

Doing Away with Post-Syntactic Operations: No Need for Lowering or Local Dislocation in a Minimal Morphosyntax

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1 Introduction

In this paper I assume the desirability of having a single component of grammar for both the morphology and the syntax (for recent arguments, see Bruening 2018). The currently most prominent framework with that character, Distributed Morphology (Halle & Marantz 1993), has a post-syntactic component of the grammar where various alterations to the output of the syntax can take place. I take such a model to be less than optimal. The ideal model of morphosyntax would not have distinct syntactic and post-syntactic components, and it would also not have any operations that are not purely syntactic (or phonological). I pursue a research program where there is only a single combinatorial system, the morphosyntax, and there are no morphology-specific operations.

As a starting point, it is inevitable that every theory will require language-specific wellformedness conditions of some sort. These are necessary to require agreement morphemes on elements in the NP in languages with nominal concord but not in English, for instance. I make the starting hypothesis that such wellformedness conditions are *all* that is required, in addition to the operations that the syntax uses. As for those, here too I pursue a minimal approach: the only syntactic operations that we need are Merge and Agree.

The purpose of this paper is to show that using only the three devices of language-particular wellformedness conditions, Merge, and Agree, we can account for all of the cases from the literature that have been claimed to require post-syntactic movement operations. I look at various cases that have been claimed to require the operations of Lowering and Local Dislocation from Embick & Noyer (2001), and show that in every case, we can achieve a simpler and empirically superior analysis without them. There is no need for a post-syntactic component of the grammar at all, and there is no need for any operations beyond Merge, Agree, and language-particular wellformedness conditions. The only distinct modules we need in our model of grammar are the syntax and the phonology, and the syntax does not need to be divided into levels. Operations that take place in the post-syntactic component in Distributed Morphology instead take place in the syntax, for instance insertion of vocabulary items and specification of linear order (both part of Merge). Otherwise they do not exist at all, like Lowering and Local Dislocation. There are in addition purely phonological operations, but they refer only to phonological units and not to syntactic ones (e.g., prosodic words versus syntactic heads and phrases). They are therefore not part of the morphosyntax at all.

The cases that I examine in detail here are tense in English, the Bulgarian definite marker, the Lithuanian reflexive, the Latin coordinator *que-*, the Huave reflexive, the English comparative and superlative (all from Embick & Noyer 2001), preposition-determiner combinations (Embick 2003), the Amharic definite marker (Kramer 2010), and Old Irish preverbs (Adger 2006). These are all of the cases of Lowering and Local Dislocation that I have been able to find in the published literature. As I show, none of them actually require either Lowering or Local Dislocation. In several cases, preposition-determiner combinations in particular, the empirical facts are in fact incompatible with the assumptions of the Lowering/Local Dislocation approach. Preposition-determiner combinations require simultaneous reference to hierarchical and linear adjacency, something that is impossible in the Distributed Morphology framework.

I begin the paper by outlining in broad strokes the research agenda for morphosyntax that I assume here (section 2). I then turn to various cases where post-syntactic Lowering and Local Dislocation have been proposed. Section 3 groups some such cases under a “highest X” generalization, and outlines my approach to capturing this generalization. Section 4 groups other such cases under the broad heading of second-position effects. Section 5 discusses other cases that fall under neither of these headings. Finally, section 6 concludes with discussion and further implications.

2 Toward a Consolidated Morphosyntax

As mentioned in the introduction, I pursue a research program in which there are no morphology-particular operations; there is only the syntax. To distinguish this program from Distributed Morphology, I will refer to it as *Consolidated Morphosyntax*.

I start with a basic, unalterable fact: every theory of morphosyntax is going to require some kind of language-particular wellformedness conditions. These are necessary to distinguish, say, Romance languages from English, where all well-formed Romance nouns and verbs belong to declension and conjugation classes, respectively, and members of each class require a morpheme encoding that class (as well as other information, like number). Similarly, languages with nominal concord, unlike English, require the appearance of agreement morphemes on every potentially agreeing element within the NP. It is language-particular wellformedness conditions that ensure the appearance of such agreement morphemes.

I then pursue the hypothesis that such conditions are *all* that is required, besides whatever operations our theory of syntax makes available. That is, there are no morphological operations. There are only wellformedness conditions. I also pursue a minimal syntax, which contains only the operations Merge and Agee (Chomsky 2000).

I further assume that linear order is specified at Merge, from the beginning (for empirical arguments that this is correct, see Bruening 2014, Bruening & Khalaf 2019). Merge always creates an ordered set. This renders superfluous a post-syntactic operation of linearization. I also assume that phonological and semantic content is present from the beginning, and that the phonology operates in parallel with the syntax. That is, what Merge operates on is lexical items containing all phonological and semantic as well as syntactic features. This renders a post-syntactic operation of vocabulary insertion superfluous; it is also part of Merge.

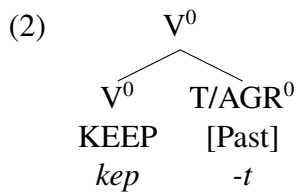
I assume a phrase structure that distinguishes heads (X^0 s) from phrases (XPs). Heads can be complex, dominating more than one X^0 . However, I assume that complex heads are created not by head movement but solely by Merge, subject to wellformedness conditions in the particular

language. See Bruening (2019) for arguments that complex morphological objects (verbs, in particular) are not put together by head movement. Heads that are part of a complex head have to be licensed, by wellformedness conditions. Heads that have a choice of feature values have to have those values licensed by Agee.

To take a simple example, English has a wellformedness condition stating that all verbs have to have a T/AGR head merged with them:

- (1) WFC-E1: An English V^0 must have a T/AGR⁰ head adjoined to it on the right.

An example of the kind of syntactic object that is licensed by this wellformedness condition is the past tense verb *kept*:



The wellformedness condition itself forces and licenses the merger of the T/AGR head, which takes place before the V is merged into the phrasal syntax. The syntax takes the item *kep-* out of the lexicon, and merges it with the item *-t*. The latter is a T/AGR node with the feature value [Past]. The feature values of T/AGR have to be licensed by Agee, in this case with a functional head in the clause that I will identify as T(ense). This functional head has tense features inherently and agreement features through Agee with the highest argument. Agee between T in the clause and T/AGR on the verb licenses the features of T/AGR (if they match). The verb may or may not move out of VP; in English it does not. There is in general no relation between the morphological makeup of the verb and the position of the verb (see Bruening 2019).

Particular allomorphs of lexical items have to match the local context. In this example, the syntax took the item *kep-* and merged it into the syntax. This item is an allomorph of the abstract verbal root KEEP which is specified as appearing before a past tense T/AGR, so in this case it matches. The syntax also took the particular *-t* allomorph of T/AGR and merged it with this root. This head is a realization of [Past] T/AGR that can only appear following certain roots. The root KEEP is on the list of roots that *-t* can follow, so again the context matches and *-t* is licensed in this position. For the purposes of this paper I will simply assume that each head will be realized as the appropriate allomorph given its context.

Note that this approach already gets rid of one instance of the post-syntactic operation of Lowering, that of T lowering onto V in English (see Embick & Noyer 2001, Embick 2010 for a Lowering analysis of English verbal morphology). There is no such operation. All English verbs are required to have a T/AGR head merged with them, even non-finite ones (non-finite T/AGR is pronounced *-ing*, *-en*, and null, depending on the features). This merger is done before the verb is merged into the phrasal syntax. The verb in question may or may not undergo head movement in the syntax, it makes no difference to the morphology. Auxiliary verbs, as verbs, also have a T/AGR head merged with them; some of them may undergo head movement in the syntax, while main verbs typically do not. It is again language-particular wellformedness conditions that determine whether movement takes place. For instance, a wellformedness condition requires that main verbs in French move across negation and adverbs, but the English wellformedness conditions instead require that main verbs not move, while auxiliary verbs obligatorily move across negation

but only optionally across adverbs. For an approach to *do*-support that is consistent with this analysis, see Bruening 2010b (briefly: *do*-support is not a last resort operation, instead there are certain syntactic contexts in English that require an auxiliary verb).

As far as the content of wellformedness conditions goes, they can refer to anything that the syntax can, since they are syntactic conditions. Wellformedness conditions can therefore refer to categories (“V,” “AGR”), subcategories (“main verb”), hierarchical relations (dominance and c-command), and precedence (including “left” and “right,” which are just different words for “precedes” and “follows”). We will see examples as we proceed. I assume that notions that we know the syntax does not use, like counting or reverse order, are also not capable of figuring in wellformedness conditions, but it is not my purpose here to explain why the syntax has the form that it does. All the wellformedness conditions that we need for the cases here refer only to grammatical categories, hierarchical relations, and linear order.

Having outlined some bare assumptions and gotten rid of one instance of Lowering in the process, I now turn to other instances where Lowering and Local Dislocation have been employed. In all cases, the very minimal assumptions of the current approach lead to improved analyses that are not only simpler, they also fare better empirically.

3 The Highest X Generalization

At least one case where Lowering has been proposed falls under a generalization that I will call the “highest X” generalization. In numerous languages, for instance, the highest verb in the clause always bears finite tense/aspect and agreement morphemes. This can be the main verb if no auxiliary verbs are present, or the highest auxiliary verb if there is one or more auxiliary verb. As an example, the highest auxiliary verb (called a “preverb” in the Algonquian literature) in Passamaquoddy-Maliseet “independent” clauses bears an agreement prefix, here *'t-* (the auxiliary verb is underlined, the main verb is boldfaced.):¹

- (3) *ma=te* *'t-oqeci* ***tok***-om-a-wi-wa-s-opon-il
 Neg=Emph 3-try hit-TransAn-Dir-Neg-3Pl-Dub-Pret-Obv
 ‘they (proximate) may not have tried to hit him/her (obviative)’

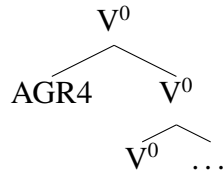
At the same time, the main verb bears a sequence of suffixes, including ones that would have had to lower past the auxiliary verb in a Distributed Morphology-style analysis. For example, negation is marked twice, once as a freestanding element before the verb (*ma* in the example above), and second as a suffix (*-wi-*) on the main verb. In a Lowering or Local Dislocation account, the negative suffix would have had to Lower or Dislocate across the auxiliary verb (and numerous other elements) to get from the position of clausal negation to the main verb. So would many of the other suffixes, like the modal and tense suffixes. (See Bruening 2019 for detailed arguments against head movement and lowering accounts.)

The approach I take instead is to acknowledge that wellformedness conditions can refer directly to notions like “highest verb” and “main/auxiliary verb.” In Passamaquoddy-Maliseet, one wellformedness condition requires an AGR morpheme to Merge with the highest verb on the left (this

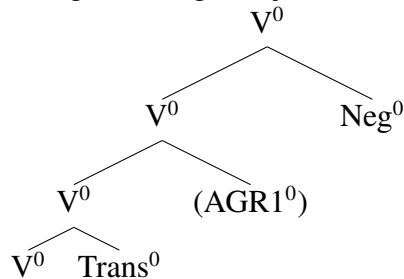
¹Abbreviations: Dir = direct voice (indicates the third person proximate argument (3) is acting on the third person obviative argument), Dub = dubitative (modal category), Neg = negative, Obv = obviative, Pl = plural, Pret = preterite (tense), TransAn = transitive verb with animate object.

is the agreement prefix, 't- in the example above). Other wellformedness conditions instead refer to the main verb, and require that various heads Merge with it as suffixes. I state the wellformedness conditions for the prefix and the negative suffix here (the numbers on the AGR morphemes are just there to distinguish them from each other):

- (4) a. WFC-PM1: The highest verb in a Passamaquoddy-Maliseet clause that requires the independent order must have an AGR4⁰ head adjoined to it on the left such that it c-commands all other heads adjoined to the V⁰:



- b. WFC-PM2: The main verb in a Passamaquoddy-Maliseet negative clause must have a Neg⁰ head right-adjoined to it following Trans and AGR1 (if present):



(The Trans morpheme marks transitivity and animacy of one of the arguments, while AGR1 marks the direct or inverse voice. The AGR morphemes will Agree with particular arguments in the clause, mediated by functional heads in the clause, but I do not spell out a theory of such agreement here. There are also two other AGR suffixes, AGR2 and AGR3, also not important here.)

I assume the following definitions for what it means to be located in a particular domain, and what it means to be the highest element of a given type within that domain. Since linear order is specified at Merge, the syntax can refer to it. “Highest” is then parameterized to refer either to c-command or to precedence:

- (5) a. X is in a phrase CP1 of category C iff X is dominated by CP1 and there is no CP2 of category C such that CP2 dominates X but does not dominate CP1.
 b. X1 is the highest element of category X in a phrase YP iff there is no element X2 of category X in YP such that X2 {c-commands/precedes} X1.
 ({A/B} indicates a parametric choice between A and B)

Since Passamaquoddy-Maliseet is a head-initial language, “c-commands” and “precedes” are indistinguishable for identifying the highest verb in a clause. It is therefore impossible to know which setting Passamaquoddy-Maliseet has chosen for this domain. In other cases it will make a difference, as we will see for Bulgarian, next. (In head-final languages, only c-command will pick out the highest auxiliary verb as the highest in a clause.)

To summarize, wellformedness conditions can refer directly to categories like “verb” and sub-categories like “auxiliary/main verb.” They can also refer to the *highest* member of such a category in a given domain. They can then require that a certain head be merged with that category.

Wellformedness conditions also specify the directionality of Merge and they may also specify the relative order of heads within a complex head (see more on this in section 5.1). Merge is simply Merge, there is no movement and the head that is merged is not a functional head from elsewhere within the domain. When clausal heads appear to be implicated it is because they Agree with heads that have a choice of values, for instance tense and agreement. Typical domains that are referred to by wellformedness conditions are the clause, as in the Passamaquoddy-Maliseet example here, and the nominal, next.

3.1 The Bulgarian Definite Marker

We can now begin to re-examine cases where Lowering and Local Dislocation have been proposed. I start with the Bulgarian definite marker.

Embick & Noyer (2001) propose a Lowering analysis of the definite marker in Bulgarian. The Bulgarian definite marker appears suffixed to the first word of a certain type within the NP, such as adjectives and possessive pronouns (which behave morphologically like adjectives), or the head noun if it appears alone (see, e.g., Franks 2001):

- (6) a. kniga-ta ‘book-Def’
- b. xubava-ta kniga ‘nice-Def book’
- c. moja-ta xubava kniga ‘my-Def nice book’
- d. tri-te novi knigi ‘three-Def new books’

If an adjective is modified by an adverb, the definite marker attaches to the head adjective, not the first element (the adverb):

- (7) a. *mnog-ət star teatər
 very-Def old theater
 ‘the very old theater’
- b. mnogo starij-ə teatər
- (8) a. dosta glupava-ta zabeleška
 quite stupid-Def remark
 ‘the quite stupid remark’
- b. tvārde težka-ta masa
 excessively heavy-Def table
 ‘the excessively heavy table’

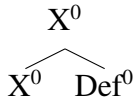
As mentioned, Embick & Noyer (2001) propose a Lowering analysis, of the head D onto the head of its complement. This analysis requires an adjective to be a head that takes NP as its complement, as was proposed by Abney (1987), but this is an analysis that is problematic and has been discredited (cf. Hankamer & Mikkelsen 2005). An empirical problem comes from coordinated adjectives, where the definite marker only appears on the first one (Harizanov & Gribanova 2014):

- (9) prohladna-ta i sveža večer
 cool-Def and fresh evening
 ‘the cool and fresh evening’

On Embick and Noyer’s account, this would require Lowering onto just one member of a conjunction, in violation of the Coordinate Structure Constraint.

In the framework adopted here, the positioning of the definite suffix in Bulgarian can be described quite simply with a single wellformedness condition. This condition will refer to the highest element of a particular type within the NP. I will simply notate all elements that are capable of bearing the definite marker [+N] (this class of elements consists of those that bear number/gender concord). The wellformedness condition can then be stated as follows:²

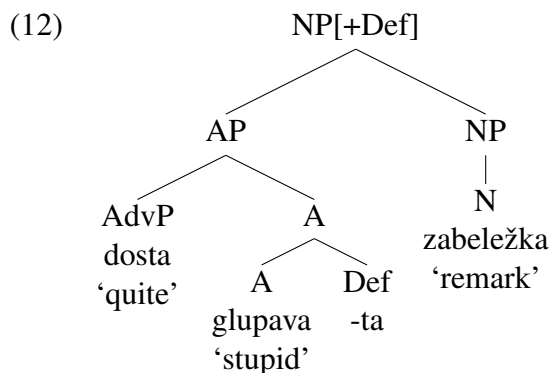
- (10) WFC-B1: The highest [+N] head in a Bulgarian [+Def] NP must have a Def⁰ head adjoined to it on the right:



Bulgarian in this instance chooses the ‘precedes’ setting for the definition of ‘highest’:

- (11) Bulgarian NPs: X1 is the highest element of category X in a Bulgarian NP iff there is no element X2 of category X in NP such that X2 precedes X1.

I assume that APs adjoin to NP:

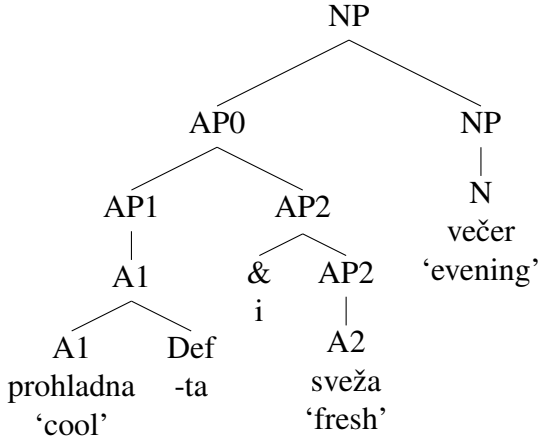


By the definition of highest in (11), the adjective is the highest [+N] head in the NP. The Adv is not [+N], so it is not in contention. The head N is preceded by the [+N] adjective. Only the adjective is not preceded by any [+N] head. If there is nothing else in the NP, then the N itself is the highest [+N] head, since no other [+N] head will precede it.

I assume a non-headed structure for coordination, but any structure will do. The category of the whole phrase is the same as that of its conjuncts, but it has no head of that category. The coordinator adjoins to second (and subsequent) conjuncts:

²This statement of the wellformedness condition is simplified in various ways that are not relevant here. For instance, the position of the Def head will have to be specified with regard to other morphemes on the [+N] head (number/gender concord morphemes). In addition, definite NPs that have a demonstrative do not have the definite suffix (Dost & Gribanova 2006); this will also have to be specified in the wellformedness condition. In addition, certain kinship terms like ‘mother’ and ‘brother’ idiosyncratically lack Def when no adjective is present; such lexical idiosyncrasies will also have to be specified (perhaps with rules of contextual allomorphy, choosing a null variant of Def with certain stems).

(13)



In this structure, the highest [+N] head is A1. A2 is preceded by another [+N] head, namely A1, while N is preceded by two [+N] heads.

This analysis captures the generalization that the definite suffix appears on the first head of a particular type in the Bulgarian NP. Since the syntax can refer to linear order in the framework assumed here, a wellformedness condition can target the first [+N] element directly. There is no need for post-syntactic movement of any kind, or even any syntactic movement.

Note that Embick and Noyer's analysis could capture the coordination facts by analyzing the movement of D as Local Dislocation rather than Lowering. But then they would expect D to appear on an adverb modifying an adjective, incorrectly, since Local Dislocation is sensitive only to adjacency. I conclude from this that Embick and Noyer's typology of movement is incorrect; the facts do not line up the way they should in their analysis.

3.2 Summary

In this section, I have illustrated the Highest X generalization and shown how wellformedness conditions can refer to the highest element of a certain type within a given domain. I have applied this analysis to the case of the Bulgarian definite marker. The distribution of the Bulgarian definite marker can be captured with a single wellformedness condition, whereas the Lowering analysis proposed by Embick & Noyer (2001) is more complicated and it fails when it comes to coordinated adjectives. Not only is there no need for an operation of Lowering, the analysis that employs it is inadequate.

Embick & Noyer (2001) also propose a Lowering analysis of definite marking in Danish and Swedish. I do not address this case here, as this analysis was already shown to be problematic by Hankamer & Mikkelsen (2005). The facts have already been analyzed without post-syntactic movement, by Hankamer & Mikkelsen (2005) and Heck et al. (2008). The framework here makes a different analysis available, but those two works are sufficient to show that Lowering is not necessary.

4 Second Position Effects

I turn now to cases where post-syntactic movement has been employed that seem to fall into a broad category of second position effects. There seem to be two distinct phenomena involved

here. One is syntactic, and can be captured straightforwardly with wellformedness conditions of the type employed here. There is no need for post-syntactic movement of either the Lowering or Local Dislocation variety for this type of phenomenon. In contrast, the other phenomenon appears to be purely phonological. In this case, I propose that we do need a phonological operation of prosodic inversion (Halpern 1992) or phonological metathesis. However, this type of phenomenon is purely phonological, and falls outside the syntax entirely, making reference to prosodic rather than syntactic categories. Once again, Lowering and Local Dislocation are not necessary, and they are also the wrong operations, since the phonological phenomenon refers only to prosodic constituents while Lowering and Local Dislocation are stated over syntactic units.

4.1 The Lithuanian Reflexive/Reciprocal

The Lithuanian reflexive/reciprocal morpheme has been claimed to be an instance of a second-position effect within a complex head (Nevis & Joseph 1992), but it should be noted that the morpheme is not always in second position. In any case, its distribution can be stated directly by a wellformedness condition. As I will show, the proposed analysis fares better empirically than the Local Dislocation analysis that Embick & Noyer (2001) and Embick (2003) propose.

The basic facts are the following: If a verb has only a T/AGR suffix, then the reflexive/reciprocal *-s(i)-* (henceforth, just “reflexive,” glossed “Refl”) is a suffix and follows T/AGR. However, with certain “preverb” prefixes, the reflexive appears before the stem instead, following the preverb:³

- (14) a. *laika-ũ-si* ‘consider-1Sg.Pres-Refl’ (‘I get along’)
 b. *iš-si-laika-ũ* ‘PV-Refl-consider-1Sg.Pres’ (‘I hold my stand’)

When there is more than one preverb, the reflexive appears after the first, and if negation is present, the reflexive follows that and precedes any preverbs:

- (15) a. *su-si-pa-žin-ti* ‘PV-Refl-PV-know-Inf’ (‘to become acquainted with’)
 b. *ne-si-lenki-ù* ‘Neg-Refl-bow-1Sg.Pres’ (‘I do not bow’)

Embick & Noyer (2001) propose that the inflection on the verb is formed by moving the V through Neg and other projections to T. The reflexive is adjoined to the entire verbal complex. It then undergoes Local Dislocation with the adjacent head, as illustrated for the case of a preverb below:

- (16) $[-si * [Pr \dots V * T]] \rightarrow [[Pr \oplus si \dots V * T]]$

This gives the right result with a preverb, but it incorrectly puts the reflexive between V and T/AGR in the case of a verb plus suffix (in 14a, it would put the reflexive between the stem and the first person present suffix *-ù*). To fix this problem, Embick and Noyer have to propose that string-vacuous Local Dislocation applies first, adjoining T to V. Then the reflexive can undergo Local Dislocation with the entire (complex) V. This requirement of an unmotivated prior step is a recurrent problem with Local Dislocation analyses; it also arises in the Local Dislocation analysis of Old Irish (section 4.3). Even more problematically, it is not just T/AGR suffixes that precede the reflexive when it is a suffix, all suffixes do, even multiple ones. For instance, the deverbal nominalizing suffix *-masi* also precedes the reflexive:

³All Lithuanian data taken from Nevis & Joseph (1992). Abbreviations that have not already been introduced: Imp = imperative, Nmnlzr = nominalizer, Pres = present tense, PV = preverb, Refl = reflexive, Sg = singular.

(17) *barì-masi-s* ‘scold-Nmnlzr-Refl’ (‘scolding’)

Embick and Noyer’s analysis would require yet another rule of Local Dislocation to apply between the nominalizer and the V stem. Their analysis would furthermore require *two* prior steps of Local Dislocation for cases where there are two suffixes, for instance in imperatives:

- (18) a. *māto-mè-s* ‘see-1Pl-Refl’
 b. *māto-tè-s* ‘see-2Pl-Refl’
 c. *mātý-ki-mè-s* ‘see-Imp-1Pl-Refl’ (‘let’s see each other’)
 d. *mātý-ki-tè-s* ‘see-Imp-2Pl-Refl’ (‘see each other!’)

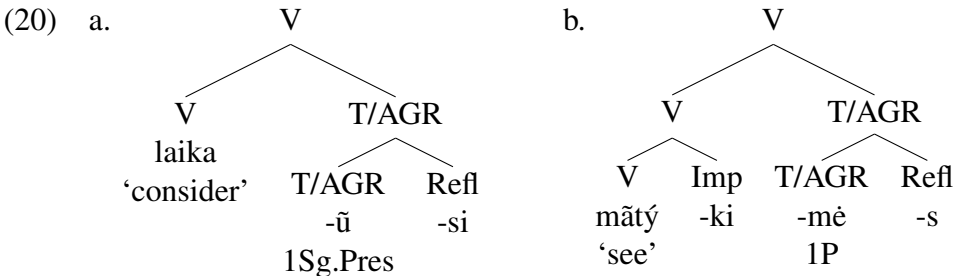
In (18c–d), the imperative would have to undergo Local Dislocation to V, and so would T/AGR, *before* the reflexive could undergo Local Dislocation with the entire V.

The actual generalization is that the reflexive follows all suffixes if there are no preverbs, but follows the first preverb if there is one or more than one. Embick and Noyer’s Local Dislocation analysis does not capture this distribution.

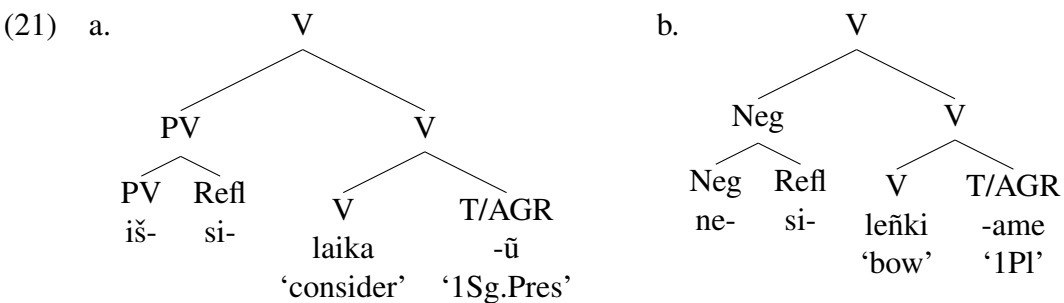
In contrast, a single Wellformedness Condition can capture it in the framework here. I will abstract away from what the reflexive morpheme is and posit that all verbs that require the reflexive morpheme have a [+Refl] feature. “Highest” here refers to c-command:

- (19) WFC-L1: A Lithuanian V^0 that is [+Refl] must dominate a $Refl^0$ morpheme that is right-adjoined to the highest X^0 that is adjoined to V^0 .

That is, the Refl head adjoins to the highest head within the complex verb (but not the verb itself). This correctly captures the distribution of the reflexive morpheme. If there are only suffixes, Refl adjoins to the highest suffix:



But if there is a preverb or negation, the reflexive right-adjoins to the highest one:



Descriptively, we can say that the desire of this reflexive morpheme is to be as peripheral within the verb as possible, but still have material to its left. The way it accomplishes this desire is by right-adjointing to the highest head within the complex verb. Since the highest head is the most peripheral one, this will make it absolutely peripheral if the highest head is a suffix, and peripheral but not initial if the highest head is a prefix.

As can be seen, we can capture the distribution of the Lithuanian reflexive marker without the need for post-syntactic operations. Every theory needs to stipulate something about the language-particular behavior of this affix; in the analysis here, a single stipulation captures the distribution straightforwardly. There is no need to add additional stipulations about multiple operations of Local Dislocation. As we have seen, the Local Dislocation analysis proposed by Embick & Noyer (2001) does not actually capture the distribution of the Lithuanian reflexive morpheme without adding more and more operations of Local Dislocation for every suffix. The Local Dislocation analysis therefore requires multiple stipulations, as compared to the single one of the current analysis.

4.2 The Amharic Definiteness Marker

The Amharic definiteness marker as described by Kramer (2010) can also be captured directly by a wellformedness condition, this one very similar to the Lithuanian one but operating over phrases. Since there is no distinction between morphology and syntax in the current approach, we expect wellformedness conditions to be able to refer either to heads or to phrases.

The definite suffix in Amharic always follows the first full phrase inside the NP. If there is no phrase other than the head noun, it follows the head noun:⁴

- (22) a. bet-u
house-Def
'the house'
- b. tällik'-u bet
big-Def house
'the big house'
- c. bät'am tällik'-u bet
very big-Def house
'the very big house'
- d. lä-mist-u tammaññ-u gäs'ä bahriy
to-wife-his faithful-Def character
'the faithful-to-his-wife character'
- e. tñantñna yä-mät't'-a-w tãmari
yesterday C-come.PF-3MSg-Def student
'the student who came yesterday'

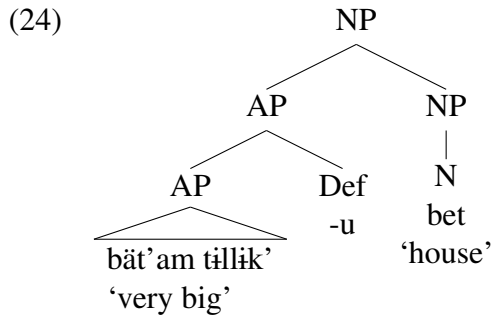
I propose to capture this distribution with a single wellformedness condition again. This one targets the highest X, as in Lithuanian, but where highest refers to precedence, as in Bulgarian.

⁴All Amharic examples from Kramer (2010). Abbreviations that have not already been introduced: C = complementizer, M = masculine, PF= perfective aspect.

What is different about Amharic is that the condition picks out the first phrase rather than the first head. The condition says that a definite NP has to have a Def head merged within it, as follows:⁵

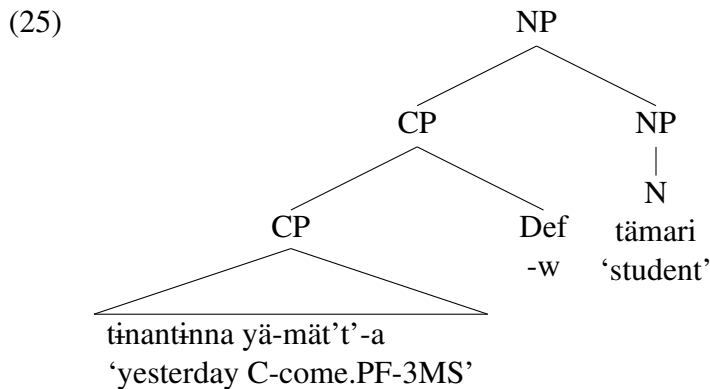
- (23) WFC-A1: The maximal projection of an Amharic [+Def] NP must dominate a Def head right-adjoined to its first daughter.

With an AP, this wellformedness condition requires that Def merge with the AP:



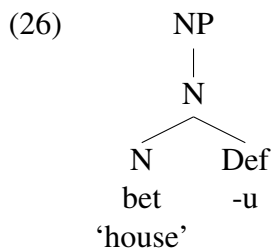
The first daughter of the maximal NP is AP.

Exactly the same positioning will be required with a prenominal CP (relative clause):



CP is the first daughter of the maximal NP.

If there is nothing in the NP but a head noun, then the first daughter of the maximal NP will be the head noun. Def will adjoin to that:



⁵As with Bulgarian, this is a simplification. In Amharic, the definite suffix is missing if a demonstrative or a possessor is present, just like English. A complete analysis would specify that demonstratives and possessors satisfy the need to realize [+Def] without merging a Def head.

This simple wellformedness condition, then, captures the bulk of the Amharic data (of the type in (22)). There is absolutely no need for any operation like Local Dislocation; the definiteness marker can be placed directly where it occurs on the surface.

There are a couple of complications, though. The first is that, with more than one AP, Def is obligatory on the first but optional on subsequent ones:

- (27) k'onḍo-w t̥ll̥ik'-(u) k'äyy-(u) kwas
 beautiful-Def big-(def) red-(Def) ball
 'the beautiful big red ball'

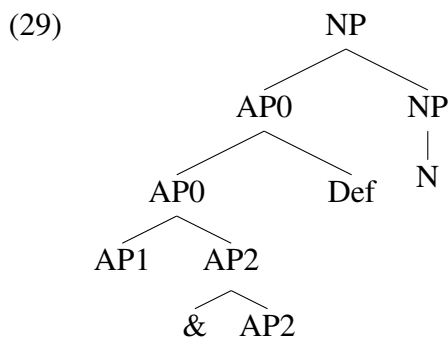
Kramer (2010) argues that definite markers subsequent to the first are optional nominal concord. Optional nominal concord is something that can also be seen with number and case, so this seems plausible. We can adopt the same analysis here, and state that AGR morphemes may optionally adjoin to adjectives beyond the first and agree in definiteness.

The second complication is that stacked relative clauses have to have Def after each relative clause. Def is not optional in this case. A possible analysis is to treat the first relative clause as an appositive, with a null head. Headless relatives still have Def, as Kramer shows. On this analysis, there would be two NPs, the first adjoined to the second. Each would have to have a Def within it.

The third complication is that coordinated APs or relative clauses have to have a Def on each conjunct (28a):

- (28) a. t'ik'ur-u {inna/wäyimm} sämayawi-w kwas
 black-Def {and/or} blue-Def ball
 'the black and/or blue ball'
- b. däbtär-u {inna/wäyimm} iskribto-w
 notebook-Def {and/or} pen-Def
 'the notebook and/or pen'

Coordinated Ns also have to each have Def, in (28b). Since coordinated Ns also have to each have a definite marker and cannot share them, it appears that this language, unlike Bulgarian and English, requires complete inflectional matching of conjuncts in coordination. One possible analysis is to say that (28a) involves NP coordination with ellipsis. Kramer does not give enough information to evaluate whether this is a plausible analysis. A second possible analysis has Def adjoin to the coordinated AP, in accord with WFC-A1:



Since this language requires complete inflectional matching of conjuncts in coordination, Def then has to distribute (i.e., copy) onto each conjunct in the coordination (this is basically Kramer's analysis).

Assuming that such approaches to the complications are workable (and they seem to be), then there is no need for a post-syntactic movement operation. Simply adjoining Def to the first daughter of the NP to start with yields the right results.⁶

4.3 Old Irish Preverbs

Adger (2006) discusses very interesting data from Old Irish that he claims requires a Local Dislocation analysis. Schematically, Adger says that the left edge of the clause in Old Irish has the following form:

(30) [X] . [Y+Z+W]

X is a slot for complementizer-like particles and certain other elements, while Y+Z+W is the verb (Old Irish is VSO). The brackets indicate separate phonological domains for X and the verb, with certain phonological processes taking place within Y+Z+W but not between X and Y. X is also the host for object clitics (and may even host entire phrases in archaic and poetic registers). The presence or absence of X also triggers different inflection on the verb (*absolute* without X, *conjunct* otherwise, and there is also a *relative* form in certain relative clauses).

The fact that needs to be explained is that X is typically occupied by complementizer-like particles. However, if the clause does not have one of these and the verb includes one or more preverbs, which typically occupy position Y (and following) in the schema above, then the first preverb acts as though it instead occupies position X. Adger argues that the preverb must be put together with the verb prior to the verb moving to a high position (T), so any analysis that moved the first preverb to position X would have to either involve excorporation or would violate typically assumed conditions on movement (either the preverb would have to cross the verb, or the verb would have to cross the preverb at an earlier stage of the derivation). In addition, if there is no complementizer-like particle and there is no preverb, then the entire verb acts as though it occupies position X. This means that the entire verb *can* move to position X, which then makes it mysterious why excorporation of the first preverb would apply when there is a preverb, rather than the whole V moving en masse.

Adger (2006) proposes instead that a Force head high in the left periphery comes with a phonological boundary and undergoes Local Dislocation with whatever head is adjacent to it. This can be a complementizer-like particle, an entire verb, or just a preverb in a complex verb. Note that this requires an otherwise unmotivated prior step of Local Dislocation of V and T to avoid getting the wrong result when Force dislocates with a verb that lacks preverbs; the fact is that Force has to follow the verb plus T/AGR, and not come in between them. This is the same problem we saw with Lithuanian, above.

While Adger's analysis is impressively successful and makes a number of correct predictions, it is also possible to build an analysis that is equally successful but does without Local Dislocation. I start with the observation that in certain wh-questions, a moved wh-phrase can be what occupies position X in the schema above. This shows up as the moved wh-phrase being the host for enclitic object pronouns (and main stress going on the first syllable of the following verb):⁷

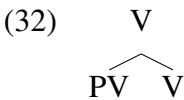
⁶I assume that there is no universal hierarchy of functional elements within the NP. Languages choose where to Merge functional elements according to various factors. See Dryer (2018).

⁷All Old Irish examples taken from Adger (2006). Abbreviations: A = absolute inflection, C = conjunct inflection,

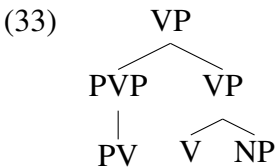
- (31) Cich -ib foruireth?
 what -you PV-do-3Sg.C.Perf
 ‘What has been done to you?’

I take this to show that position X in the schema can be, and sometimes is, occupied by virtue of phrasal movement.

I now suggest that when a preverb is what occupies position X, it gets to that position not by head movement, but by phrasal movement. I follow the analysis of Germanic particles that treats them as *optionally projecting* heads (e.g., Zeller 2001, Toivonen 2003). Preverbs in Old Irish may either project, or not. When they do not project, they adjoin directly to the V:



When they do project, they project a phrase (PVP) that is merged within the VP (the exact position does not matter, it could be inside or outside any arguments of the V):



I suggest that a projecting preverb can only be licensed by virtue of moving to position X, which I will consider to be Spec-CP. Only one phrase can occupy Spec-CP, and moreover only one of Spec-CP and C can be filled (and one of them must be). Complementizer-like particles take one of these positions, so a projecting preverb will not be licensed in any clause that includes one of these particles. It is also only the highest preverb that can project and move to Spec-CP, because that is the most economical derivation (it involves the shortest movement).

Let me back up and say what I believe the driving forces in Old Irish are. It appears that Old Irish wants its clause to start with a weak prosodic element followed by a strong prosodic boundary marking the junction of C and TP (cf. Bruening 2016). Object clitics have to follow the first element (ideally, the prosodically weak one). Not all of these desires can be met, but the syntax is arranged so as to attempt to meet them.

First, object clitics adjoin to TP, at the boundary between C and TP. They group phonologically with the element to their left, which is necessarily at least a head (occupying C), but may also be a phrase in Spec-CP.

- (34) WFC-OI1: Object pronouns must adjoin to TP on the left.

Second, a prosodic boundary is inserted between C and TP (Adger suggests that this boundary is a phonological phrase boundary, but could also be an intonational phrase boundary):

- (35) WFC-OI2: Insert a (ϕ) between C and TP.

Gen = genitive, Perf = perfective aspect, Pl = plural, Pres = present tense, PV = preverb, R = relative inflection, Sg = singular, Subj = subjunctive.

Third, the syntax has the requirement that one of Spec-CP and C must be filled and only one of them can be:

- (36) WFC-OI3: In every CP, it must be the case that exactly one of C and Spec-CP is occupied by phonological material.

Again, the desire is to start with a weak prosodic element. If both Spec-CP and C are filled, the prosodic element to the left of the boundary between C and TP will not be optimally weak. If neither of them is filled, then there will be no weak element. The syntax therefore requires that one and only one of Spec-CP and C must be occupied by an overt element. This requirement, though motivated by the desire to start with a weak prosodic element, is always in force and may result in that desire not being satisfied.

The verb in Old Irish typically moves to T (as in Adger's analysis). If nothing occupies either Spec-CP or C, then the verb has to move on to C in order to meet the requirement that one of them be filled:

- (37) WFC-OI4: Move the highest V to T; if nothing occupies Spec-CP or C, move it to C.

Of course, the verb is not the optimal prosodically weak start Old Irish desires, but the syntax is doing what it can. In such a case the object clitics will follow the verb:

- (38) It-ius.
eat-3Sg.A.Pres-3Sg.Fem
'He eats it.'

Spec-CP can be occupied by a *wh*-phrase, as in (31) above, or C can be occupied by complementizer-like particles. In such cases the verb only moves as far as T and the strong prosodic boundary between C and TP comes between them, with object clitics surfacing as enclitics to the particles or the *wh*-phrase. Example (31) showed the case of a *wh*-phrase in Spec-CP, with the verb in T. The following example illustrates object clitics following the negative complementizer:

- (39) Ní-s-(n)im-dich.
Neg-3Pl-PV-protect-3Sg.C.Pres
'He does not protect them.'

The strong prosodic boundary comes in between the clitic *-s* and the preverb (*n*)*im-*. The preverb is part of the V in T.⁸

If there is nothing in Spec-CP or C, but the verb is going to include a preverb, then that preverb (the highest if more than one) can project a phrase and move to Spec-CP, as described above. This is a better option than moving the whole verb to C, because it results in a weaker prosodic start to the clause than if the whole (complex) verb were to move to C. When a projecting preverb moves to Spec-CP, then object clitics follow the preverb:

- (40) Imm-us-(n)dích.
PV-3Pl-protect-3Sg.C.Pres
'He protects them.'

⁸The object clitics cause certain consonant mutations on whatever segment follows them. These mutations are not sensitive to prosodic boundaries and work across the prosodic boundary that separates the element the clitic has cliticized to from the verb in T.

And a strong prosodic boundary separates the object clitic *-us* from the verb stem (*n*)*dích*.

As for the inflection on the verb, that seems to depend on whether the verb has moved to C or remains in T. If the verb moves to C and C is the head of a relative clause, the inflection is the relative form:

- (41) Bid húathad creitfes.
 be-3Sg.A.Fut few believe-3Sg.R.Pres
 ‘It will be a small number that believe.’

If the V moves to C and C is not the head of a relative clause, the form is the absolute form:

- (42) Beoigidir in spirut in corp in fecht so
 vivify-3Sg.A.Pres the spirit the body now
 ‘The spirit now vivifies the body.’

Otherwise, the inflectional form is the conjunct form. That is what appears with a preverb in first position, for instance:

- (43) As-ru-bart día friu-som ara celebartis a sollumnu.
 PV-Perf-carry-3Sg.C.Pres god to.them that celebrate-3Pl.Pres.Subj his feasts
 ‘God has said to them they should celebrate his feasts.’

The preverb has projected and moved as a phrase to Spec-CP. The verb stays in T. Since it has not moved to C, it cannot take either the absolute or the relative form, instead it takes the default conjunct form.

Like Adger’s account, this analysis makes a number of correct predictions. First, it predicts that negative relative clauses will have conjunct inflection, since negation is a C-particle in Old Irish and the verb will not move to C (because it is already occupied). Second, like Adger, we can analyze wh-questions where the object clitics do not follow the wh-phrase as clefts; their properties then follow. An example is the following:

- (44) Cía rannas dúib?
 who divide-3Sg.R.Pres for-you
 ‘Who divides for you?’

As Adger suggests, this is a cleft, ‘Who is it [that divides for you]?’ . Since the part that includes the verb is a relative clause CP and there is no complementizer-like particle or preverb in that clause, the verb moves to C and takes the relative inflection.

In addition, certain particles appear to be outside of the CP for all of the purposes described above, for instance the relative *a*. This particle induces nasalization on the following segment but occurs with relative inflection on a simple verb, indicating that the verb has moved to C. I propose that this particle is the higher C in an instance of CP recursion. This C takes another CP as its complement:

- (45)

The requirement that one of C or Spec-CP be filled is in force for each CP in this instance of CP recursion. C1 is filled by *a*. C2 gets filled by moving the V from T to C2. This results in relative inflection on the verb, because it is in the C of a relative clause. The C *a* induces nasalization on the element to its right, the verb:

- (46) Ni tabeir díre as [a n-gatass].
 Neg PV-give-3Sg.C.Pres fine from [that-which steal-3Sg.R.Pres]
 ‘He does not give a fine for that which he steals.’

If the verb has a preverb, the preverb will instead project and move to Spec-CP in CP2. Inflection will be conjunct, because V remains in T, but *a* will induce nasalization on the first segment of the preverb in Spec-CP2:

- (47) ... a n-ad íadar.
 that-which PV declare-3Sg.C.Pres.Pass
 ‘...that which is declared.’

This analysis, then, accounts for all of the facts that Adger’s analysis does, but it does so without post-syntactic operations. It has only syntactic operations: head movement and phrasal movement. It also avoids several potential problems for Adger’s Local Dislocation analysis. For instance, in note 15, Adger notes that null heads have to be ignored for Local Dislocation, but since Local Dislocation precedes Vocabulary Insertion for Adger, the grammar cannot know that they are null at the point where Local Dislocation applies. This is not an issue in the current analysis.

In addition, as noted above, Adger’s analysis also requires a prior step of Local Dislocation of T onto V. We saw the same thing with Lithuanian, in section 4.1. No such unmotivated operation is required in the analysis here.

Another potential issue comes from wh-phrases that include more than one word, which Adger notes always occur in the cleft construction and never occur as the first element of the clause, with object clitics following them. But his analysis ought to permit Local Dislocation of Force with just the first head of the wh-phrase, something that is unattested. Moreover, the cleft strategy itself is problematic for Adger’s analysis. Consider a wh-question with a complex wh-phrase and relative inflection on the verb:

- (48) Co n-epertae cia aiccent & cisī aimsir derb
 so-that say-3Sg.C.Past.Subj.Pass what accent and what time certain
 thechtas.
 possess-3Sg.R.Pres
 ‘So that it might have been said what accent and what certain length it possesses.’

Let us ignore the coordination and embedding for the moment and focus on the second conjunct, which is in gloss ‘what certain time it.possesses’. In the cleft analysis, this is ‘what certain time it is that it.possesses’. The relative clause consists of just the verb ‘possess’. This V moves to C and therefore has the relative inflection; this clause behaves as expected. The problem is the first clause, ‘what certain time it is...’. Here is what non-wh clefts look like in Old Irish:

- (49) a. Is ed tobchétal nime in torainn.
 Cop it trumpeting heaven-Gen the thunder
 ‘The thunder is the trumpet-song of heaven.’

- b. Is hé día as éola indium-sa.
 Cop he God that-Cop-Rel knowing in-me-Emph
 ‘It is god who is knowing in me.’

These two examples indicate that the pivot of a cleft follows the copula and a pronoun. According to Adger, the copula is null in a wh-question. Since Old Irish is a wh-movement language, like English, we should expect a wh-phrase as pivot to start out to the right of the null copula and then move to Spec-CP in the matrix clause:

- (50) [_{CP} [what time certain]₁ Cop (pro) *t*₁ [_{CP-Rel} possess]]

In Adger’s analysis, we would then expect the first head of the wh-phrase, here ‘what’, to Locally Dislocate with Force in the matrix clause. This would lead to a prosodic boundary between ‘what’ and ‘time’, which, given what Adger says, is incorrect. The current analysis would not predict this, instead if the wh-phrase has moved to Spec-CP the prosodic boundary would follow the entire wh-phrase. In the absence of more data, I will leave the analysis of cleft wh-questions open, but it does appear that they are problematic for Adger’s analysis but not the current one.

In addition, the analysis proposed here also has simpler analyses available to it of the archaic and poetic word orders of the constructions known as Tmesis and Bergin’s Construction. Tmesis can simply have an XP adjoined to TP below object clitics (or occupying Spec-TP):

- (51) for -don itge Brigte bet
 PV us prayers Brigit-Gen be-3Pl.C.Pres.Subj
 ‘On us be Brigit’s prayers.’

The requirement that one and only one of Spec-CP and C be filled is still in force, so the first preverb projects and moves to Spec-CP. The object clitic then cliticizes to the preverb. The XP ‘Brigit’s prayers’ comes before the verb, which is in T and hence has conjunct inflection. In Adger’s analysis, the XP is instead treated as a clitic, just like the object pronouns, but this seems unlikely for a phrase. In any case there is no need to say any such thing in the current analysis.

Bergin’s Construction appears to involve an XP moved to Spec-CP instead, with the verb remaining in T and bearing conjunct inflection (so the desire for a weak start is not met, but the syntactic requirement that one and only one of Spec-CP and C be filled is satisfied):

- (52) [Aicher Artt Mug Muad] marb máru
 [Aicher Artt Mug Muad] kill-3Sg.C.Past great-men
 ‘Mug-Airtt, fierce, renowned slew great men.’

Bergin’s construction therefore requires nothing special, it is only unusual in that Old Irish is tolerating a full phrase in Spec-CP, in violation of the desire for a weak prosodic start (something that probably also happens in wh-questions where the wh-phrase includes more than one word, above). In contrast, Adger has to analyze this construction as exceptional, with deletion of his Force head.

Finally, Adger (2006) mentions two cases where the verb can have a dummy preverb that takes the X slot in the schema above. One such case is where the object clitic is not third person. A simple verb moves to C and the object clitics attach to its right, as we saw above. However, this is limited to third person object clitics. If the object is not third person, then a dummy preverb is inserted instead (*no-*), and the object clitic attaches to the right of that:

- (53) No-m.ísli gur.
 PV-me-abase-1Sg.C.Pres
 ‘I abase myself.’

The second case is the imperfect aspect when there is no other preverb:

- (54) No-scarinn friu.
 PV-separate-1Sg.C.Impf against-them
 ‘I was not separating from them.’

Without more information, it is not possible to give a complete accounting of the factors that require a dummy preverb. However, the appearance of one is easy enough to model in the current account. The dummy preverb is a projecting particle, merged with a projection of the verb, as in (33) above. PVP then moves as a phrase to Spec-CP, while the verb only moves as far as T. The phonological boundary occurs between the dummy preverb and the verb, and object clitics attach to the dummy preverb.⁹

To summarize, Old Irish does not require Local Dislocation. A purely syntactic approach captures all of the facts that the Local Dislocation analysis does, but without its drawbacks.

4.4 The Latin Coordinator

In Latin, the coordinator *-que* follows the first word of the second conjunct:

- (55) bon-ī puer-ī bon-ae-**que** puell-ae
 good-Nom.Pl boy-Nom.Pl good-Nom.Pl-and girl-Nom.Pl
 ‘good boys and girls’

Embick & Noyer (2001), Embick (2003) propose a Local Dislocation analysis, in which the coordinator undergoes Local Dislocation not with the adjacent head, but with the adjacent Morphosyntactic Word, which Embick and Noyer define as an X^0 that is not contained in another X^0 .

When PPs are coordinated, *-que* attaches outside of disyllabic Ps but after the N with a monosyllabic P:

- (56) a. circum-que ea loca
 around-and those places
 ‘and around those places’
 b. dē prōvinciā-que
 from province-and
 ‘and from the province’

⁹One might naturally ask, regarding both my own analysis and that of Adger (2006), about issues of lookahead. How will the syntax know within the VP whether to project a contentful preverb or merge a dummy preverb? How does the syntax know in VP (where the V is first merged) which inflection to use? Lookahead is going to require a solution in every theory, including Adger’s (not for the inflection, but for the dummy preverbs), but I suggest that a lot of the issues will be resolved simply by adopting a left-to-right, top-down derivation instead of a bottom-up one (see Phillips 1996, 2003, Richards 1999, Bruening 2010b, 2014, 2016, Osborne & Gross 2017, among others). If the derivation begins with Spec-CP, then most of what has to be known will be known from the beginning.

Embick & Noyer (2001) have to posit a prior, string-vacuous step of Local Dislocation again, this one adjoining a monosyllabic P to the word to its right.

The preposition facts point to a phonological condition on the attachment of *-que*. Descriptively, it seems to attach to the first prosodic word of XP2 in a coordination. Monosyllabic prepositions are not prosodic words, but are instead adjoined to the first prosodic word of their complement:

(57) (ω dē (ω prōvinciā))

Once again, I adopt the view of coordination where it is non-headed and the coordinator adjoins to the second conjunct (and subsequent ones):

(58)

```

      XP0
     /  \
    XP1  XP2
         /  \
        &  XP2
  
```

I now propose that in Latin, the coordinator *-que*, & in the tree, undergoes a completely phonological process of *prosodic inversion* with the prosodic word to its right (e.g., Halpern 1992). This has the following effects with an NP and PPs with heavy and light Ps, respectively:

- (59)
- a. *-que* (ω bon-ae) puell-ae → (ω bon-ae)-*que* puell-ae
 - b. *-que* (ω circum) ea loca → (ω circum)-*que* ea loca
 - c. *-que* (ω dē (ω prōvinciā)) → (ω dē (ω prōvinciā))-*que*

In this case, the morpheme under discussion does indeed appear displaced from where it should be given the syntax. However, the facts of prepositions indicate that the positioning is entirely phonological. The coordinator undergoes prosodic inversion (or metathesis) with the prosodic word to its right. It is clear that metathesis exists as a phonological operation. The hypothesis I am pursuing here is that it is *only* a phonological operation; there is no morphological operation of Local Dislocation. Purely phonological operations target phonological units like prosodic words or phrases, not syntactic units like heads or phrases.¹⁰

4.5 Summary

In this section I have examined cases where Lowering or Local Dislocation have been proposed to account for second position effects. Lithuanian turned out not to be a real second position effect: the morpheme in question follows multiple suffixes if there is no preverb, and so is not second. Old Irish does seem to have something like a second position effect, but what counts as first can be either a phrase or, apparently, a head. I accounted for this by saying that the relevant position follows both Spec-CP and C, only one of which can be filled. If C is filled, it looks like only a head is first; if Spec-CP is filled, then a whole phrase is. The first preverb can project and move to Spec-CP as a phrase. The facts in Old Irish are therefore amenable to a completely syntactic

¹⁰Further evidence that this operation is entirely phonological comes from the fact, mentioned in note 9 of Embick (2003), that under conditions of contrastive stress monosyllabic prepositions may host *-que*. I take this to mean that when the preposition is stressed, it constitutes its own prosodic word.

account. So is Amharic, where the relevant morpheme always follows the first phrase. In contrast, Latin *-que* is phonological, referring not to syntactic categories but to prosodic ones. None of these cases require either Lowering or Local Dislocation. Either the distribution could be stated in purely syntactic terms, or purely phonological ones. This result supports the model here, where there are only two components of grammar, syntax and phonology, and there are no morphological or post-syntactic operations.

5 Other Cases of Local Dislocation

I turn now to some other cases where Local Dislocation has been proposed, but which do not fit under the heading of either the highest X generalization or second position effects.

5.1 The Huave Reflexive

Embick & Noyer (2001) give a Local Dislocation analysis of the reflexive morpheme in the San Mateo del Mar dialect of Huave, based on data from Stairs & de Hollenbach (1981). In this dialect of Huave, the reflexive affix *-ay* precedes the final inflectional affix of the verb:¹¹

- (60) a. s-a-cojch-ay
 1-TH-cut-Refl
 ‘I cut myself’
- b. s-a-cooch-ay-on
 1-TH-cut-Refl-Pl
 ‘we (Excl) cut ourselves’
- c. t-e-cooch-ay-os
 Past-TH-cut-Refl-1
 ‘I cut (past) myself’
- d. t-e-cooch-as-ay-on
 Past-TH-cut-1-Refl-Pl
 ‘we (Excl) cut (past) ourselves’

The variability to note is that Refl precedes the first person suffix in (60c) but follows it in (60d). (Some Huave affixes, for instance the first-person *-s-*, alternate between prefixes and suffixes; see note 12.)

Embick & Noyer (2001) account for this patterning by proposing that Refl is always peripheral to the verb plus inflection complex, but undergoes Local Dislocation to left-adjoin to the rightmost inflectional affix. They do not say what happens when there is no suffix, as in (60a). To get the right result, it appears that they will have to stipulate that Local Dislocation does not apply if there is no suffix. If Local Dislocation were to apply, Refl would undergo Local Dislocation with the verb stem, incorrectly.

¹¹All Huave data come from Stairs & de Hollenbach (1981), paradigm on page 359. Embick & Noyer (2001) cite these data but with a different spelling; I follow their glossing of the morphemes, but use the spelling from Stairs & de Hollenbach (1981). “TH” is a theme vowel.

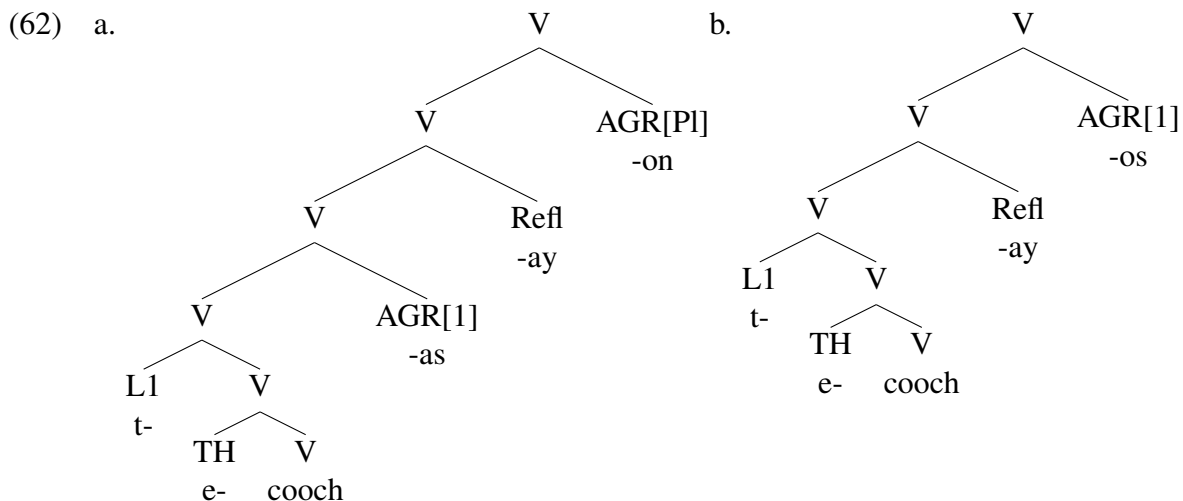
According to Kim (2010), a different dialect of Huave, that of San Francisco del Mar, has a fixed position for the reflexive suffix. In her description it comes in Layer 2, before both the first person affix *-s-* in Layer 3 and the plural affix in Layer 4 (cognates of the *-on* that appears in the examples in 60). This is especially evident in Kim’s example (17g) on page 143, in which the reflexive precedes both suffixes. In the paradigms in Stairs & de Hollenbach (1981), the reflexive suffix in the San Mateo dialect always immediately precedes the plural suffix (and there are different plural suffixes for different combinations of persons, e.g. *-oots* for inclusive first person plural). It also precedes the first person suffix when there is no plural suffix. Just in the first person exclusive plural, the reflexive comes in between them.

Given the general distribution of the reflexive suffix inside of both the first person affix and the plural affix, it seems unlikely that Embick and Noyer’s proposal of peripheral attachment is correct. Instead, I propose that the reflexive suffix attaches inside of the first person suffix and the plural suffix in the San Mateo dialect, just as it does in the San Francisco dialect. However, in the San Mateo dialect there is a strong desire to have the reflexive suffix immediately precede the plural suffix if it is present. This results in the variable ordering found with the first person suffix. This desire is not present in the San Francisco dialect, and so the reflexive suffix is completely regular in its placement.

I propose to model this in the San Mateo dialect through a single wellformedness condition. This Wellformedness Condition states one attachment site that must hold when the plural suffix is present, and another one otherwise:¹²

- (61) WFC-HSM1: A [+Refl] V must have a Refl head right-adjoined to it immediately c-commanded by AGR[PI] if present, otherwise c-commanding the TH head and the L1 head (if present).

The following trees illustrate the effect of this wellformedness condition when AGR[PI] is present (62a) and when it is not (62b):



¹²Huave affixes vary between prefixes and suffixes depending on phonological factors; see Kim (2010). However, the reflexive and the plural are always suffixes, while Layer 1 affixes vary between prefixes and suffixes, as does the first person affix (Layer 3 in Kim’s analysis).

I do not attempt to characterize the set of morphemes that comprise Layer 1; instead I just use “L1” as a cover term for whatever head this is (it includes at least the past tense). (Note that Kim 2010 treats the theme vowel as part of the stem, which is why the layers start counting outside of that.)

The difference between the two dialects is that in the San Francisco dialect, the elsewhere part of the Wellformedness Condition is fully general:

- (63) WFC-HSF1: A [+Refl] V must have a Refl head right-adjoined to it c-commanding the TH head and the L1 head (if present).

The two dialects also differ in their statements of the wellformedness conditions governing AGR[1]:

- (64) WFC-HSM2: A verb with first-person features must have an AGR[1] head adjoined to it c-commanding the TH head and the L1 head (if present) and c-commanded by AGR[Pl] (if present).
- (65) WFC-HSF2: A verb with first-person features must have an AGR[1] head adjoined to it c-commanding the TH head and the L1 head (if present) and Refl (if present) and c-commanded by AGR[Pl] (if present).

Since the San Mateo wellformedness condition governing AGR[1] does not fix its position relative to Refl, it can appear above or below Refl, according to WFC-HSM1.

This analysis therefore not only accounts for the San Mateo facts without Local Dislocation, it also extends naturally to the San Francisco dialect. In Embick and Noyer’s analysis, the San Francisco dialect would have to have a completely different derivation of its verbs, to get the Refl morpheme in its fixed position between the first person and plural suffixes.

Note furthermore that this way of stating morpheme order, with wellformedness conditions that refer to the verb and to other heads adjoined to that verb, leaves open the possibility that some morphemes might not be fully specified relative to each other, as we see in the San Mateo dialect of Huave. This seems to be correct, as various researchers have documented cases where strict morpheme order is not always transitive. For instance, in Imbabura Quechua (Cole & Hermon 2012), the first person suffix *-wa-* always precedes the progressive suffix *-ju-* when they occur together. In addition, the volitional/desiderative suffix *-naya-* always precedes *-wa-*. *-naya-* and *-ju-* are freely ordered with respect to each other (but with different interpretations for each order). If ordering relations were transitive, the only order of all three that should be possible is then *-naya-wa-ju-*. However, it turns out that *-ju-naya-wa* is also possible, violating the restriction that *-wa-* always precedes *-ju-*:

- (66) a. miku-naya-wa-ju-n
eat-Des-1-Prog-3
‘I was wanting to eat.’
- b. miku-ju-naya-wa-n
eat-Prog-Des-1-3
‘I wanted to be eating.’

It is as though only adjacent pairs are evaluated for ordering. The order *-ju-naya* is allowed, as is the order *-naya-wa*. The order **-ju-wa* is not allowed, but these two are not adjacent in (66b).

For purposes here, I will assume that morphemes on the verb like desiderative/volitional and progressive are themselves the semantic operators. They take scope according to c-command within the verb, operating on their sister. The ordering facts of Imbabura Quechua can be captured by stating for each morpheme what it is allowed to follow (see the template in Cole & Hermon 2012: 296, (30)):

- (67) WFC-IQ1 (Prog): If the verb is progressive, a Prog head must merge with the verb on the right. Prog may follow the root, Refl (a reflexive morpheme), And (an andative), Caus (a causative), Ing (an ingressive), or AGR[1].
- (68) WFC-IQ2 (Des): If the verb is volitional, it must have a Des head merged with it on the right. Des can follow the root, Refl, And, Caus, Ing, or Prog.
- (69) WFC-IQ3 (AGR[1]): A verb with first person features must have an AGR[1] head adjoined to it on the right. AGR[1] can follow the verb root, Refl, And, Caus, Ing, or Des.

Note that this is a type of disjunctive selection, which Bruening et al. (2018) argue is needed for selection in the clause. Once the wellformedness conditions are spelled out for all the other affixes (And, Caus, Ing), a generally fixed ordering will emerge, except where ordering is not fully specified. According to WFC-IQ1, Prog (-*ju-*) can follow AGR[1] and the verb root, so both (66a) and (66b) meet WFC-IQ1. Des (-*naya-*) can follow the verb root and Prog, so (66a) and (66b) both meet WFC-IQ2. AGR[1] can follow Des, so again both (66a) and (66b) meet WFC-IQ3. The illicit sequence **-ju-wa* (*Prog-AGR[1]) is ill-formed because Prog is not on the list of things that AGR[1] can follow in WFC-IQ3.

To summarize this subsection, a theory without Local Dislocation can easily capture the ordering facts in the San Mateo dialect of Huave. A simple variation accounts for slightly different ordering effects in the San Francisco dialect. The Local Dislocation analysis proposed by Embick & Noyer (2001) is incomplete, as it does not as it stands account for cases where there is no suffix, and it also does not account for the San Francisco dialect. According to Embick and Noyer, the reflexive morpheme is peripheral to the verb plus inflection in the San Mateo dialect. Since it is internal in the San Francisco dialect, that dialect would have to have a very different clause structure, since Embick and Noyer put verbs together using head movement through functional heads. This seems less than desirable. The analysis that I have proposed treats the two dialects as minimally different. Finally, I have shown how variable affix order can be captured, and how the ways that wellformedness constraints can be stated here can result in transitivity failures among affixes in Imbabura Quechua. It is not clear how transitivity failures can be treated in approaches like Distributed Morphology.

5.2 English Comparatives

English comparatives and superlatives have been heavily discussed in the literature on morphology and syntax, since they involve an alternation between morphological and syntactic composition that seems to be phonologically governed. Embick & Noyer (2001), Embick (2007), Embick & Marantz (2008) propose a Local Dislocation analysis. Here is the rule as stated in Embick & Marantz (2008: 46, (85)):

- (70) *Local Dislocation for comparatives*
 Deg $\bar{\wedge}$ Adjective \rightarrow [[Adjective]Deg]
 where Adjective has the relevant phonological properties

In this analysis, Deg is the head of a DegP in the specifier of aP (aP dominates AP, A moves to a). If the Local Dislocation rule does not apply, for instance when the adjective is too long, Deg does not adjoin to the adjective and it remains a separate syntactic element. It is then pronounced *more*. This is why adjectives that are larger than a single prosodic foot form analytic comparatives (*more intelligent*) but adjectives that are a single prosodic foot or smaller form synthetic comparatives (*smarter*).

By formulating the attachment of Deg to the adjective as Local Dislocation, Embick & Noyer (2001), Embick (2007), Embick & Marantz (2008) account for the fact that material that intervenes between them linearly blocks the rule from applying, but material that does not intervene linearly does not. A complement to an adjective does not block the rule from applying, because complements follow adjectives in English:

- (71) Bill is prouder of his accomplishments. . . (Embick & Marantz 2008: 47, (88c))

But an adverbial expression does, since they intervene between Deg and the adjective:

- (72) a. Mary is the most amazingly smart person. . . (Embick & Noyer 2001: 565)
 b. * Mary is the amazingly smartest person. . .

However, as Matushansky (2013) shows, post-adjectival PPs that function in the same way as the relevant adverbials also block the rule from applying:

- (73) a. more smart to an amazing degree
 b. * smarter to an amazing degree (on relevant reading)

It is therefore not true that linear order is crucial in blocking attachment of the comparative/superlative morpheme to an adjective.

Matushansky (2013) argues that there is a semantic condition on the attachment of Deg to the adjective, in addition to the phonological condition: the adjective cannot head an AP that is norm-related. If Mary is smarter than Bill, she is not necessarily smart, so *smarter* by itself is not norm-related; but if Mary is more amazingly smart than Bill, she is necessarily amazingly smart. If Mary is more smart to an amazing degree than Bill, then she is also necessarily smart to an amazing degree. So both *more amazingly smart* and *more smart to an amazing degree* are norm-related. According to Matushansky, this is the factor that blocks the synthetic comparative, not the linear intervention. This seems to be correct, since it also explains the lack of blocking by complements: If Bill is prouder of his accomplishments than Sally, Bill does not have to be proud of his accomplishments at all. Adding a complement does not make an adjective norm-related.

Matushansky (2013) argues that we need a head movement analysis of synthetic comparatives, where A moves to Deg in the syntax, as proposed by Corver (1997). This is needed, according to Matushansky, to account for change of state verbs derived from adjectives, like *widen*, *smarten* (*up*). As Bobaljik (2012) shows, these always involve the suppletive form of the adjective if it exists (*to better*, *to worsen*). According to Matushansky, this could only be put together by movement of A through Deg to V. However, in the head movement analysis, *worse* has the same status as regular

-er comparatives like *wider*: they both involve head movement to Deg. We would therefore expect the change-of-state verb based on *wide* to include *wider*, contrary to fact:

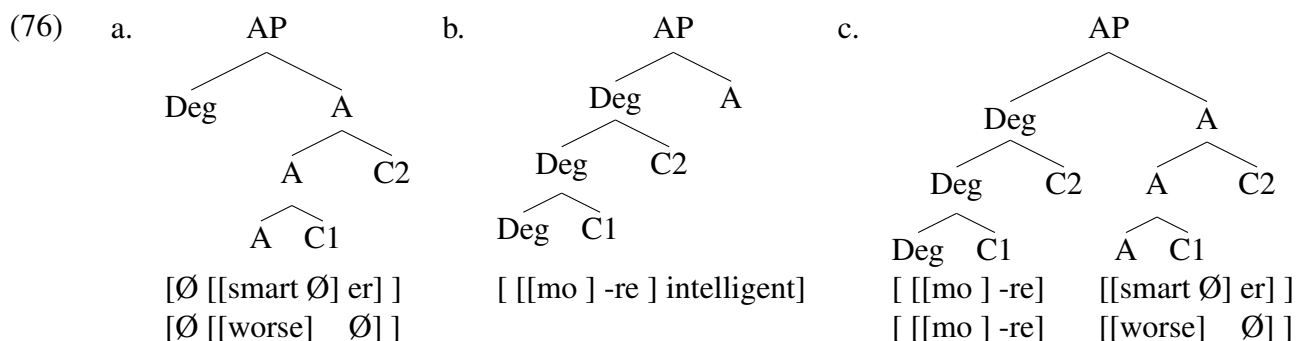
- (74) a. to smarten (up), *smarteren
 b. to widen, *wideren
 c. to enlarge, *enlarger

The regular comparative morpheme (-er in English) is never included in the derived change-of-state verb, only suppletive stems are. This discrepancy severely undermines the head movement account of the morphological composition of comparative adjectives and deadjectival verbs. The head movement analysis also cannot account for double marking like *more smarter*, which is substandard in English but common cross-linguistically (Bobaljik 2012). I therefore reject the head movement account of synthetic comparatives as being just as inadequate as the Local Dislocation analysis.

I propose an alternative where the comparative head (“Deg” in the analyses just discussed) is base-generated in different positions according to wellformedness conditions holding in English. The comparative head is also separate from a Deg element that appears in the specifier of AP. Importantly, Caha (2017a,b) argues that the comparative head needs to be split into two heads, which he calls “C1” and “C2.” Adopting this proposal, I propose that C1 and C2 can merge with A, or they can merge with the Deg element in Spec-AP instead, or they can do both simultaneously. These alternatives are licensed (and required) by the following wellformedness conditions:¹³

- (75) a. WFC-E2: A comparative AP must have a Deg head merged in the specifier of AP and it must also dominate at least one C1 head and at least one C2 head, following WFC-E3.
 b. WFC-E3: C1 and C2 right-adjoin to Deg or to A, with C2 immediately c-commanding C1; C1 and C2 may adjoin to A only if A meets the phonological conditions and does not head an AP that is norm-related.

These wellformedness conditions permit C1 and C2 to merge just with A (76a), or to Deg in Spec-AP instead (76b), or to both (76c):

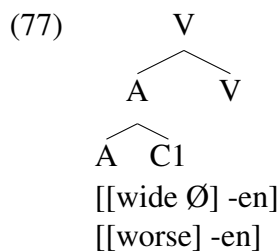


The structure in (76a) produces synthetic comparatives like *smarter*, with Deg (typically) unpronounced. The suffix *-er* is the pronunciation of C2, while C1 is null with As like *smart*. The

¹³As noted, “the phonological conditions” include a restriction on size, but there also seem to be effects of the final segment and other factors (e.g., Mondorf 2009). I will not formalize all of these, but simply refer to “the phonological conditions,” whatever they turn out to be.

structure in (76b) produces analytic comparatives like *more intelligent*. The phonological conditions on merging C1 and C2 with As prevent them from being merged with As like *intelligent*. Instead they have to be merged with Deg. Deg plus C1 is realized as *mo-*, while C2 is *-er* again. Following Caha (2017a,b), suppletion is always the spellout of multiple adjacent nodes; following Corver (1997), Bobaljik (2012), and many others, *mo-* is the suppletive form of *much*. The structure in (76c) yields doubling, as in *more smarter*.

Adjectives like *bad* that take a suppletive form in the comparative have the suppletive form (here *worse*) as the spellout of A and C1 in the structure in (76a) (or doubled in (76c)). C2 in such cases in English is null (it appears that only one of C1 and C2 can be pronounced in Standard English, although *worser* is possible substandardly). Suppletion appears in change of state verbs and *-er* never does because change of state verbs are built on A and C1 but do not include C2:



This gives *worsen* and *widen* but not **wideren*, as desired.¹⁴

WFC-E3 in (75b) also includes a semantic condition, following Matushansky (2013). This blocks C1 and C2 from merging with the A in (72–73), since the A in these cases heads an AP that is norm-related. Note that this will also block suppletive forms with adverbs and PPs: *more amazingly bad/*worse*, *more bad/*worse to an amazing degree*.

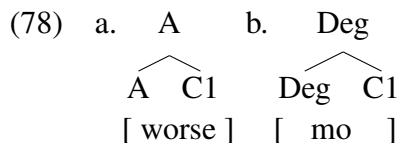
It should be pointed out that this analysis treats *smarter*, *more smart*, and *more smarter* as equivalent grammatically. I contend that this is correct, and they are only distinguished at the level of usage. Some dialects use *more smarter* as the regular comparative, whereas other speakers may do it only for emphasis. Importantly, *smarter* does not block *more smart*, contrary to most of the previous literature and the Local Dislocation analysis (see especially Embick & Marantz 2008). I contend that there is nothing grammatically wrong with *more smart* and that speakers in fact produce such forms. To the extent that it is dispreferred or limited to norm-related and metalinguistic (Bresnan 1973) uses, this is a matter of usage, not grammar (but the restriction against *-er* forms with norm-related APs is a matter of grammar).

To summarize, the analysis proposed here accounts for the complex patterns of English comparatives with no post-syntactic Local Dislocation and no head movement. There is only Merge and the idea that particular morphemes can spell out more than one syntactic head (and this is always what suppletion is). In this analysis, the phonological condition operative in English is a condition governing merger of C1 and C2 with particular As; it is not a condition governing Local Dislocation. Post-adjectival PPs as in (73) show that the Local Dislocation analysis is on the wrong track, since they should not block the application of Local Dislocation. So, not only is it possible to build an analysis without Local Dislocation, such an analysis fares better than the Local

¹⁴Note that since the verb based on the A *good* is *to better*, *better* as the comparative form of the A could not include the suffix *-er*, contra Stump (2001), Bobaljik (2012), and numerous others. The form *better* must be a monomorphemic suppletive form, here realizing A + C1.

Dislocation one.¹⁵

Before moving on, let me say a little more about suppletion. As stated above, I follow Caha (2017a,b) in hypothesizing that suppletion is always the spellout of multiple adjacent nodes. Suppletive items are therefore always portmanteau morphemes. In the framework adopted here, the suppletive or portmanteau item is stored as a partial tree in the lexicon. For instance, the suppletive items we have seen for English are stored in the following forms:

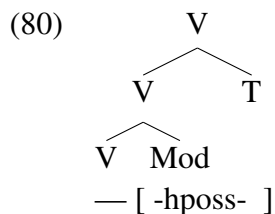


The suppletive item is taken from the lexicon and merged into the syntax, in the cases here with the head C2 (or with the verbalizer *-en*, in the derived change-of-state verbs).

Suppletive items can also be the realization of multiple affixes excluding the stem, in which case they are not a constituent. Storage of items is not contingent on constituency, but on adjacency (cf. the notion of a *span* in Merchant 2015). The following condition holds of such items:

- (79) The Strict Hierarchical and Linear Adjacency Condition
 Two heads X and Y can be realized as a single lexical item only if X and Y are adjacent, X c-commands Y, and there is no head Z such that Z asymmetrically c-commands Y but does not c-command X.

I illustrate a suppletive, portmanteau suffix with a hypothetical item *-hposs-* realizing two heads adjoined to the right of a stem:



The item *-hposs-* can be merged to a V, subject to the wellformedness conditions of the language, and then further heads can be merged with the resulting V, again subject to the wellformedness conditions of the language. Note also that the partial trees that are stored in the lexicon are built by the syntax, so they also have to conform to the wellformedness conditions of the language. In this case a wellformedness condition would have to license a Mod head adjoining to a V, and another would have to license a T head adjoining to a V outside of Mod.

¹⁵The proposed analysis is also able to account for Jackendoff's (2000) *smarter and smarter* versus *more and more intelligent*. I propose that this construction has a reduplicative morpheme to the left of Deg in (76) that copies the prosodic word that begins with the left edge of Deg. If Deg is null, this will start copying with A, yielding *smarter and smarter*. Double marking with the structure in (76c) is correctly predicted to yield *more and more dumber* and not **more dumber and more dumber*. Compare Matushansky (2013), who has no account of double marking. (Note that this analysis also has the potential to explain the ill-formedness of reduplication with other degree modifiers: *She's getting smarter and smarter*; *She's getting much smarter*; **She's getting much smarter and smarter*; **She's getting much and much smarter*. If the reduplicative morpheme is the same category as *much*, which appears immediately to the left of *more* (*much more intelligent*), then it will be in complementary distribution with it.)

5.3 French P-Article Combinations

Embick (2003, 2010) also proposes a Local Dislocation analysis for French preposition-determiner combinations. The French prepositions *à* and *de* coalesce with the definite determiners *le* (masculine singular) and *les* (plural) in idiosyncratic ways. They do not coalesce with *la* (feminine singular):

- (81)
- a. de la mère ‘of the mother’
 - b. à la mère ‘to the mother’
 - c. aux mères (*à les mères) ‘to the mothers’
 - d. du chat (*de le chat) ‘of the cat’
 - e. au chat (*à le chat) ‘to the cat’
 - f. aux chats (*à les chats) ‘to the cats’

Embick (2010) proposes the following rule of Local Dislocation, which adjoins certain Ps to certain Ds:

- (82) P-D Affixation (Embick 2010: 88, (35b))
 $P^+ \cap D[\text{def}]^+ \rightarrow [P^+[D^+]]$
where $^+$ is a diacritic for the particular terminals that are subject to this process

However, van Riemsdijk (1998) gives data indicating that such a rule, which is constrained only by linear adjacency, is not sufficient (see also Wescoat 2007). In German, a P cannot combine with an adjacent determiner if that determiner is part of an adjunct to the noun:¹⁶

- (83) (van Riemsdijk 1998: 655, (23))
- a. von dem König treu ergebenen Dienern
of the.Dat king faithfully devoted servants
‘of servants faithfully devoted to the king’
 - b. * vom König treu ergebenen Dienern

But it can combine with a determiner that belongs to the possessor of the head noun, even a multiply embedded possessor:

- (84) (van Riemsdijk 1998: 658–659, (32b), (33b)1)
- a. zur Prinzessin ihrem Palais (zur = zu der)
to-the.Dat princess her palace
‘to the princess’s palace’
 - b. vom Hans seiner Mutter ihrem Freund seinem Geld
of-the.Dat Hans his mother her boyfriend his money
‘of Hans’s mother’s boyfriend’s money’

¹⁶Schwarz (2009) argues that the contracted and uncontracted forms have different semantics in German, indicating that they are truly different lexical items and not that one is just derived from the other by regular phonological processes.

The possessor data seem to indicate that all that is required is linear adjacency, as Embick’s rule predicts, but then the P and the article in (83) should combine, as well.

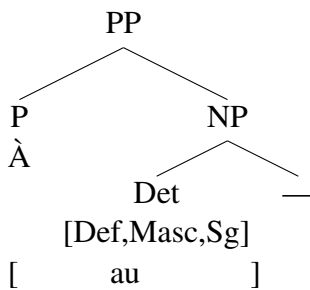
As described above, I analyze suppletive morphemes and portmanteau morphemes as a single item filling more than one adjacent node. The conditions on this given above predict exactly the data that we observe. Recall that the condition is the following:

- (85) The Strict Hierarchical and Linear Adjacency Condition (repeated from 79)
 Two heads X and Y can be realized as a single lexical item only if X and Y are adjacent, X c-commands Y, and there is no head Z such that Z asymmetrically c-commands Y but does not c-command X.

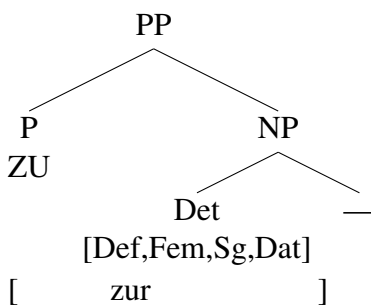
This condition does not require that the two heads be dominated by a single complex head, or even the same maximal projection. All it requires is that nothing intervene between them, either linearly or hierarchically.¹⁷

In the analysis proposed here, the French and German lexicons contain portmanteau items like the following, stored as partial trees:

- (86) French *au*:

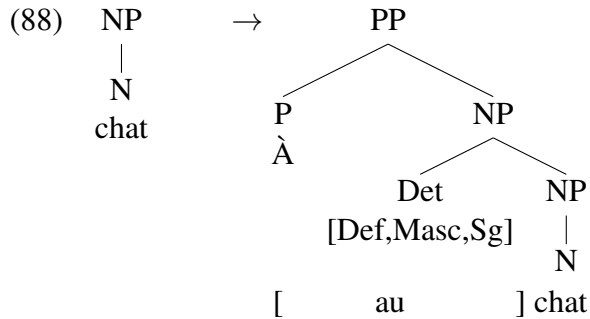


- (87) German *zur*:



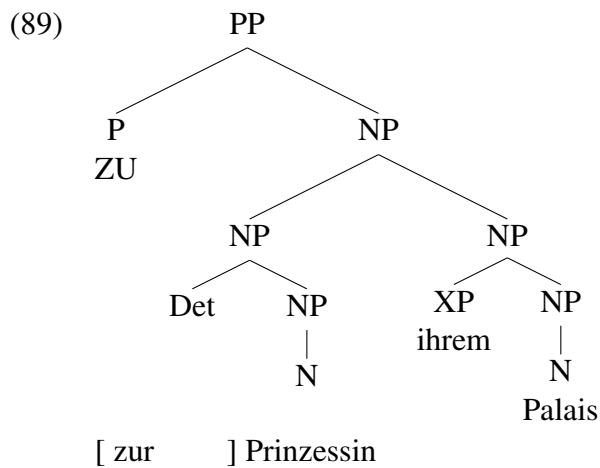
Both French and German have wellformedness conditions that require a Det to be merged with NP under certain conditions. The above lexical items can be taken from the lexicon and merged to satisfy these wellformedness conditions. The item in the syntax that these items will be merged with will fill in the dashes on the right (illustrating just for French):

¹⁷The treatment of suppletion and portmanteaux here is thus crucially different from the notion of a span in Merchant (2015). Adjacent heads in my approach do not have to be dominated by the same head or even the same maximal projection. This is in keeping with the current approach making no distinction between morphology and syntax. All that matters in the current approach is that heads be adjacent, both hierarchically and linearly. If two heads occur adjacently frequently enough, the grammar may decide to coalesce them. We see the same thing with forms like *shoulda*, *woulda*, *coulda* in English, where a V and the head of its complement coalesce.



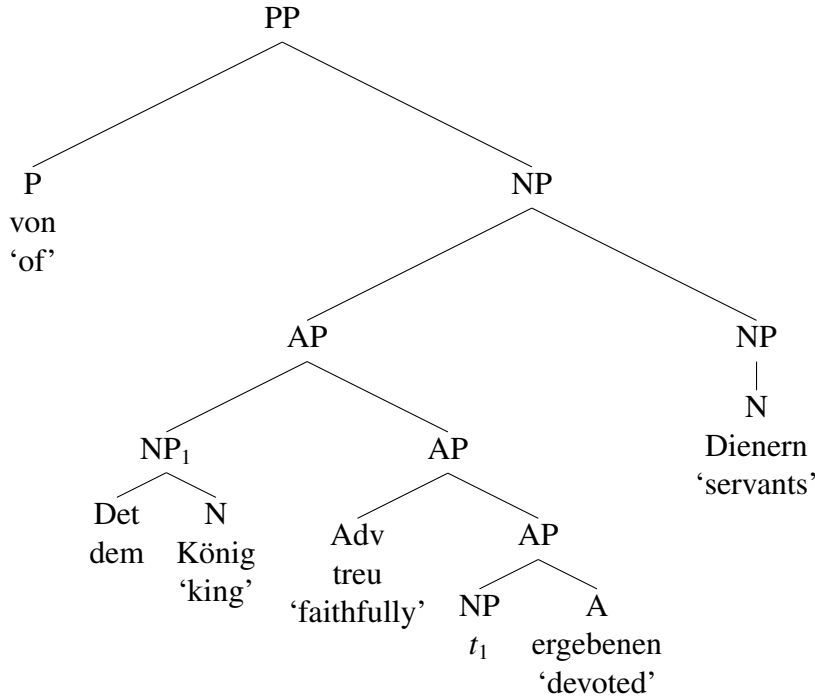
(I assume that all elements that adjoin within the phrase adjoin with a phrasal node NP, not N. Note that this does not really matter, because even if N c-commands Det but does not c-command P, the adjacency condition is still met because Det and N c-command each other. N does not asymmetrically c-command Det.)

Now consider the structure of a prenominal possessor in German:



P and Det meet the condition on realization of multiple heads as a single lexical item: they are adjacent, and there is no head that asymmetrically c-commands one but not the other. This will be true even if the determiner is embedded inside another possessor, as in example (84b). Contrast this with the case of an adjunct to N:

(90)



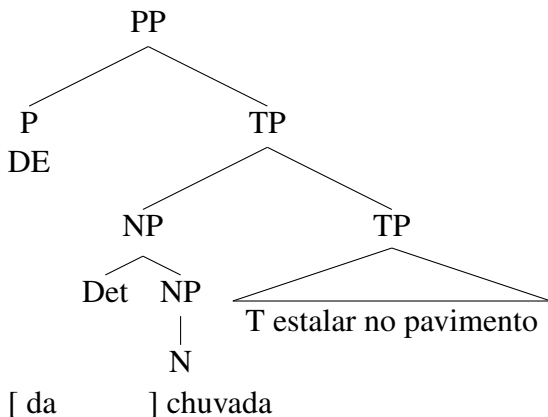
The NP *dem König* is actually the complement of the adjective (which is what assigns it dative case). It should therefore actually originate as the sister to the adjective, prior to moving across the adverb. I have indicated this with a trace in the tree. The determiner *dem* is therefore asymmetrically c-commanded by at least one head that does not c-command the preposition, namely the adjective (and possibly also the N *Dienern*). This prevents the P and the D from being realized as a single lexical item.

van Riemsdijk (1998) also shows that in Portuguese, a prepositional complementizer can combine with the determiner of the subject of a non-finite clause, as in the following example (van Riemsdijk's example (34), page 660, cited from Carlos de Oliveira):

- (91) Antes da (*de a) chuvada estalar no pavimento, entrou pela vila
 before of.the downpour to-rattle in-the soil three-entered in-the village
 ... uma charrete.
 a barrow

This is also consistent with the strict adjacency condition:

(92)



Nothing intervenes between the P and the Det linearly, and no head asymmetrically c-commands one but not the other. P and Det can therefore be realized by a single lexical item. I assume that partial trees, once merged, can be altered by merging other material within them, so long as no conditions are violated, in this case the strict linear and hierarchical adjacency condition. So a TP node can be created between P and NP, as in this tree. There is nothing like an extension condition that requires Merge to take place only at the root of the tree; rather, I assume some more lenient version of cyclicity (where at least a finite clause is a cyclic domain).¹⁸

As can be seen, the current approach to portmanteau morphemes makes exactly the right predictions, unlike the Local Dislocation account.¹⁹ The current approach has linear order as part of the syntax, so conditions can refer to linear and hierarchical adjacency at the same time. The Local Dislocation account cannot. In Distributed Morphology, there is a first stage where only hierarchical structure is present. After linearization, only linear order is present. Lowering takes place in the hierarchical structure, but Local Dislocation takes place in the linear string. This theory only permits operations to refer to one of hierarchy and linear order, and not both, and so it is unable to capture the distribution of P-Det combinations in German and other languages. As van Riemsdijk (1998) showed, they require both strict linear adjacency and hierarchical adjacency at the same time. I take the facts here to strongly support the current approach over Distributed Morphology.

5.4 Summary

This section has gone through several cases where Local Dislocation has been proposed: the Huave reflexive, English comparatives and superlatives, and P-Det combinations in various European languages. In all of these cases, we can build a simpler account without Local Dislocation, and one that achieves better empirical coverage. In every case the Local Dislocation analysis was inadequate. P-Det combinations show in particular that the Distributed Morphology architecture which strictly separates hierarchy and linear order into two separate components is untenable. P-Det combinations require simultaneous reference to hierarchical and linear adjacency, something that the current approach is well equipped to handle.

6 Conclusion and Discussion

This paper has re-examined various cases where the post-syntactic operations of Lowering and Local Dislocation have been proposed and has shown that all of those analyses are inadequate. In every case a simpler and better analysis is available that does not assume the existence of those operations. I have instead pursued a research program without multiple levels and where the only grammatical operations are Merge, Agree, and language-particular wellformedness conditions.

¹⁸I assume that idiomatic phrases are also stored as partial trees, and these clearly allow themselves to be altered once merged into a structure. For instance, modifiers can be added within an idiomatic constituent, see Ernst (1981), Nunberg et al. (1994), Nicolas (1995), O’Grady (1998), Bruening (2010a).

¹⁹NPs coordinated under a P raise complications. As van Riemsdijk (1998) and Wescoat (2007) show, some languages allow a P to combine with the Det of the first NP under certain circumstances, and disallow it under others. I do not attempt to account for these restrictions here, which appear to be largely language-specific and arbitrary. I take the fact that some languages sometimes allow it to indicate that it is a grammatical option. It should be, under the current account: with NPs coordinated under a P, nothing intervenes between P and the first Det either linearly or hierarchically.

Linear order is specified from the beginning, and phonological and semantic content is Merged with lexical items. This is a far simpler model of grammar than one that has post-syntactic operations in addition to syntactic ones and is therefore to be preferred on conceptual grounds alone. As we have seen, though, it is also empirically better. P-Det combinations in European languages, in particular, show that we need simultaneous reference to hierarchical and linear adjacency, and therefore rule out a model that separates hierarchy and linear order into two distinct components that do not overlap.

One might object that some of the analyses proposed here are stipulative, as they simply state the distribution of some item in a wellformedness condition. This is true, but the alternatives are even more stipulative. The alternatives with Local Dislocation have to stipulate a broad distribution and then further stipulate Lowering or Local Dislocation, at a minimum (and often multiple applications of Local Dislocation). A single stipulation is always better than two (or more). It is also not plausible to say that the broad distribution follows from universal principles or clause structure, because this has never been shown and probably cannot be shown. Two of the cases have involved a “reflexive” morpheme, which in both cases is actually used for a broad range of notions. Such items are still poorly understood. In one of these cases (Huave), the reflexive occurred inside of agreement morphemes; in the other (Lithuanian), it occurred outside of agreement morphemes. Even Distributed Morphology agrees that agreement morphemes are not placed by universal principles but have to be stated on a language-by-language basis. It is therefore extremely doubtful that *any* of the morpheme placement facts discussed here can be attributed to universal principles or clause structure (note the Lithuanian imperative morpheme, which occurs inside of the reflexive morpheme, in violation of all expectations regarding clause structure).

I contend that, if a single, simple wellformedness condition stated in terms that we know the syntax can refer to is adequate to capture the distribution of some morpheme, then that is the analysis that is most justified. If it is possible to *explain* some ordering, then of course we should pursue such explanations, but in general, morpheme order in different languages is arbitrary and language-specific (or perhaps not arbitrary, but the result of opaque historical processes, which in synchronic terms is almost the same thing). It is far worse, in any case, to state multiple stipulations and posit the existence of multiple levels and multiple operations when those are unjustified and unnecessary.

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