infl heads (section 2.1). In (26), the AuxV does not seem to select *n't* in the same way that it selects the Infl head. Infl is required, but *n't* is not; and the same AuxV may or may not have *n't*, depending on the context (whether it is preceded by another AuxV or not):

(27) a. She **hasn't** been practicing for long.
b. She couldn't **have** been practicing for long.

It therefore appears that *n't* is not selected by what it attaches to, and what it attaches to is what projects (see (26)). This behavior is the description of an adjunct. Note additionally that *n't* comes outside of any heads selected by its host. In this case, the AuxV selects an Infl element, and this head combines with AuxV first. This is also the behavior of an adjunct.

I conclude that *n't* is an adjunct, just like *not*. Since it is a head and combines with its host to create a complex head, it is a head adjunct.

3.3 Adjuncts can be Selective

It might seem unlikely that *n't* is an adjunct by comparison with *not*, since *not* is completely non-selective and can adjoin to any category. However, this is actually unusual; most adjuncts are very selective. For instance, modifying adjectives in English select nominal categories, and may not combine with other categories like V, P, A, or Adv. The modifier *right* only modifies PPs. Various adverbs can only attach to particular phrases in the clause, for instance instrumental PPs only adjoin to VoiceP according to Bruening (2013). Sentential adverbs like *frankly* only adjoin very high in the clause.

I assume here that Merge is driven largely by selection. For instance, C merges with TP and not other categories because C selects TP. Voice merges with VP and not other categories because Voice selects VP. In order for adjuncts to merge into the structure, there must also be a selectional relation between them and the category that they merge with. They are not selected by their hosts; that is why they are called adjuncts. It must instead be the adjunct that selects. This was proposed by Pollard & Sag (1994), Bruening (2010a, 2013, to appear), Bruening & Al Khalaf (2020), and it makes sense given that many adjuncts are selective. Adjuncts select the categories that they modify.

Given this, most of the distribution of *n't* follows just by saying that it selects AuxV to adjoin to. This selectional restriction immediately rules out all other placement possibilities (CP, NP, PP, etc.). It does not explain everything, however; we must explain why it only attaches to the *highest* (or *first*) AuxV in the clause when there is more than one.

3.4 The Highest/First Generalization

I argue that English *n't* is not the only adjunct that has to adjoin to the highest or first element of the category that it selects. Consider for instance English *right*, which strictly selects PPs to modify. One P can embed another PP, in exactly the same way that one AuxV can embed another. With a sequence of PPs, *right* can only modify the highest/first one:[2]

(28) a. They pulled it right out from under our noses.
b. * They pulled it out right from under our noses.

(29) a. She ran right over towards the bridge.

[2]These examples become acceptable with a pause before *right*, which changes the structure so that the second P is not the complement of the first.

b. * She ran over right towards the bridge.

This is also true of particles:

(30) a. Climb right on up!
b. * Climb on right up!

Since there are not very many cases where one category can embed the same category, and some adjunct selects only that category, this restriction has been obscured. I contend that it is quite general, however, and is not in any way limited to *n't*. The generalization is that, when some adjunct selects a particular category, it has to merge with the first/highest instance of that category. (See section 6 for an instance of this from Bulgarian.)

3.5 Explaining the Generalization

I propose that this property follows from a top-down (or left-to-right) approach to structure building. Most approaches to syntax assume that structure is built bottom-to-top. In contrast, Phillips (1996, 2003), Richards (1999), Bruening (2010b, 2014, 2016, to appear), Osborne & Gross (2017), Bruening & Al Khalaf (2019) have proposed that syntactic structure is instead built in a top-down or left-to-right fashion (top-down and left-to-right are not always equivalent, but for the phenomena discussed here, they are, and I will not distinguish them).

Suppose now that elements always merge as soon as they can. If a head selects a particular category, say C selects T, then something of category T must be merged immediately. It is not possible to merge some other category, and then only later merge T. The same goes for adjuncts. If *n't* selects an AuxV, then as soon as an AuxV is built in the syntax, *n't* will have to merge. It cannot wait and see if another AuxV is going to be merged. The result will be that *n't* always merges with the AuxV that is merged into the structure *first*. This will always be the highest one in a top-down/left-to-right syntax.

These two ideas—merge as soon as you can, and top-down/left-to-right structure building—when combined have the result that English *n't* will always be adjoined to the highest AuxV in the clause.

3.6 Flexible Adjuncts?

As for adjuncts that appear to be flexible in where they can appear, I suggest that this follows from one of three things. First, they might actually be completely fixed in their position, but other elements of the clause can move around them (there is an approach to adverbs that treats them in exactly this way; see Emonds 1976, Pollock 1989, Cinque 1999, among many others).

Second, they are less selective than English *right* and *n't*, and select multiple categories that they can adjoin to. One way to approach such items would be to say that, when they are selected from the lexicon, they choose one of the categories they select to be active. Suppose some adjunct can select any one of TP, AuxP, VoiceP, or VP. When this adjunct is taken out of the lexicon, one of those is chosen to be active. Suppose VoiceP is. Then as soon as VoiceP is merged into the structure being built, the adjunct will have to adjoin to it. What gives the appearance of flexibility is that there are multiple categories that an adjunct can choose to select.

Third, the adjunct might be completely non-selective, like *not*. In this case, the adjunct can freely be merged with any category. Note that *not*, unlike *right*, can adjoin to the lower of recursive PPs:

(31) out not from under our noses, but . . .

It can also adjoin to the lower of recursive AuxVPs, as we have already seen (*They can't have **not** been doing that already!*).

3.7 There Can Be Only One

Another question for the adjunct analysis of *n't* is why there can only be one instance of *n't*. Some adjuncts are able to iterate, for instance locations (*meet in the hotel in the lobby*) and phrasal *not*. I do not have a good answer to this question at this point. Something has to ensure that only one instance of *n't* can be merged per clause. Not having an answer to this question does not weaken the proposal, however. While some adjuncts can iterate, others are limited to only one per clause, like instrumentals (**write with a pen with a fountain pen*) and *right* (**right right over the hill*). So *n't* is not the only adjunct that cannot iterate. Moreover, competitor proposals with multiple NegPs face the same issue. In the analysis of Thoms et al. (2023), for instance, there is a high NegP and a low NegP. Something has to stop them from co-occurring. Thoms et al. (2023) do not say what that might be. So the two proposals are on an equal footing in this regard (and the problem is compounded for analyses with even more NegPs, e.g., Zanuttini 1997, Poletto 2008).

3.8 Spelling Out the Derivation for English *n't*

Let me now spell out how the top-down/left-to-right derivation will work for *n't*. I will illustrate the derivation with the following example:

(32) She hasn't been practicing.

I assume a fundamental distinction between heads and phrases. Heads can combine with other heads to create complex heads. Whenever two things are merged and they do not form a complex head, the resulting structure is necessarily phrasal. Within phrases, it is not necessary to make a distinction between maximal projections and intermediate ones. I will label anything that is a phrase headed by H, "HP," to distinguish it from the head, "H."

Regarding syntactic movement, I will continue to phrase things in standard ways, for instance, "AuxV moves to T." What this means in top-down/left-to-right structure building is that the AuxV is merged in T and then copied to a lower position (so movement works essentially in reverse, as lowering). The description "AuxV moves to T" is still accurate, since AuxV appears in T rather than in the position it would be expected to occupy on the basis of selection and clause structure.

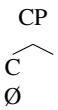
In top-down/left-to-right structure building, the syntax will start with the phase head (adopting the Phase Theory of Chomsky 2000). I assume that declaratives have a null C head. Cs are phase heads. So in *She hasn't been practicing*, the syntax starts with the null C. However, in top-down/left-to-right structure building, some material may have to be merged before the head of a phrase, for instance specifiers or (left-adjoined) adjuncts. I propose that the way this works is that the syntax selects the phase head but does not yet merge it into the syntax.[3] Instead it creates something consisting solely of the category of the phase head:

(33) C

Then, the syntax asks whether there is anything to be merged either as a specifier or as an adjunct. Whether the head requires a specifier is specified in the featural content of the selected head. A [+wh] C head, for instance, would require a specifier. However, our null declarative C head does not require a specifier. The syntax also asks whether anything is to be merged that selects CP as an adjunct. In this case, no such thing is selected. So the syntax then merges the C head as a daughter of the previously built node:

[3]This system can work either with a set of items pre-selected from the lexicon to form a *numeration* for the phase (Chomsky 1993), or it can select items directly from the lexicon. Either way, something has to ensure that only one instance of *n't* can be selected per clause (and one instance of each AuxV, and Voice, and . . .).

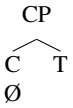
(34)



I now label the higher node CP, since it is phrasal.

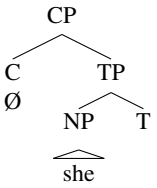
C selects category T, so the syntax then selects a T head. As with C, the head is not yet merged, but only the bare category:

(35)



The syntax now asks what T requires, and whether there are any adjuncts that select TP. In our example, no such adjuncts are selected. T does require a specifier in English. So the syntax will have to build one. NPs constitute their own phases; I assume that one is built but do not go into the details of how that would occur. The end result is that the syntax merges an NP with T by expanding T into two daughters, one the NP on the left and the other a copy of the bare category T:

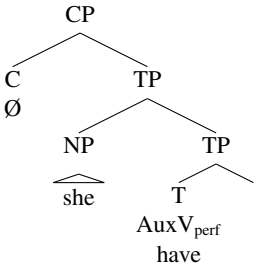
(36)



I now label the higher node TP, because it is phrasal.

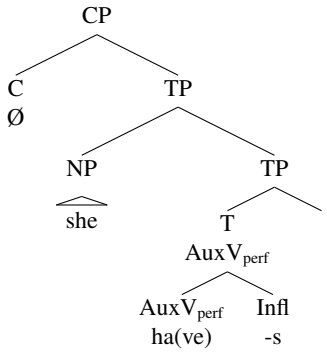
The actual head T can now be merged. In an English negative clause with the phrasal *not*, the highest AuxV moves to T. It is not possible to tell whether this happens with *n't*. For the sake of uniformity, I will assume that it does. This means that the highest AuxV must be merged into T at the point where T is being built. I will implement this by giving T a feature that requires that an AuxV be merged into it (all merge is driven by selectional features). I show the AuxV as occupying the T node, but one could also have it adjoined to a (null) T head if one wished.

(37)



All English verbs have to have an inflectional suffix; I assume that everything of category V selects an Infl head (see section 2.1). AuxVs are a subcategory of V, so they also select an Infl head. Because of this selection, an Infl head must be immediately merged with AuxV:

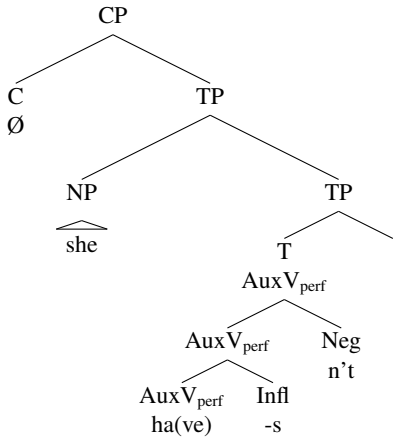
(38)



The features of Infl must match those of T. In this case, they are present tense, third person singular (T agrees with the NP in its specifier; any theory of agreement will do).

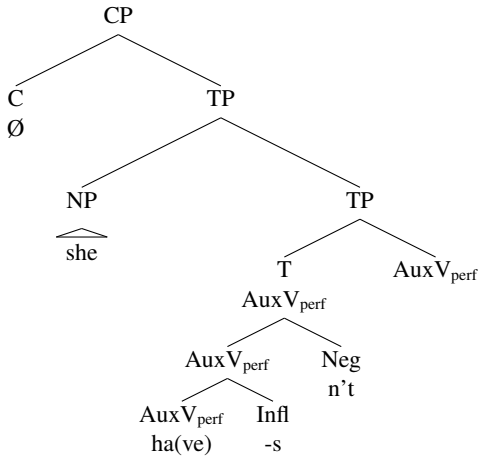
Now the syntax looks to see whether there is anything that selects AuxV as an adjunct. There is, *n't*. So this is merged next, forming a complex head with AuxV:

(39)



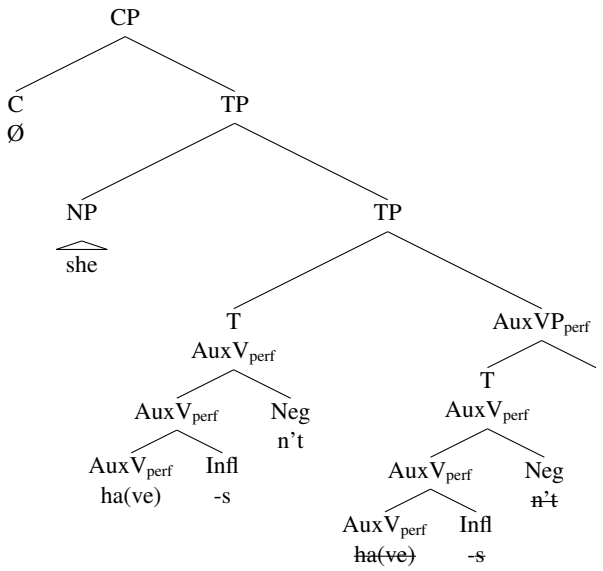
T now selects something of category V. The syntax has already selected the perfect auxiliary *have* and merged it into T. So the same category is merged as the complement of T:

(40)



At this point the syntax asks whether there are any adjuncts that select AuxVP. There are not, and AuxVP does not require a specifier. So the perfect AuxV is copied as the head of the AuvVP being built, essentially doing head movement in reverse:

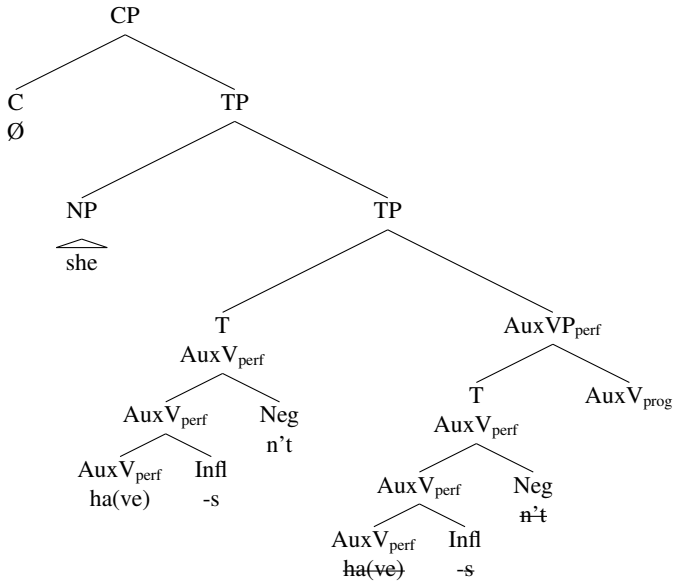
(41)



Lower copies are typically not pronounced, in English, which I indicate with strikethrough.

This AuxV also selects something of category V. In this case, we choose the progressive AuxV:[4]

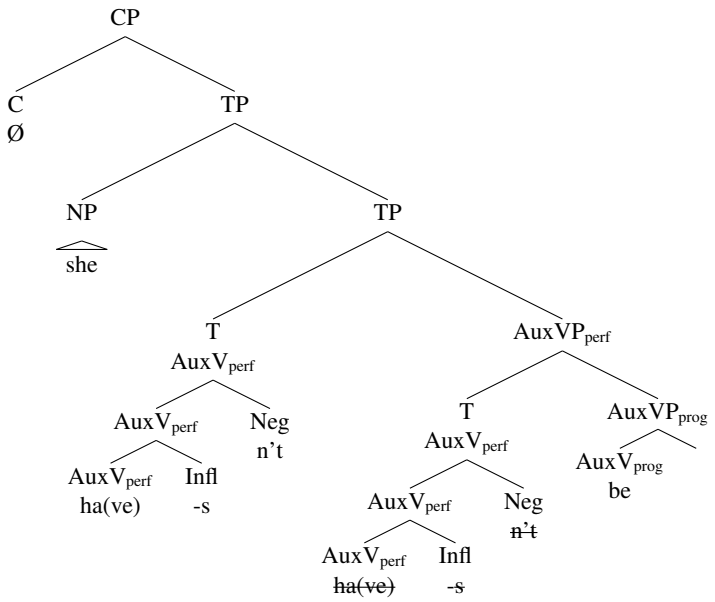
(42)



This AuxV does not select a specifier, and no adjuncts that select AuxVP have been selected in our example. So the head $\text{AuxV}_{\text{prog}}$ can now be merged:

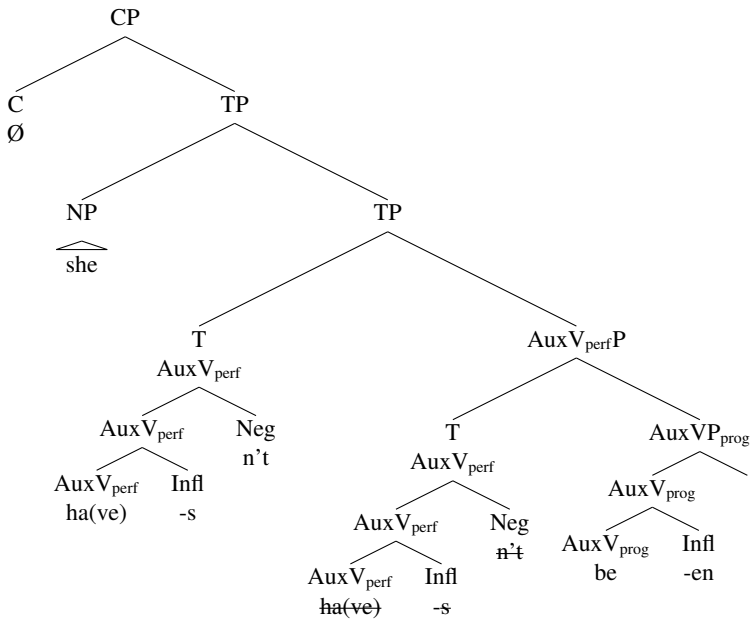
[4] I will not attempt to explain why the order of the auxiliaries is fixed in English; this is orthogonal to our concerns.

(43)



All items of category V select an Infl head, so one is merged. It Agrees with the next higher head, AuxV$_{perf}$, and so has the form *-en*:

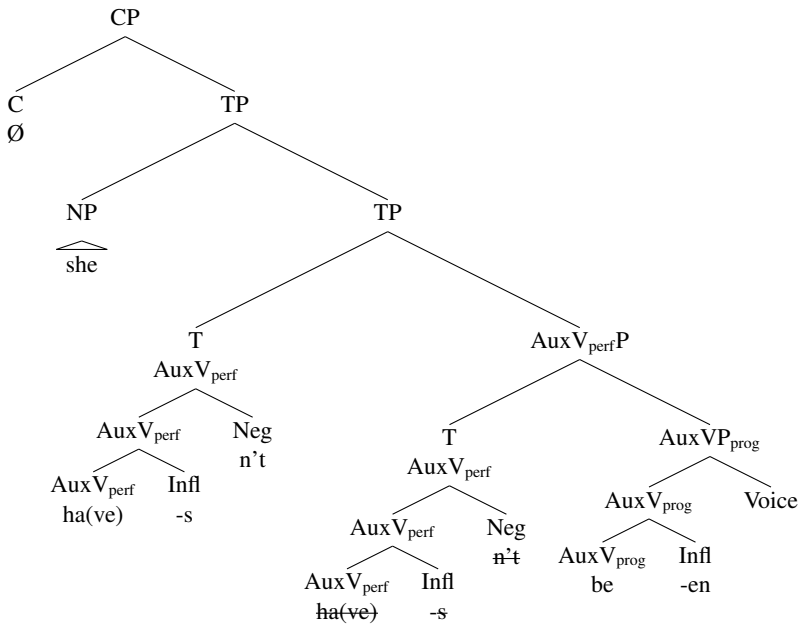
(44)



The syntax now asks whether there are any adjuncts that select AuxV. Since *n't* is limited to one occurrence in English, there is not. *n't* has already been merged.

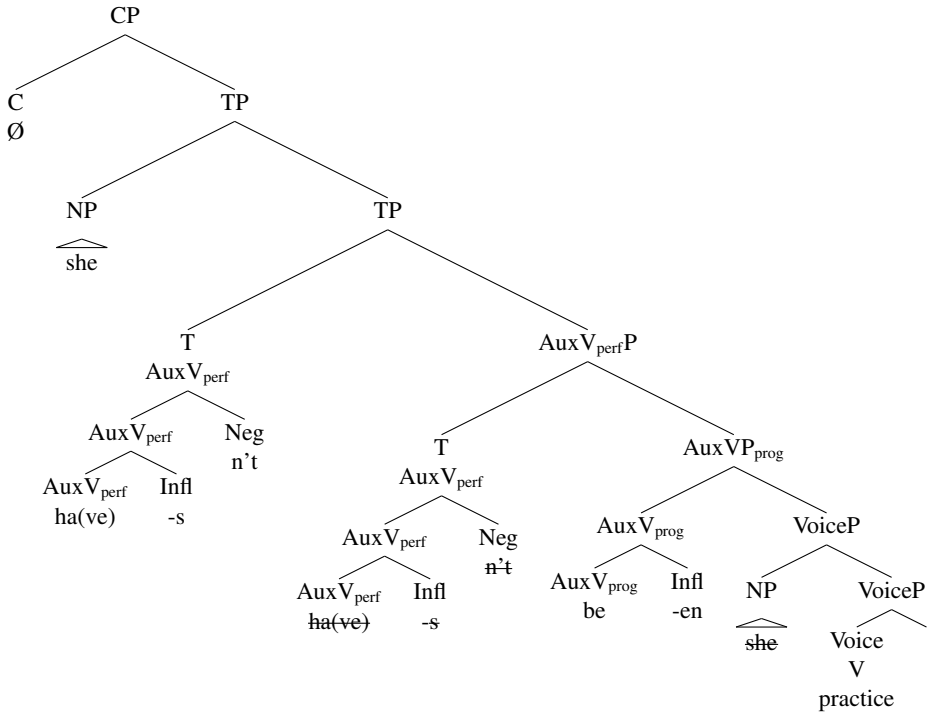
AuxV$_{prog}$ also selects something of category V. In this case, Voice is chosen (which I assume is also a subcategory of V):

(45)



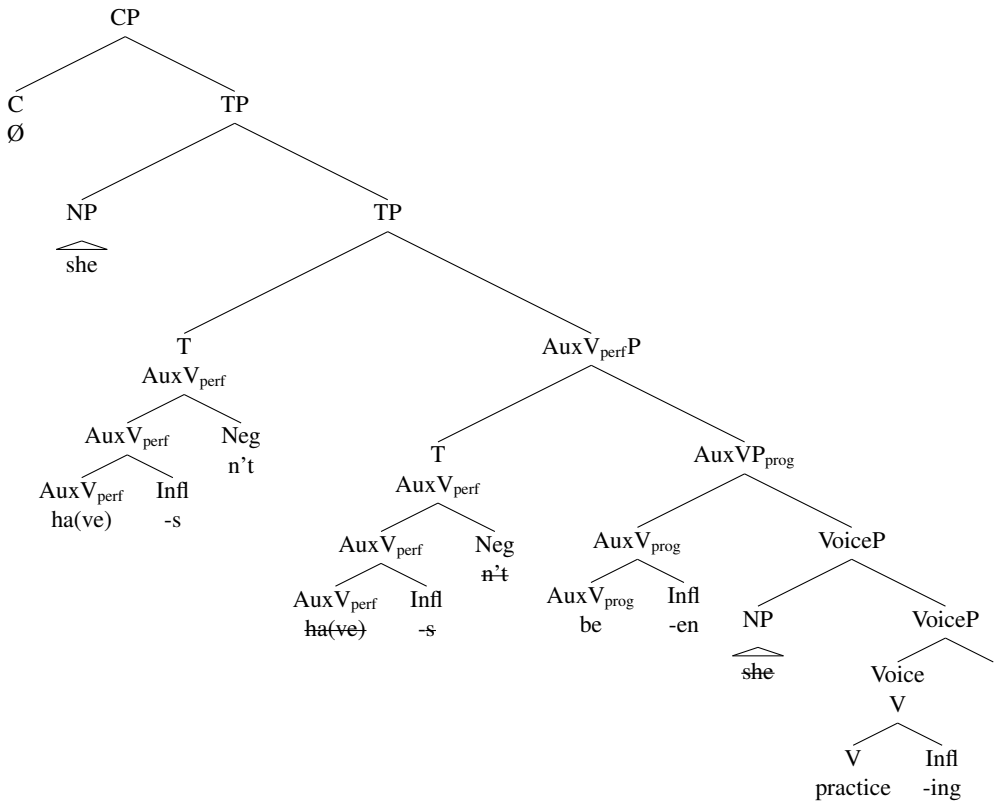
Now the subject NP is copied to Spec-VoiceP, and then the head Voice is merged. I assume V moves to Voice, so V is what is merged in Voice:

(46)



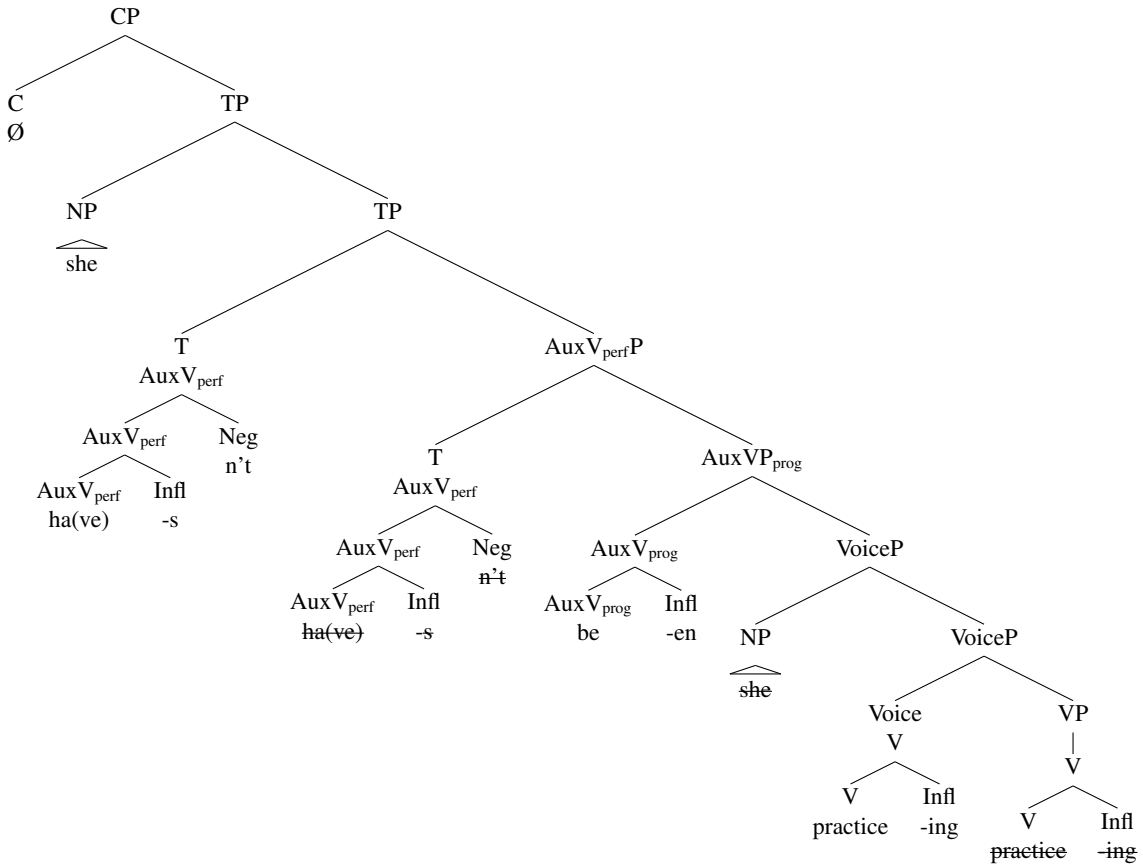
V also selects Infl, so an Infl is merged. It agrees with AuxV$_{prog}$ and so takes the form *-ing*:

(47)



Finally, Voice selects V, so V is merged and a copy of the verb in Voice is merged as its head:

(48)

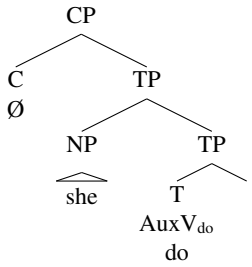


This builds *She hasn't been practicing*. The head adjunct *n't* is correctly merged with the highest/first AuxV.

3.9 *Do*-Support

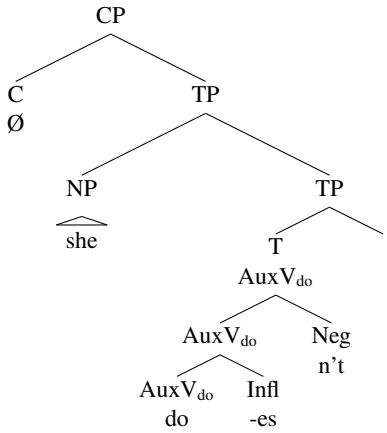
Suppose that no contentful AuxV is desired, but *n't* is. Since *n't* strictly selects AuxV, an AuxV must be selected and merged into T. This can only be the semantically contentless *do*:

(49)



As before, an Infl will be merged with the AuxV, and then the adjunct *n't*:

(50)



The derivation will then continue as before, with *doesn't* copied as the head of an AuxVP; it selects something of category V, which in this case will be Voice.

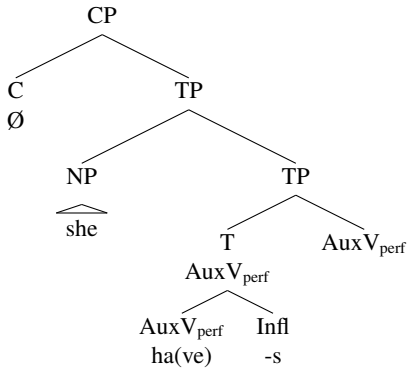
Nothing more needs to be said about *do*-support in this account. There is no need for a last-resort insertion mechanism, or any kind of syncategorematic operation. The AuxV *do* is merged in exactly the same way as any other item, and for the same reason: To satisfy selectional requirements of the items selected for the derivation.

Note also that this account assembles the complex heads purely by Merge. They are not assembled by head movement, affix hopping, or any form of post-syntactic movement (e.g., Embick & Noyer 2001). There is no need for any post-syntactic level of grammar at all. The syntax suffices to build the correct structure, using only mechanisms the syntax needs anyway: Merge, copying (which is just Merge), and Agree.

3.10 Phrasal *Not*

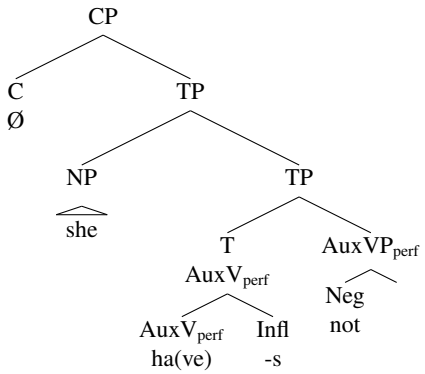
Derivations with the phrasal adjunct *not* will proceed in the same way, except that *not*, being completely non-selective, can be freely merged to any phrase in the syntax. Take the same example, but with phrasal *not*: *She has not been practicing*. The derivation will proceed exactly as before, up through T selecting AuxV$_{perf}$:

(51)



At this point the syntax asks whether there are any adjuncts that select an AuxV. The answer can be yes, since *not* selects everything. So it can be merged, with AuxV$_{perf}$ projecting (since *not* is an adjunct):

(52)

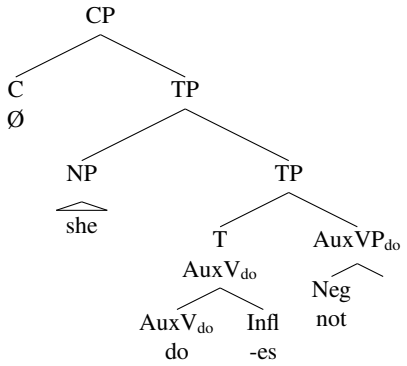


The AuxV$_{perf}$ in T will then be copied as the head of AuxVP$_{perf}$, and the derivation will continue as before.

This derivation gives *not* the highest possible scope it could have in the clause. It could not have adjoined to TP, or it would have violated the constraint against it preceding a head with T features. If it had adjoined to CP, it would not be within the CP and it would not have negated the contents of CP, instead it would have negated something else (a speech act, or something metalinguistic, in a matrix clause case). Putting *not* anywhere lower would give it lower scope. Adjoining it to the subject would limit its scope to the subject NP. As argued above, sentential negation is just the name for *not* adjoining as high as it can given the constraint in (10). This is always the highest AuxVP.

Do-support will also follow. Suppose the syntax wants to build a negative version of *She practices*. The derivation will start with C, build an NP in Spec-TP, and then it will need to do something at T. At this point, it will be known that the widest possible scope for *not* is desired. *Not* could not have been merged above T, because that would violate the constraint against *not* preceding any head with T features. Merging VoiceP as the complement of T and adjoining *not* to that also will not work, because *not* will then precede the verb in Voice which Agrees with T and thereby bears T features. The grammar knows that the only way to give *not* maximal scope and satisfy (10) is to merge the verb that Agrees with T in T. This locates all heads with T features in T, and *not* can then be adjoined to the complement of T. Since only AuxVs can occupy T in English, the syntax has to merge an AuxV in T if maximal scope for negation is desired. I assume that this is implemented through a selectional feature again. T is given a selectional feature that forces an AuxV to be merged in it. If no contentful AuxV is desired, then the contentless *do* must be selected. It will be merged into T, and then *not* will be merged with the AuxVP complement of T:

(53)



The AuxV in T will then be copied as the head of the complement of T, exactly as before. Once again, the mechanism that merges *do* is exactly the same mechanism that merges everything else, namely, selection.

3.11 Subject-Auxiliary Inversion

The highest AuxV can also be merged into C, and then copied into T and its complement. We can model this in exactly the same way that we modeled movement of the AuxV to T: By saying that some instances of C have a feature that calls for an AuxV. This happens in many types of matrix questions and when a negative phrase is preposed, among other contexts (see Bruening 2017 for an overview):

(54) a. What have you done? (nonsubject wh-question)
b. Have you eaten yet? (yes/no question)
c. Never before have I witnessed such inhumanity. (negative preposing)

When the AuxV is being built in C, if *n't* is desired for the clause, it will be merged at that point, since that is the first point at which its selectional requirements can be satisfied. This will put *n't* on the AuxV in C:

(55) Hasn't she been practicing?

The complex head AuxV including Infl and Neg will then be copied into T and then into the head of the AuxV complement of T.

As with movement to T, movement to C is limited to AuxVs in Modern English. The feature on C that calls for a verb selects AuxVs in particular. As with T, if no contentful AuxV is desired, then the contentless *do* must be merged. In inversion contexts, too, then, the mechanism that merges *do* is exactly the same as that which merges everything else (selection).

As for phrasal *not*, it can be merged either with TP or with AuxVP, since when T and the finite verb move to C, TP becomes an available place for *not* to merge. However, this is limited to a particular register in current English (see section 2.2). All other registers merge *not* with the AuxVP complement of T, the same as in clauses without movement of T to C:

(56) Has she not been practicing?

Section 4 will address claims of semantic differences between "high" negation and "low" negation.

3.12 Imperatives

Negative imperatives may also involve movement of the auxiliary to C (Potsdam 1997). Unlike all other contexts in English, however, this auxiliary is always *do*, even when there is another auxiliary or main verb *have* or *be*:

(57) a. She is not late.
b. * She does not be late.
c. * Be not late!
d. Don't be late!

The reason for this does not matter much here.[5] Whatever the reason, when *do* is merged as the first AuxV in the clause (either in C, or somewhere else), *n't* will be merged with it (after the Infl head it selects, of course, but this is null in the second person). If *not* is selected instead, then it will be merged adjoined to the highest AuxVP (the one headed by *do*). (There are various restrictions on this, for instance it is difficult to have an overt subject in an imperative when the negative form is *not* rather than *n't*, but these restrictions are not directly relevant to the position or interpretation of negation, as far as I can see.)

3.13 Scope

The facts of scope surrounding negation are fairly complicated, but it is possible to sketch a basic account in the current analysis that will cover most of the facts. Most people assume that scope is sisterhood: A quantificational element takes scope over its sister (what it has merged with). I will adopt that basic assumption, with one complication: The scope of a head that is part of a complex head is the sister of the entire complex head (cf. the Government Transparency Corollary of Baker 1988). So the scope of *not* is whatever it has adjoined to (the highest AuxVP in the case of sentential negation), while the scope of *n't* adjoined to an AuxV in T is the complement of T (T's sister, AuxVP).

I assume that negative polarity items (NPIs) are licensed in the scope of negation (among other contexts). So both *not* and *n't* fail to license NPIs in the subject position, but do license them elsewhere:

(58) a. * Anyone will not come to the party.
b. * Anyone won't come to the party.
(59) a. Marty will not come to any of our parties.
b. Marty won't come to any of our parties.
c. Marty has not ever tried *cmoki*.
d. Marty hasn't ever tried *cmoki*.

Affixal *n't* preposed to the left of the subject does license an NPI in subject position:

(60) (McCloskey 1996: 89, (102))
a. * Which one of them does anybody like?
b. Which one of them doesn't anybody like?

This follows in the proposal: *n't* is now located in C, where its scope is now the sister of C, including the subject position, Spec-TP.

An additional complication is that scope can be changed by covert operations. For instance, in English, subjects and objects can both take scope above or below negation. I assume that objects can undergo covert quantifier raising to a position above the base position of negation; negation can reconstruct to its base position, if it has moved to a higher one. This puts objects outside the scope of negation. As for subjects,

[5] One possibility is that all negative imperatives involve an auxiliary in C, and C requires that a *finite* auxiliary verb be merged into it. In imperatives, the contentful verbs and auxiliaries are all in a non-finite form. The only option is to merge the contentless auxiliary *do* in its finite form (directly in C, in the current analysis). This accounts straightforwardly for negative imperatives where the subject follows *do*, but the subject can also precede *do*: A: *Don't be late!* B: *YOU don't be late!* To maintain this explanation, such subjects would have to be in a left-dislocated position, not Spec-TP (which might be plausible).

they can reconstruct to Spec-VoiceP, below the position of negation. Negation does obligatorily scope over the lexical verb (Kim & Sag 2002), as would be expected if lexical verbs in English cannot move any higher than Voice (there is no QR for heads, and the lowest position of what is called sentential negation is higher than the highest position of the V in Voice).

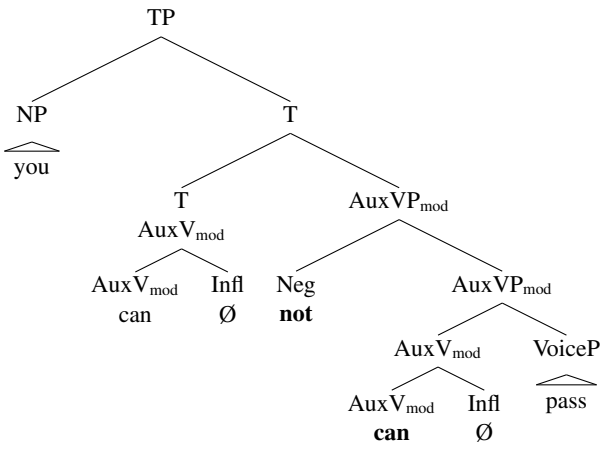
Now, I just said that subjects can reconstruct to a position within the scope of negation. One might therefore expect that an NPI *could* be licensed in subject position. The fact is that it can, if it is embedded in the subject (and subject to some other conditions which need not concern us here; see Linebarger 1980, de Swart 1998):

(61) A doctor who knew anything about acupuncture was not available. (Linebarger 1980)

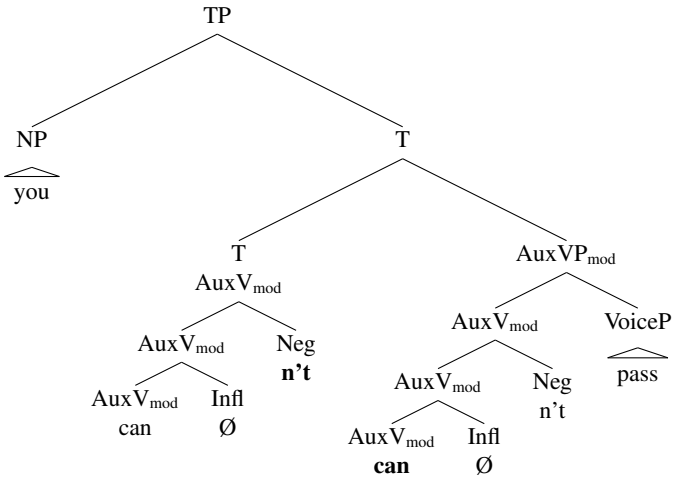
The availability of subject reconstruction explains why this is possible. As for why the subject itself cannot be an NPI, as in (58), de Swart (1998) proposes that reconstruction is subject to various semantic/pragmatic constraints, which prohibit a bare NPI from reconstructing. Reconstruction is unnecessary when *n't* moves to C, so these constraints do not rule out a subject NPI in that configuration (60b).

As for the modals, negation scopes above *can, will, may* (deontic) but below *should, ought, must, may* (epistemic). The latter group take scope as would be expected from the surface structure: they c-command both *n't* and *not* and therefore take scope over them. The other group, represented here by *can*, requires something at LF. I assume this is reconstruction of the modal to its base position as the head of the complement of T:

(62) a.



b.



The positions where each of Neg and the modal is interpreted are in boldface. Note that in the case of *n't*, this requires distributed LF interpretation, with one part of the complex head interpreted in one position in

the head movement chain, and another part interpreted in a different part of the head movement chain. (For discussion of modals and negation, see Iatridou & Zeijlstra 2013.)

There are of course many other complications regarding scope with negation, but I do not see any difficulties accounting for them with QR and reconstruction. Most of the complications actually involve negative expressions other than *not* and *n't*; see for instance the phenomenon of split scope with negative quantifiers (Penka 2012). These issues lie outside the scope of the current paper. I will say more about scope in section 4, which discusses "high" and "low" negation.

3.14 Summary

The proposed analysis is maximally simple. Negation in English is always an adjunct. One version, *not*, is a phrasal adjunct. It is completely non-selective and can adjoin to any category, subject only to the constraint in (10). The other version, *n't*, is a head adjunct, which strictly selects category AuxV. The principle that things merge as soon as they can, combined with a syntax that builds structure top-down or left-to-right, puts *n't* on the *first* AuxV to be merged into the structure. All of the facts of English negation receive a simple account in this analysis. There is no need for a NegP or multiple NegPs, and no need for post-syntactic levels of grammar or additional mechanisms to account for *do*-support.

4 High Negation and Low Negation

There is an extensive literature on the semantics of "high" and "low" negation in English and other languages. High negation is *n't*, on an auxiliary that precedes the subject. Low negation is negation to the right of the subject (either *n't* or *not*). Yes/no questions have different properties depending on whether negation is low or high. Low negation is neutral, whereas high negation is biased to the positive answer (Ladd 1981):

(63) a. Is Ronald not coming?
(low negation: no bias)

b. Isn't Ronald coming?
(high negation: speaker believes or at least expects that Ronald is coming)

Additionally, high negation can fail to license negative polarity items (NPIs) like *until* phrases, and can fail to anti-license positive polarity items (PPIs) like *too*:

(64) NPIs (Thoms et al. 2023: 753, (77a), (76a))

a. Did Chris not leave until Sarah arrived?

b. * Didn't Chris leave until Sarah arrived?

(65) PPIs

a. ?? Is Jane not coming too?

b. Isn't Jane coming too? (Romero & Han 2004: 610, (6))

These facts are discussed in Ladd (1981), Büring & Gunlogson (2000), Romero & Han (2004), Repp (2013), Holmberg (2015), Krifka (2015), Romero (2015), Goodhue (2022), Thoms et al. (2023), and others (see Goodhue 2022 for more references). Theoretical analyses can be divided into scope accounts, and those that have two different semantics for negation. In scope accounts, negation is just the operator $\neg$, regardless of its position. The different properties of high and low negation fall out from the presence of another operator. Romero & Han (2004) propose that this operator is VERUM, the same as verum focus. It is present when negation is preposed across the subject. This item leads to the bias of questions with preposed

negation. If negation takes scope over it, this operator also "protects" PPIs from being anti-licensed by negation, and it also blocks NPIs from being licensed by negation.

In Krifka's (2015) alternative scope proposal, there are various speech-act related projections in the left periphery. High negation corresponds to negation (which is just ¬) being located in "commitment phrase," which gives rise to its bias. It is high not because negation has any particular properties, but because it happens to occur in a high position in the left periphery. (Krifka is silent about PPIs and NPIs.) In another scope account, Goodhue (2022) proposes that negation takes scope over an ASSERT operator in the left periphery. Negation is again just ¬. According to Goodhue, high negation fails to license NPIs because it is outside of the proposition when it takes scope over ASSERT.

Romero (2015) proposes an account where there are two different semantics for negation. One is just the operator ¬. The other is instead an operator FALSUM (modified from Repp 2013). FALSUM's at-issue content is also just ¬, but it has an additional "common ground management" component to its meaning. It ensures that the proposition p is not added to the common ground (which Romero abbreviates "FOR-SURE-NOT-IN-CG(p)"). Romero appears to just stipulate that FALSUM does not anti-license PPIs, but this is not entirely clear (see her p.528).

Recall that Thoms et al. (2023) propose that English has two different NegPs, a high NegP above T, and a low NegP below T. The pronounced negative items are "Neg-OPs" located in the specifiers of these two NegPs. Thoms et al. (2023) appear to endorse an account like that of Romero (2015), and propose that the semantics of their high NegP is different from the semantics of their low NegP. Presumably, Neg-OP in Spec-HighNegP is Romero's FALSUM (or something like it) while NEG-OP in the specifier of the low NegP would just be ¬. Thoms et al. (2023) do say that in their proposal for two distinct NegPs, it is possible to have distinct semantics associated with each projection.

However, this is actually incompatible with the one existing semantic proposal for distinct meanings for negation. Romero (2015) makes negation in declarative denials also be FALSUM in examples like the following, which also fail to anti-license PPIs:

(66) A: Jane is coming too. B: Jane ISN'T coming too. (Romero 2015: 528, (43))

But negation here is clearly the low negation, as it occurs after the subject. In Romero's (2015) semantic account, both low and high negation can be either ¬ or FALSUM. An approach like this therefore does not provide any support for the two NegP proposal, contra Thoms et al. (2023). This FALSUM account could be implemented within the proposal here: Negation would be ambiguous between ¬ and FALSUM, but it would be ambiguous in any position it occurs in. Presumably, constraints would have to rule out one or the other in any given context (something that Romero is silent on).

The scope accounts are also clearly compatible with the proposal here. In those accounts, negation is just ¬, regardless of where it appears. It is capable of moving along with its host auxiliary, which then gives it different scopes. If we wanted to adopt the proposal of Krifka (2015), we could identify the preposed position of Aux-*n't* as the head of commitment phrase (this could replace C, or the Aux could move through C on its way to commitment phrase). If we instead adopted the VERUM account of Romero & Han (2004), we could propose that the C that triggers Aux movement to C also selects a VERUM operator. Since this is null, it could appear in several different places. It could be in C, for instance, adjoined to the verb+*n't*, or it could adjoin to the complement of C. Or it could be the head of a projection between C and T, through which the fronting AuxV passes. Negation could then either be interpreted in C, in which case it takes scope over VERUM, or it could reconstruct lower (to T or AuxV), in which case it would take scope below VERUM. The facts would follow in the same way that they do for Romero & Han (2004). If we wished to adopt the ASSERT analysis of Goodhue (2022), we would say something similar (except that for Goodhue, high negative questions are never ambiguous and negation always takes scope over ASSERT if it has moved with the AuxV).

I will not attempt to decide between these various semantic theories. All of them appear to be compatible with the current proposal concerning the syntax of negation. Since they are, there is no support from semantic differences between high and low negation for distinct NegPs in English.

5 Scots

Thoms et al. (2023) present data from Scots that they argue require a high NegP and a low NegP. The most important fact is that Scots has a negative element *nae* that has all the properties of Standard English *n't*, except that it cannot appear before the subject. *Nae* can appear after the subject but not before it:

(67) a. Jo hasnae left. (Thoms et al. 2023: 727, (2))
b. * Hasnae Jo left? (Thoms et al. 2023: 727, (3))

The one exception is imperatives:

(68) Dinnae everybody leave just yet! (Thoms et al. 2023: 730, (11b))

At the same time, *nae* seems to be an affix on the finite auxiliary, just like *n't*.[6] It cannot be separated from the finite auxiliary, for instance, unlike *not*:

(69) (Thoms et al. 2023: 728, (6))
a. * She has really nae left yet.
b. * She has really n't left yet.
c. She has really not left yet.

Thoms et al. (2023) propose that there are two NegPs, a low one below T, and a high one above T. Standard English *n't* can appear in the specifier of either. In contrast, Scots *nae* can only be the specifier of the low NegP, except with imperatives. They give a set of realization rules for "Neg-Op," the negative operator that appears in Spec-NegP, as follows:

(70) (Thoms et al. 2023: 747, (62))
a. Neg-Op → [n̩t] or [ne] / #T[fin]__#
b. Neg-Op → [n̩t] or [ne] / #C[imp]__#
c. Neg-Op → [n̩t] / #C[int]__#
d. Neg-Op → [no] / elsewhere

[6] I should note that one of the concerns of Thoms et al. (2023) is arguing that the clitic-affix distinction is not clear-cut. I do not make any such distinction. What I mean by an "affix" is a head that attaches in the syntax to another head to form a complex head, as in the analysis of *n't* proposed here (where the "affix" does not provide the label of the complex head). What is commonly called "cliticization" is a heterogenous bunch of phenomena. For instance, I view auxiliary contraction in Standard English as a purely phonological process, where an AuxV that is a head in the syntax contracts phonologically onto its neighbor, with no syntactic effects. In section 6, I will suggest that the difference between the Bulgarian definite marker, which is commonly viewed as an affix, and clitic possessive pronouns, which are commonly viewed as clitics, is just the prosodic boundary that comes between them and their hosts. I analyze both of them as heads attaching to other heads to form complex heads. Returning to English, Thoms et al. (2023: 741) note that, in some varieties of Scots, an auxiliary with *nae* can contract (*we'venae*). This is unlike Standard English, where the auxiliaries with *n't* do not generally contract. Contra Zwicky & Pullum (1983), I do not take this to follow from some deep distinction between "clitics" and "affixes." My guess is that stress is involved: In Standard English, AuxVs with *n't* tend to be stressed, and so resist contraction.

Note that these rules make no reference whatsoever to low NegP and high NegP. Instead, they make reference to different values of T and C. Note in particular that [ne] (the pronunciation of *nae*) is stipulated not to be allowed with an interrogative C, while [n̩t] (the pronunciation of *n't*) is allowed with an interrogative C (70c). This stipulation is sufficient to capture the different distributions of *n't* and *nae*. Having distinct high NegPs and low NegPs is redundant and plays no role in the account. The exact same realization rules could be imported into the current analysis, or any analysis with AuxV movement to C, with the same effect: *nae* would be banned in interrogative C, but would be allowed in finite T and in imperative C (70a–b). The restriction also does not need to be stated in the form of a realization rule. The lexical item *nae* can state in its lexical entry that it is incompatible with interrogative C. There is absolutely no need for two NegPs, and there is no argument from Scots *nae* against movement of Aux+*n't* to C (or Aux+*nae* in imperatives).

Thoms et al. (2023) note another form in Shetland Scots, *'n*, which only occurs on a presubject auxiliary but only in tag questions, exclamatives, or rhetorical questions, and (for older speakers) polar questions where speakers indicate a bias toward the truth of the positive proposition (which is all inverted negative polar questions; see section 4). This distribution also does not require any reference to high versus low NegPs, and presumably would not, in the analysis of Thoms et al. (2023); I presume that their analysis would refer to different values of C, as in their realization rules in (70). Once again, distinguishing high from low NegPs is unnecessary.

I conclude that the current account is compatible with the Scots data in Thoms et al. (2023), and that the Scots data in no way motivate two distinct NegPs in English. A theory with two NegPs also has to explain why they cannot co-occur, and why both of their heads are null. In principle, two NegPs would allow up to four negative markers at once (two heads and two specifiers). English never has more than one marker of sentential negation.

A reviewer points out that in some contexts, some Scots, Northern England, and North Ireland varieties do permit two apparent instances of negation. The following is an example from Shetland:

(71) She canna come, can**'n** she **no**? (Shetland, Jamieson 2018: 247, (314))

This has also been attested in Edinburgh, Glasgow, Doncaster, Newcastle, and Tyrone (see Jamieson 2018 for references). It only occurs in non-canonical interrogative constructions, for instance the negative tag question illustrated in (71). The reviewer suggests that this is straightforward evidence for two NegPs, a high one and a low one.

This is not so straightforward. No one would think that the co-occurrence of constituent negation with sentential negation (as in *You can't not reply*) is evidence of two NegPs, since one of them is not sentential negation (and NegPs are supposed to only be the syntactic expression of sentential negation). In fact, constructions like that in (71) have been analyzed in exactly this way, where the higher negation is sentential negation and the lower one is constituent negation, with the two negations canceling each other out. The clause is then an instance of double negation, and essentially positive (the same as a positive tag on a negative question). Such an analysis has been suggested by Millar & Brown (1979), Beal (1993), as cited in Jamieson (2018). (The form of constituent negation in Shetland is indeed *no*, according to Jamieson 2018: 22.) Jamieson (2018) argues against this analysis, but the only three arguments I can find in that work are not convincing. First, Jamieson (2018: 247) argues that double negation is very marked cross-linguistically. This is only sometimes true; double negation with prefixes and lexical items is not marked at all (*not unlikely, not impossible, don't doubt that, don't deny that*), and even if something is marked, that would not be any barrier to it becoming conventionalized and used with a particular pragmatic function (cf. the extremely marked but conventionalized—and common—phrase *no can do*). Second, Jamieson (2018: 247) claims that double negation is used only in direct contradiction environments, which is not true of examples like (71). This claim is not correct, sentences like *I can't not reply, can I?* or *You can't not reply* can be uttered in a context that includes only the existence of a communication. Third, Jamieson

(2018: 248) says that the double negation analysis would have to treat the second negative element as constituent negation (which it does). However, it cannot be constituent negation, according to Jamieson, as it is what licenses VP ellipsis in the tag question. This argument does not go through, as it rests on an unsound premise. Constituent negation *can* be stranded in VP ellipsis:

(72) A: I can't do that! B: You can't not.

It is probably not constituent negation that is licensing VP ellipsis in this kind of example, it is the auxiliary verb. But then the same is true in (71), and there is no barrier to analyzing the lower negation in (71) as constituent negation. (See also Bruening 2010b, who argues that negation never plays a licensing role for VP ellipsis; it only appears to because it affects stress placement.)

The three arguments that Jamieson (2018) gives against treating this kind of example as double negation do not go through, then, and I see no barrier to analyzing it that way. Moreover, Jamieson's (2018) own analysis treats the higher instance of negation (*'n* in (71)) as not negative at all. In Jamieson's analysis, it has a very different syntactic, semantic, and pragmatic function. Specifically, it is a "CHECK," which checks whether the addressee shares the belief of the negated proposition (that she can't come, in (71)). Syntactically, Jamieson (2018) locates this CHECK element in a head above C called "Ground." In this analysis, then, there are not two negative elements at all in examples like (71), and there are not two NegPs.

Bailey & Childs (2024) examine the Tyneside version of this type of construction. They argue that it is an instance of negative concord. On this account, there is only one semantic negation, which is null; the two overt negative elements are not inherently negative and just agree with the abstract, interpretable negation. As for the syntax, they have only one NegP, with the lower negative element adjoined (to vP).

Since there are (at least) three analyses of the kind of example in (71) that do not involve two NegPs, such data do not provide direct evidence for the existence of two NegPs.

I should also add that, in the adjunct analysis, nothing would stop a given negative adjunct from taking on additional semantic/pragmatic meanings or functions (or even changing to become something non-negative). One might in fact expect this if there is more than one such adjunct, since speakers might have a desire to distinguish them. The adjunct analysis therefore has the tools available to describe the kind of sociolinguistic variation that we see across different varieties of English.

6 Extension to the Bulgarian Definite Marker

The analysis proposed here for English *n't* can also be extended straightforwardly to account for the problematic placement of the definite marker in Bulgarian (Halpern 1995, Franks 2001, Embick & Noyer 2001, Dost & Gribanova 2006, Koev 2011, Harizanov & Gribanova 2015, Harizanov 2018, Rudin 2018, Adamson 2022). Recall that English *n't* is a head adjunct. Head adjuncts, like all adjuncts, merge at the first point that they can. This will be when an item of the type they select has been added to the syntactic structure being built. In a top-down/left-to-right syntax, this will always be the first element of the appropriate type.

The placement of the Bulgarian definite marker meets this description exactly. It is a suffix that always appears on the *first* element in the NP that is capable of bearing nominal inflection (gender and number). These elements include the head noun itself, adjectives, numerals, and (non-clitic) possessive pronouns. If there is only a head noun, the definite marker attaches to that (73a); if there is a prenominal modifier, the definite marker attaches to that instead (73b); if there are two prenominal modifiers, the definite marker appears on the first one (73c):

(73) (Franks 2001: 54, (3))

a. kniga-**ta**
book-Def

'the book'

b. interesna-**ta** kniga
interesting-Def book
'the interesting book'

c. goljama-**ta** interesna kniga
big-Def interesting book
'the big, interesting book'

If a prenominal modifier is itself modified with an adverb that is not capable of bearing nominal inflection, the definite marker skips over the adverb:

(74) dosta glupava-**ta** zabeležka
quite stupid-Def remark
'the quite stupid remark' (Franks 2001: 55, (5b))

If there are coordinated adjectives, the definite marker appears only on the first one (Harizanov & Gribanova 2015):

(75) prohladna-**ta** i sveža večer
cool-Def and fresh evening
'the cool and fresh evening'

If two nouns are coordinated intersectively, the definite marker also appears only on the first one:[7]

(76) prijatel-**jat** i kolega
friend-Def and colleague
'the friend and colleague' (Adamson 2022: (12))

As stated above, the elements that the definite marker can attach to in Bulgarian are those that bear nominal inflection. Nominal inflection is a suffix that expresses gender and number. It was not segmented in the examples above, but I do segment it in (77) to show its relative position:

(77) (Franks 2001: 56, (8))

a. nov-a-ta knig-a
new-FemSg-Def book-FemSg
'the new book'

b. interesn-i-te knig-i
interesting-FemPl-Def book-FemPl
'the interesting books'

[7] If two nouns are instead coordinated collectively, then both nouns are marked with the definite marker:

(i) bašta-**ta** i sin*(-at)
father-Def and son-Def
'the father and the son' (Adamson 2019: 86, note 19, (ii))

It seems likely that this is coordination of two full NPs, rather than just coordination of Ns. If that is the case, then it should not be possible to modify them both with a single adjective, for instance, 'the tall father and son' (possible in English). Data like this are currently lacking.

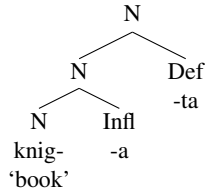
c. interesn-o-to sel-o
interesting-NeutSg-Def village-NeutSg
'the interesting village'

d. interesn-i-te gradov-e
interesting-MascPl-Def city-MascPl
'the interesting cities'

From (77) it can be seen that the definite marker attaches outside of the nominal inflection. This is just like English *n't*, which attaches outside of the verbal inflection. (It will also be relevant below that the form of Def also varies by number and gender.)

I propose that the Bulgarian definite marker is a head adjunct, just like English *n't*. It adjoins to certain elements, all of which select an Infl head. As an adjunct, it comes outside of things selected by the head that it selects, but it forms a complex head with its host and any heads that that host selects:

(78)



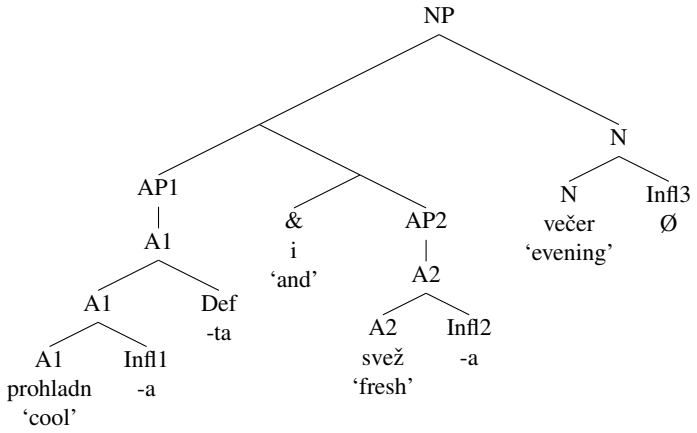
What Def selects is a category of elements that are capable of bearing nominal inflection, as already noted. I assume that these all have something in common, call it a feature [+ϕ] to indicate that it has ϕ-features that need to be realized (following roughly Adamson 2022). Def then selects something with the feature [+ϕ]. As described above, it will be merged as soon as there is something present in the structure being built that has this feature. In the top-down/left-to-right system assumed here, this will always put it on the leftmost element with the selected feature.

To go through an example, consider the case of coordinated adjectives from above (75):

(79) prohladna-**ta** i sveža večer
cool-Def and fresh evening
'the cool and fresh evening' (Harizanov & Gribanova 2015)

The structure of coordination is not particularly important here (although it could be, in deciding between top-down and left-to-right structure building, but I will not do that here). I will assume that coordination is asymmetric, but what the labels are does not matter. The two conjuncts could be specifier and complement of the head & (e.g., Munn 1987, Johannessen 1998, Zhang 2010, Murphy & Puškar 2018), or the structure could be an adjunction structure with the labels of the conjuncts projecting (e.g., Moltmann 1992, Munn 1993, Bruening & Al Khalaf 2020). I will be uncommitted and leave the nodes unlabeled:

(80)



As described above, the syntax starts building the phase by selecting the head of the phase, which in this case is N. As before, it does not actually merge the head N, instead it creates something of the bare category N:

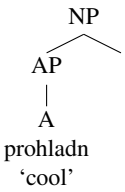
(81) N

Then the syntax asks whether N requires a specifier (it does not), and whether there are any adjuncts that select NP. In this case, the syntax does want to merge an adjunct, an adjective. So it selects an adjective, but does not merge it yet; instead it merges something of category A as a daughter of the previously created node:

(82)

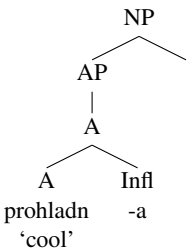
The syntax now asks whether A requires a specifier or whether merging any adjuncts that select APs is desired. The answer to both questions is no, so the syntax merges the A head:

(83)



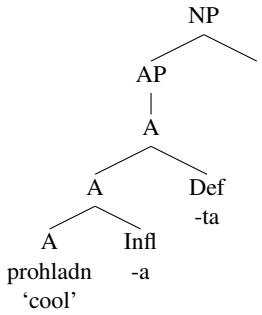
A heads select an Infl in Bulgarian, so an Infl head has to be merged with A (these features will be checked against N, by Agree):

(84)



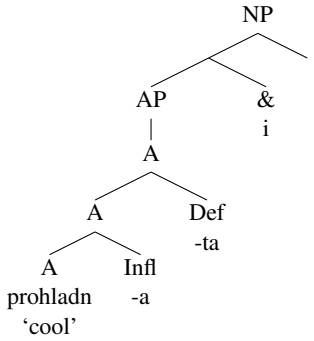
A heads are also [+ϕ], and the syntax wants to merge an adjunct that selects [+ϕ], namely Def, so Def is merged with the A:

(85)



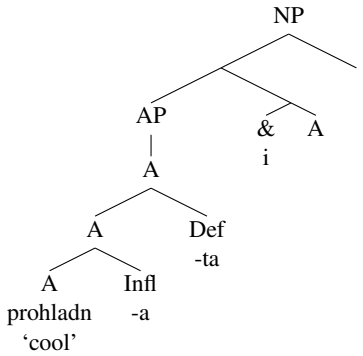
The syntax now decides that it wants to coordinate the AP with another AP, so it selects the coordinator and merges it with the AP:

(86)



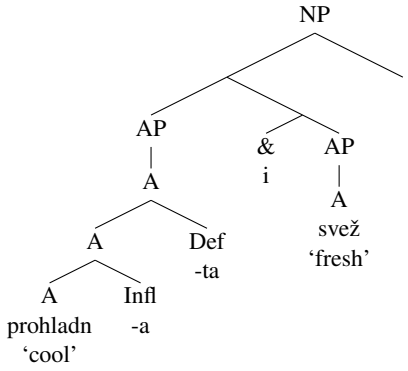
Coordinators require another instance of the same category (or at least a compatible category), so the second A is selected but not yet merged, instead only the bare category is:

(87)



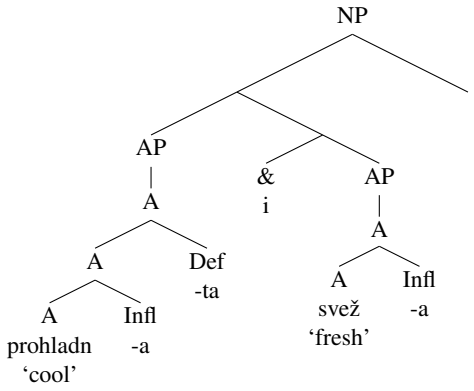
This A does not require a specifier and the syntax does not decide to merge an adjunct that selects AP, so the head A is merged:

(88)



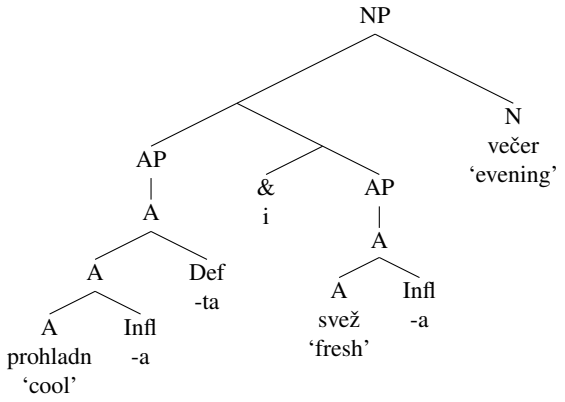
A again selects an Infl, so one is merged:

(89)



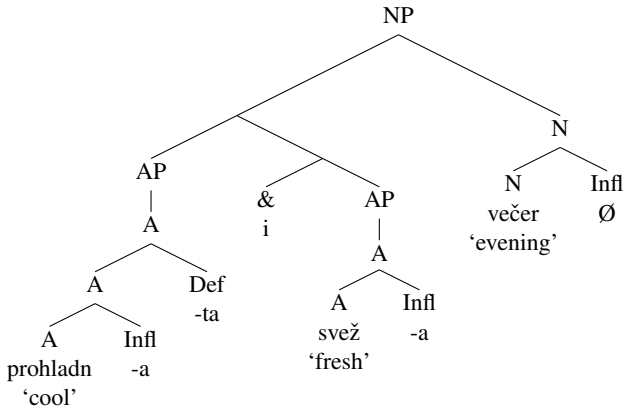
At this point, the syntax asks if there are any head adjuncts that select A. A is [+ϕ], but Def has already been merged into the NP phase, and the NP phase is limited to one instance of Def. So Def cannot be merged here. The syntax therefore moves on. No other adjuncts to N are desired, so N is merged:

(90)



Ns also require an Infl head in Bulgarian, so one must be merged (this one is null):

(91)



N is also [+ϕ], but again, Def has already been merged in this NP phase, and NP phases are limited to one instance of Def. So Def cannot be merged with the head N in this case.

This completes the derivation of the phase. Def has been placed correctly on the first element that is capable of bearing nominal inflection (the first [+ϕ] element in the NP).

As for its semantics, I propose that Def triggers a type-shifting rule that applies to the NP it is part of. This rule shifts the type of NP from a property f of type $\langle$e,t$\rangle$ to an individual of type e, and it adds

the presupposition that there is a unique, identifiable individual in the context with property f. One way of spelling this out formally is to propose that Def has an interpretable [+Def] feature, which percolates to the highest NP node. At the highest NP node, it is this feature that is interpreted as a type-shifting rule.

It should be clear from the example just gone through how the definite suffix is located on the first/highest element of the NP that bears nominal inflection. In all cases, the system will correctly place the definite suffix on the first head that is merged into the NP phase that is [+ϕ]. If there is only a head noun, as in (73a), Def will be merged with that (outside of its selected Infl head). If there is a prenominal modifier, as in (73b), Def will go on that instead. If there are two, it will go on the first one, as in (73c), exactly as in the case of coordinated adjectives gone through in detail above. Def will not attach to any heads that are not [+ϕ], so it will skip over adverbs as in (74). If two head nouns are coordinated, Def will attach to the first one (76); this will work in exactly the same way as coordinated adjectives.

This captures the basic facts of the distribution of the definite suffix in Bulgarian. There are of course several complications, but they can be fit into the system easily. For instance, there are different placement possibilities with complex numerals; see Adamson (2022). Adamson (2022) outlines an approach to these that can be adapted to the current analysis. Adamson (2022) also shows that there are certain borrowed adjectives that are exceptional in not permitting nominal inflection. An example follows.

(92) % erbap žena-ta
skillful woman-Def
'the skillful woman' (Adamson 2022: 4, (27))

For some speakers, these elements are transparent to the definite marker: it just skips over them. In the current proposal, for those speakers these items would just not be [+ϕ]. They are then ignored for the placement of Def, and Def will be merged with the first [+ϕ] element that is merged into the NP (the N in (92)). For other speakers, however, having the definite article with one of these modifiers is ungrammatical. For these speakers, such modifiers must be [+ϕ], so that Def merges with them (if they are the first [+ϕ] element in the NP). But then this must violate the grammar in some way. I suggest that the violation concerns agreement. In (77), it should be clear that the form of Def varies according to the number and gender of the head noun. It is not just the Infl node whose form varies according to these features. Franks (2001) describes how the form of Def is determined as follows:

(93) If the stem ends in an *-a*, then the article is always *ta*, otherwise it depends on morphological properties of the stem. (Franks 2001: 57, (12))

If this description is accurate, then the form of Def is determined by the form of the Infl node immediately to its left. That is, Def does not itself agree with the head noun; it takes its form based on the Infl node it is adjacent to. Then Def cannot have its form determined with non-inflecting modifiers like *erbap*, since they do not have an Infl node. In the current proposal, they are [+ϕ] for the relevant speakers but do not select an Infl node. Then the form of Def cannot be determined, and the derivation crashes. Def also cannot be merged somewhere else, because it always has to merge as soon as its selectional requirements can be satisfied.

An additional complication is that Bulgarian also has clitic forms of possessive pronouns that have the same distribution as the definite marker. They also attach to the first [+ϕ] element in the NP, outside of Def:

(94) (Franks 2001: 59, (23e–f))
a. mnogo-to **ti** novi knigi
many-the your new books
'your many new books'

b. večno mlada-ta **ni** stolica
perpetually young-Def our capital
'our perpetually young capital'

One issue that has been discussed heavily in the literature on this topic in Bulgarian is that Def has all the properties of a canonical affix, like idiosyncratic phonology and arbitrary gaps, but the clitic pronouns do not, they behave like clitics (see, e.g., Franks 2001, Embick & Noyer 2001). Embick & Noyer (2001) correctly point out that this is not a problem if the same mechanism puts them in their position. In the current proposal, the clitic pronouns would also be head adjuncts that select a head with the feature [+ϕ]. The only difference between them and Def is in the nature of the phonological boundary between them and their host. For instance, there might be a Prosodic Word boundary between Def and the clitic pronouns; the clitic pronouns would be adjoined to the Prosodic Word, while Def is part of the Prosodic Word of its host (see Franks 2001 on final devoicing, which is blocked by vowel-initial Def but not a vowel-initial clitic pronoun). I assume that there is no principled distinction between clitics and affixes (see footnote 6); in cases like this, the only difference is a prosodic one.

Assuming all of the complications can be assimilated into the system (and I do not see any problems),[8] the current proposal correctly captures the distribution of the definite suffix in Bulgarian. In its empirical coverage, it is essentially equivalent to several other proposals in the literature. For instance, Adamson (2022) and Koev (2011) both locate Def on the [+ϕ] element in the NP that is not c-commanded by any other such element; this is the *highest* one (see Adamson 2022 for the structure he assumes for coordination, which is different from the one here). Harizanov (2018) locates Def on the *leftmost* agreeing head. Since "leftmost" (or "first") and "highest" are equivalent in Bulgarian NPs (depending on one's assumptions regarding coordination), these are equivalent descriptions. Since I have not committed to "leftmost" versus "highest," both are equivalent to the system developed here (note that coordination does seem to favor a linear description, on the simplest assumptions).

Distinguishing between these theories and the current one therefore comes down to conceptual issues. Koev (2011) (and Franks 2001) treat Def as an agreement affix, agreeing with an abstract D. Adamson (2022) criticizes this approach on the following grounds: (i) The agreement approach must stipulate that the D head is null; (ii) The possessive clitic pronouns should presumably be treated in the same way, as agreement, but they do not behave the same when a floating quantifier agrees with an NP. A floating quantifier agrees in definiteness with the NP it modifies, but it does not show agreement for a possessive pronoun (see Adamson 2022: 6, (40)). The current approach is to be preferred to the agreement approach for the same reasons: It has only a single instance of Def, the one that is spelled out, and it would not lead to the expectation that a clitic possessive pronoun would be copied on a floating quantifier (it is not clear to me how strong this latter argument is, as it is not clear that the agreement approach would lead to this expectation, either).

Adamson's (2022) own approach is a variant of that in Embick & Noyer (2001), where the head D lowers onto its host at a post-syntactic level of grammar (this is also the analysis in Harizanov 2018). The current proposal is clearly superior to this, as it does not need post-syntactic levels of grammar and it does not need operations like lowering. The Def affix is placed where it goes by Merge, the operation that places all elements in syntax. Merge of Def is driven by selection, which is what drives Merge generally. The current proposal is maximally simple, and therefore to be preferred. It also relates the Bulgarian definite marker to English *n't*, something that no other analysis does, but which is desirable given the striking parallels between them.[9]

[8] One issue is the possibility of multiple determination, but Rudin (2018) concludes that this is a different phenomenon (see especially her footnote 16). From the description in Rudin (2018), it appears that multiple determination in the colloquial language is an agreement phenomenon contingent on the presence of a demonstrative.

[9] English *n't* does not behave like the Bulgarian definite marker in coordination. In Bulgarian, a single definite marker can be shared across conjuncts (conjoined nouns or conjoined adjectives). This is not possible for English *n't*. If there is only one instance

7 Conclusion

In this paper, I have proposed an analysis of English negation that treats both *not* and *n't* as adjuncts. *Not* is a phrasal adjunct and *n't* is a head adjunct. I have shown that there is no motivation for NegP projections, and in particular no motivation for multiple NegP projections ("high" and "low"). Viewing syntax as being built in a top-down or left-to-right fashion rather than bottom-up correctly locates *n't* on the *first* element of the appropriate type, given a principle that merges things as soon as they can be. I have also shown that the definite marker in Bulgarian can be analyzed in the same way, without the need for post-syntactic operations. As for *not*, it is a completely non-selective adjunct that can attach to any phrase. There is no need to distinguish sentential negation from constituent negation, as they differ only in scope.

The approach to *n't* and the Bulgarian definite marker requires that we recognize the existence of adjuncts that are heads. We should actually expect such things; there is no reason there should not be heads that are adjuncts. In addition to English *n't* and the Bulgarian definite marker, one candidate might be the Amharic definite marker (Kramer 2010).

The current proposal also has implications for the typology of negation. Zeijlstra (2004) proposes that negation can either be an adverb, or a head heading a NegP projection. In the current proposal, negation can also be a head that does not head a NegP projection, but behaves like an adjunct. It is not clear how this would fit into Zeijlstra's typology. On the one hand, it could be viewed as a type of adverb. On the other hand, it could behave like a head. If it is viewed as an adverb, then there cannot be any necessary connection between head status and negative concord, as Zeijlstra proposes, since many non-standard varieties of English have negative concord. If it is viewed as a head, then just being a head must be sufficient to license negative concord, without needing to head a NegP in the clause. The current proposal should also invite us to rethink the analysis of negation in other languages where NegPs (and even multiple NegPs) have been proposed (see Bruening 2024 on analyzing negation in Mari and Udmurt as a head adjunct).

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of negation, the other conjunct is interpreted as positive (ia–ib):

(i) a. She won't but could reset the machine.
b. She can but won't reset the machine.
c. She can't and won't reset the machine.

Note that the coordinator *and* is much less felicitous than *but*, for exactly this reason: The two conjuncts contrast in their polarity. In (ic), we can see that *both* conjuncts can have negation. It is clear that *n't* cannot be shared across conjuncts and must be contentful in each conjunct. It seems likely that coordination here involves coordination of larger categories plus ellipsis. Note that adverbs can also appear: *She can but probably won't reset the machine*, or *She won't but probably could reset the machine*. I take this to show that coordination here has to include much more than just two heads (cf. Bruening 2018b,a).

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