Obligatory adjuncts by partial structure-removal

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Abstract

A class of English verbs selects a sister phrase
That otherwise seems rather like a Spec.
The same regard for underlying symmetry
That permits operations that can trim a tree
(See Müller 2017 or Heck
'16), suggests they may not ever need to raise
To start as arguments but end adjoined.
(For this, *de-label* is the term I've coined.)

It's possible to represent this lexically
In properties of the selecting head;
This seems to miss the generalization
That arguments detach for scope interpretation
From phrases that, without, are in the red:
"To maximize OP-Scope, de-label flexibly."
Though cross-linguistic predictions aren't a breeze,
That seems to look alright for Japanese.

1. Introduction

While the nature of the argument/adjunct distinction has been a perennial object of linguistic attention, attention to XPs with mixed argument- and adjunct-properties has been intermittent in the history of generative syntax. This short paper is a contribution to that intermittency, focusing on one class of argument/adjunct ambiguities: those in which an XP that is adjunct-like in its (sub)category and external syntactic behavior nonetheless appears to be subject to syntactic selection, the grammatical relation *par excellence*. These *obligatory adjuncts* are problematic for many accounts of the argument/adjunct distinction, which largely tie the external syntactic properties of adjuncts to their having been introduced into the structure by a mechanism other than selection-motivated Merge.

Strict Cycling: A Festschrift for Gereon Müller, 107–124
Silke Fischer, Doreen Georgi, Fabian Heck, Johannes Hein, Anke Himmelreich, Andrew Murphy & Philipp Weisser (eds.)
STRICT CYCLING, Universität Leipzig 2024

For example, manner/means-adjuncts in certain Accomplishment passives ((1), Grimshaw & Vikner (1993)) exhibit an obligatoriness that suggests that they participate in selection (initiated low or immediately in the structure), but under e.g. ellipsis or movement tests (initiated higher in the structure) they behave more like adjuncts.

(1) This house was built/designed/constructed *(by a French architect/recently/poorly/...)

Likewise, the instrumental phrases with some classes of manner-verbs ((2), Klima (1961)) look and behave like adjuncts in most ways, but are not omissible, again looking like local selection.

(2) Steve pelted Anna *(with acorns/ferociously/...).

I presuppose here that a syntactic account of (at least some) obligatory adjuncts is desirable without attempting to dispostively distinguish these from pragmatically obligatory adjuncts (Goldberg & Ackerman 2001).[1] That is, I assume that 'obligatoriness is a matter of the grammar' (Sailor & Schütze 2013) and that at least some of the attested cases of obligatory adjuncts are not part of the proper scope of the pragmatic analysis.

By focusing mainly on elements that appear selected by a root predicate,

[1] Pragmatic analyses of some of these constructions (especially Goldberg & Ackerman (2001)) posit that the adjunct requirement is not a matter of syntactic selection, but instead due to an informativity requirement: roughly, that a predication is infelicitious when the predicate contributes no information beyond that entailed by the subject. An account of this kind, however, succeeds more at explaining the content of selected adjuncts than their external distribution. To briefly address the pragmatic argument: the requirement that a predicate must contribute additional information beyond that contributed by the subject does not explain why entirely uninformative XPs suffice to satisfy the requirement for the syntactic presence of such an element in these examples. That is, if the apparently selected character of these XPs were illusory, and really due only to a requirement that the predicate contribute something non-obvious to the speaker's utterance, it is unexpected that (i.a,c) should be better than (i.b,d).

(i) a. This house was designed in some manner.
b. *This house was designed.
c. Steve pelted Anna with things.
d. *Steve pelted Anna.

If the apparent obligatoriness is indeed actual obligatoriness due to selection, this follows straightforwardly.

I hope to minimize this analytic hazard. In addition, I do not address here cases of apparently obligatory adjuncts in the nominal domain, as these seem structurally less amenable to an account in terms of selection and consequently more amenable to a pragmatic analysis.

The central contention of this paper is that the resources of the core grammar already provide most of what is needed to allow this (particular) mix of argument- and adjunct-properties: we do not require long-distance selection or idiomatized constructions, but rather a suitable independently-motivated (though somewhat unorthodox) deconstruction of the elementary syntactic operations allows XPs that exhibit the relevant *transient argumenthood* with nothing special added. This also serves as an exercise in reductive theory construction, in so far as the argument/adjunct distinction is to be exploded into the constellation of simpler properties or building blocks that add up to it.

1.1. Selected adjuncts

The chief unusual property of obligatory adjuncts is their apparent susceptibility to selection; in their external syntax, they behave largely like other adjuncts. Their selectional distribution is not entirely usual either, however. In English, they typically have a rather restricted class of selectors: certain Accomplishment predicates in the passive voice, some middles, and a residue of apparently lexically-listed verbs which require a normally adjunct-like element (3).

(3) a. The monument was constructed *(magnificently/by exploited labourers/in 1452/...).
b. This bread butters *(easily/smoothly/with great difficulty/...).
c. John behaved *(well/poorly/like a jerk/...).

What is curious is, first, that this occurrence requirement holds of normally unselected elements, sometimes morphologically marked in a way that is typically restricted to adjoined positions (e.g. with adverbial *-ly* in English), and second, that in many cases a range of typically adjunct-like elements (typically Manner- and Means-PPs and AdvPs, sometimes temporal PPs) can satisfy the requirement.

Except for their obligatoriness, these XPs typically behave like adjuncts in their external syntax. For example, they are treated like adjuncts by pseudoclefting (Klima 1961), not like arguments.

(4) a. What Steve did with acorns was pelt Anna.
b. What Steve did on Tuesday was pelt Anna.
c. *What Steve did to Anna was give a book.

Likewise, they behave like adjuncts under ellipsis, being either included in the ellipsis or stranded outside it with approximately equal acceptability, even in backwards ellipsis contexts where a pseudogapping analysis is excluded (5).

(5) a. Steve pelted Anna with acorns before John did (with pinecones).
b. Although John didn't (with acorns), Steven pelted Anna with pinecones.
c. This villa was designed by a French architect and that one was (by a Norwegian).
d. This villa may have been by a French architect, but that one was definitely designed by a Norwegian.

Obligatory adjuncts also do not show signs of having obligatorily moved. A low adjunct like 'again' can trap the binding possibilities of an anaphor inside an obligatory adjunct to refer to its closest antecedent, apparently an instance of minimality, whereas the same obligatory adjunct, when ordered outside 'again', can take either the lower or higher antecedent, as in (6). This suggests that, in the neutral word order, the obligatory adjunct does not form a chain from which it can C-command any position of the subject DP.

(6) a. Susan$_i$ pelted Anna$_j$ with her$_{(i,j)}$ own acorns.
b. Susan$_i$ pelted Anna$_j$ with her$_{(*i,j)}$ own acorns again.
c. Susan$_i$ pelted Anna$_j$ again with her$_{(i,j)}$ own acorns.

Similarly, when an obligatory adjunct occurs outside a (properly optional) low adjunct like 'again', it has the possibility to reconstruct yielding a scope ambiguity, which does not occur when the obligatory adjunct appears closer to the verb than 'again'. In (7), for example, the (b) example admits of both a surface-scope reading where only the *re*-designing event must have been effected by a professional architect as well as an inverse-scope reading where both designing events were by a professional architect, while the (a) example, with the obligatory adjunct closer to the verb, admits only its surface-scope reading.

(7) a. The building was designed by a professional architect again.

b. The building was designed again by a professional architect.

In contrast, with properly optional adjuncts, both orderings of the *by*-adjunct and 'again' admit both scopal possibilities.

(8) a. The building was destroyed by a professional demolitionist again.
b. The building was destroyed again by a professional demolitionist.

The correct analysis of adjunct-like expressions that nonetheless appear to be subject to syntactic selection, such as these, is therefore somewhat unclear. Here I propose that they are exactly what they seem to be: selected like any other argument via checking of a category-feature at their base or first-Merge position, but adjoined at subsequent stages of the derivation.

2. Analysis

The properties we have seen above can be summarised as follows: so-called obligatory adjuncts appear to be selected, a property of their base or first-Merge position, but behave otherwise like adjuncts, which are typically understood to have their distinctive properties, especially being ambiguously inside or outside of another maximal projection from the point of view of operations initiated higher in the tree, in virtue of being outside the calculus of selection.

2.1. Transient argumenthood

The proposal here is that what is distinctive about obligatory adjuncts is very much what appears it to be: they originate as arguments but end up as adjuncts, without obligatorily undergoing syntactic movement. That is, they exhibit *transient argumenthood*.

The core property of an argument is being selected, and these XPs show this argument-like property, suggesting that at reach their base position in the syntactic structure in the normal argument-like way, by satisfying the selection feature of a selecting head. Subsequently to this, they are 'demoted' to adjunct status, and consequently behave like adjuncts from the point of view of operations triggered later in the derivation.

The question now is how this combination of properties can be generated by the operations available to the grammar. A grammatical account of selected adjuncts should explain their formal obligatoriness in the range of syntactic

contexts in which they appear, abstracting away from the pragmatics of their interpretation or felicity across discursive contexts.

2.2. Structure-removal

One way to alter structural configurations without movement is via tree-pruning, in which some grammatical operation eliminates syntactic structure from later stages of the derivation. In this subsection I sketch an analysis of obligatory adjuncts in terms of structure removal. The discussion herein will be framed using the *Remove* version of structure-removal (Müller (2015), Müller (2017), etc.), which has the attractive property of complementarity with Merge; that is, it behaves like Merge in reverse, subject to the same general derivational constraints. The core idea of the Remove proposal is that the inventory of basic syntactic operations contains, in addition to Merge which builds structure, an additional operation Remove which destroys structure, which has in common with Merge its properties of binarity, structure-dependence, feature-drivenness, and cyclicity, restricting it to largely apply at the root—though naturally by reducing the size of the tree rather than extending it.

If UG affords such a structure-*destroying* operation that obeys, like Merge, Strict Cyclicity, this will force it to apply basically just at the root, though it can have different derivational results depending upon whether it applies to an X^{min} or an X^{max}. In the former case the Strict Cyclicity of the operation may appear rather less clear, as in (9) from Zyman (2020), in which the C head *though* bears a featuring attracting a DP to its Specifier in addition to a $[-D-]$ Remove feature stripping the D (and with it, the DP projection) from the moved constituent. In cases like this, however, all the operations are still triggered by the single currently active head, and thus can comply with a suitably formulated definition of Strict Cyclicity. (For details, see Müller (2017)).

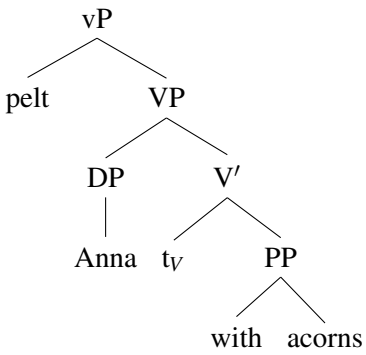
(9) a. Good doctor though she is …
b. *Though she is good doctor …

In the course of this discussion we will find that complete structure-removal, whether of an XP or a head, does not quite have the properties needed for obligatory adjuncts, before turning to the core proposal of this squib, that the structure-removal involved in the derivation of obligatory adjuncts is only partial.

There I analyse these constructions by combining the Remove proposal with Hornstein & Nunes (2008), Hornstein (2009) *et seq.*'s Decomposed Merge, which breaks down the elementary syntactic operation of Merge further to accommodate adjunction into the overall system (without the addition of e.g. pair-merge). If Merge has a structure-destroying counterpart Remove, and if Merge itself decomposes into two even simpler operations, general considerations of symmetry suggest an analogous decomposition may apply to Remove. The combination yields the encouraging side-effect that argumenthood of an XP can, in a few circumstances, be derivationally temporary, without entailing that the XP in question ever leaves the derivational workspace.

The basic pattern exhibited by obligatory adjuncts, that they appear subject to syntactic selection but otherwise behave like adjoined modifiers, resembles the so-called 'short life-cycle effects' documented in (Müller (2015), Müller (2017)), in that there is evidence of more structure earlier in the derivation (or equivalently in this case, lower in the syntactic tree), than there is at higher/later points. I assume that the vP-level structure of a sentence like (2) is as in (10).[2]

(10)

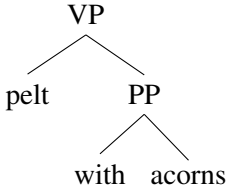


Obligatory adjuncts like in (2) cannot be derived in a structure of this kind via removal of an entire projection, since this would result in no observable remnant of the selected XP. If at the point in the derivation when the VP in (11) has been constructed, Remove were to apply to the *means*-PP *with*

[2]This discussion focuses on examples of the 'pelt' class of obligatory adjuncts, as this class most clearly seems to involve selection by the root predicate (though this is not without complications, cf. 'The rain pelted the sidewalk.')

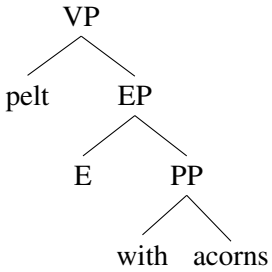
acorns, we would expect no reflex of this PP's presence in the derivation on the morphophonological side.[3]

(11)



Instead, these examples can be better analysed as resulting from removal of a 'dummy' head and its projection after satisfaction of the selectional feature of the selecting head. That is, if V carries, rather than a selection feature for P_{Means}, a selection feature for some other category E which in turn selects P_{Means}, then head-Remove of E will leave the *means*-PP intact to be reattached.

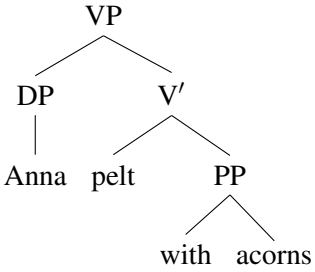
(12)



After removal of the head E in (12) and reattachment of the PP, the structure will be as in (11). On approaches to the argument/adjunct distinction that, fairly standardly, attribute the distinctive properties of adjuncts to their being simultaneously the sister and daughter of a non-distinct category, however, this will not suffice, because the next operation of Merge will yield the structure in (13), in which the obligatory adjunct is unfortunately restored to its prior status as the complement of V.

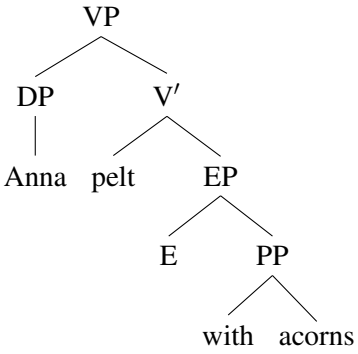
[3]The same result would obtain if we posited an otherwise empty projection (call it EP) uniquely dominating that PP; XP-Remove will not leave the appropriate residue if applied this low in the tree.

(13)

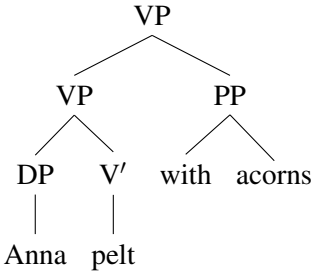


Instead we must critically order the selection and removal features on V, such that the addition of the specifier precedes the removal of the initial complement, i.e. $[E][D][-E-]$, so that the derivation proceeds to (14) before the removal step, after which the structure is (15).

(14)



(15)



This analysis accomplishes the core desideratum of generating transient argumenthood: the selected adjunct originates inside a selected projection (Comp,V) and its adjunct-like properties are the result of its subsequent position as both the sister and daughter of VP.

It is unclear, however, what the removed element E would be: perhaps an

empty N or D head, though these are not categories that typically host the range of XPs associated with obligatory adjuncts of this kind. More seriously, then, it has the theoretically undesirable property of introducing a syntactically-active category-feature that is not otherwise present in the language's vocabulary, and which never surfaces overtly.

Removal of such a structural shell may however be both more and less than is needed: the analytical desideratum just is that the selected adjunct should originate as an argument but be an adjunct thereafter, without, as shown in (6)-(8), obligatorily undergoing movement.

2.3. Decomposed *Remove*

The Remove proposal posits an operation complementary to Merge, serving to remove structure composed at a previous derivational step. This, by its own lights, naturalises the behaviour of the Merge operation by assimilating it to other cognitive operations which generally coexist with their own complementary operations (Müller 2015).

In contrast, the Decomposed Merge proposal treats Merge, which standard Minimalist approaches treat as a (or the) basic operation of the grammar, as instead a derived operation, obtaining as a result of two more basic operations applying sequentially. Both of these proposals are broadly in keeping with the fundamental Minimalist metatheoretical goals of simplifying and naturalising the operations of the grammar.

The basis of the *Decomposed Merge* hypothesis is that Merge is not a single operation, but a pair of operations *Concatenate* and *Label* that (typically) apply in series. *Concatenate* produces an non-hierarchically concatenated object (which Hornstein identifies with an adjunction structure) which, if subsequently *Label*ed, is able to contribute to larger hierarchical structures ((16)). If the concatenated structure does not undergo Label, the labeled sub-parts are still acceptable targets of further structure-building cycles, but the unincorporated adjunct will 'hang off' of the fully hierarchical structure.

(16) a. Concatenate$(\alpha, \beta) \rightarrow \alpha^\frown\beta$
b. Label$(\alpha^\frown\beta) \rightarrow [_\alpha\ \alpha, \beta]$

The appeal of this proposal is that it derives endocentricity from the elementary operations of the grammar while still allowing adjunction structures to comply with Inclusiveness (see Hornstein & Nunes (2008) for details) without losing

the generalisation that they appear variably maximal and non-maximal under operations like ellipsis triggered by higher heads, by treating (some) adjoined constituents as attached to (concatenated into) the larger structure but not labeled, and thus invisible from the point of further operations.

If both the Decomposed Merge hypothesis and the Remove hypothesis are basically correct, it is to be expected that the Remove operation also decomposes into a pair of operations which, in the normal case, apply in series. Hereafter I refer to these operations as *Dis-catenate* and *De-label*.

(17) a. **De-label**: delete the label from a labeled syntactic object
b. **Discatenate**: delete structural material from a syntactic object

In this proposal, both Merge and Remove consisting of (in the general case) two serial operations, the one structure-related (building or destroying structure) and the latter label-related (adding or removing a label). In normal Merge, Concatenate applies and then Label, yielding a hierarchical structure larger than its input and bearing a label derived from the most prominently headed constituent of the concatenates (or in some other endocentric fashion). In Remove, De-label applies and then Dis-catenate, removing the targeted structure from future steps of the derivation and yielding 'short life-cycle effects'. The table below summarises the decomposed operations in Bare Phrase-Structure terms, though nothing that follows rules out more traditional conception of phrase structure.

	Input	Output
Concatenate	α, β	$\{\alpha, \beta\}$
Label	$\{\alpha, \beta\}$	$\{x, \{\alpha, \beta\}\}$[4]
Discatenate	$\{\alpha, \beta\}$	α, β
De-Label	$\{x, \{\alpha, \beta\}\}$	$\{\alpha, \beta\}$

In spite of this underlying symmetry, the derivational possibilities of the structure-building and structure-destroying operations differ when they apply out of their typical order.

[4]Where $x \subset \{\alpha, \beta\}$

If Label applies to an already-Labeled structure, the result is vacuous, provided the labeling algorithm (whatever it may be in its details) is deterministic and endocentric. In principle, there is nothing to prevent Label from applying arbitrarily many times, but such derivations will be indistinguishable from those where Label applies only once per Concatenate.[5]

The generalisation in regard to the operations of Decomposed Merge is that, first, applying Label to a just-Labeled structure is vacuous and, second, applying Concatenate to a just-Concatenated structure produces a structure that is syntactically (though not phonologically) indistinguishable from its input, in that it exhibits the same headedness but includes an additional, structurally unincorporated adjunct. Thus in the course of general structure-building operations, Label will be fed by Concatenate and not *vice-versa*. Because applying *Label* to an already Labelled structure is vacuous, and applying *Concatenate* to an un-Labelled structure just yields another adjunct, if the structure-building operations apply outside of their typical order, no particularly unusual derivations result.

The corresponding structure-destroying operations, however, can interleave somewhat more freely. Applying Delabel to a structure without subsequently Discatenating the Delabeled constituent effectively converts an argument, or other syntactically-integrated element, into an adjunct.

Such a derivation would be vacuous unless another operation intervened, but provided that first-Merge is always driven by the need to check a selectional feature, there will always be such an intervening operation; in which case, the Delabeled constituent is predicted to behave like an argument to everything below it in the tree, but like an adjunct to everything above (analogous to "short life-cycle effects" from full Remove, Müller (2017)).

A *Decomposed Remove* analysis can therefore straightforwardly derive these and related cases of argument-adjunct asymmetry without any additional basic operations other than those which Merge and Remove decompose into. The simplest way to do this is to posit that heads that select typical adjunct 'types' like Adv, P_{Manner}, etc., come with a corresponding Delabel feature.

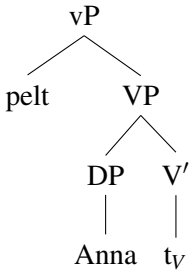
[5]The old constraint against vacuous transformations (Chomsky 1973) may be invoked here to rule out such unboundedly-long derivations, if such a justification is needed.

2.4. Example derivation with partial structure-removal

Assume that the base-generated structure of the VP hosting the obligatory adjunct is as given above in (11). Assume further that, ordered after the [P_{manner}] feature instantiating its selectional requirement for a PP of the appropriate subtype, the head V contains also a Delabel feature [^P_{manner}^], though we will question the latter assumption shortly. This [^P_{manner}^] feature serves to remove the label of the XP immediately containing the most local instance of P_{manner} to the head that bears [^P_{manner}^] (that is, the VP) and convert the already-constructed structure into an unlabelled concatenation of the V *pelt* and the manner-PP.

Because further elements remain in the numeration with selectional dependencies to V, namely *v* which selects it and attracts it via head-movement, and the object DP *Anna* which it will select, V will undergo these further structure-building operations until the *v*P in (18) is constructed. At the same time, the PP will remain in the workspace (since it has not been Discatenated), no longer integrated into the larger structure but having satisfied the selectional feature of V.

(18)

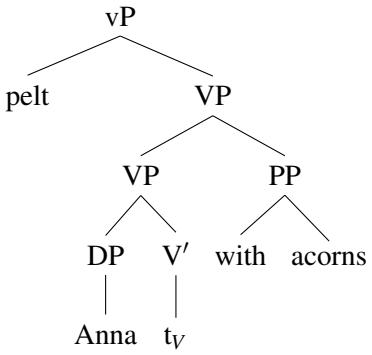


Now the lower phase will undergo Spellout. I assume for exposition that unLabeled or Delabeled elements Concatenated to the structure subject to Spellout are integrated into the traditional Chomsky-adjoined position as a Last-Resort operation at the completion of the phase, but nothing hinges on this. If they remain merely Concatenated to the Spelled-out structure, a suitable linearisation algorithm at the PF interface may be designed to handle them; such an algorithm is likely required anyway on Decomposed-Merge proposal to handle unLabeled concatenates at the uppermost phase.

Assuming, however, that Last-Resort structural integration does occur at the phasal level, the resulting structure (including the un-Spelled-out phase head)

will be as in (19): the PP is absent from its selected position, and will for the purposes of operations higher in the tree look like any other adjunct, but it has left no movement trace and thus no possibility of reconstruction.

(19)



2.5. The origin of the demotion requirement

The simplest way to implement the apparent requirement that selected XPs of adjunct-like types must rapidly undergo Delabel would be via a lexical generalisation (rather like a Stump-type rule of referral (Stump 1993), though outside the morphological domain), such that when selectional features for Adv, P$_{manner}$, etc. are present on a head in the lexical inventory, they are mandatorily accompanied by a later-acting Delabel feature converting the selected adverbial into an adjunct before the derivation proceeds further, as sketched above. A lexical generalisation of this kind is not plainly unlearnable, but as a theory of why obligatory adjuncts behave as they do, it is somewhat unsatisfying: a lexicon could in principle be much less coherently organised than this. A more explanatory account might seek to locate *why* elements of this kind must be 'demoted' to adjuncts shortly after being selected.

I would like to suggest the following: what is 'off' about adverbials in selected positions is that they are interpreted as functions over an event variable (pace Hornstein & Pietroski (2009)), as modifiers to the event referred to by the chain of heads composing the clausal spine and initially introduced into the derivation quite low, by *v* or possibly V. When the verb's feature structure subcategorises for an element of this type, it introduces into the derivation an element whose structural position as a verbal complement is not a good fit.

Demotion to adjunct itself looks, from this perspective, like a rescue or

last-resort operation, to handle an XP that must be both subject to selection and in a position normally outside selection. Rescue operations of this kind are natural signals of optimisation processes, and it is therefore natural to treat them in Optimality-Theoretic terms. Here I suggest a possible avenue in which to do so and an encouraging prediction, but for reasons of space do not present a worked-out ranking or tableaux.

If a relatively high-ranked constraint that prefers operators in non-complement positions, or more generally prefers their C-command domain to match their interpretation scope, is active throughout the derivation, then in a local optimisation model like that in (Heck & Müller 2003), V may be able to Delabel its complement without a dedicated [^P_{manner}^] feature. That is, it may be something like Op-Spec (Grimshaw 1997) or Op-Scope (Bakovic 1995), that motivates the Delabeling, if this constraint ranks higher than the constraint(s) mitigating against non-feature-driven structure-removal[6]. The contexts in which demoting something to an adjunct will be the optimal next step are fairly limited: basically just those in which an element that should be interpreted as a verbal modifier occurs in an argument position, and in which movement would not be a better repair option.

If this hunch is on the right track, it leads to the prediction that adjunct-like elements in selected positions will more freely be permitted in languages in which Op-Scope is ranked lower; a natural place to look is *wh*-in-situ languages. And indeed, in Japanese, elements of the category Adv (marked here by the suffix *-ku*) are selected quite routinely.

(20) ooki-ku naru
large-ly become
'become large'

While a constraint of the Op-Scope type is certainly not low-ranked enough in Japanese to be inactive, due to the complicated scope facts around scrambling in this language, its largely *wh*-in-situ character is evidence that such constraints are relatively less prominent. In other work (Frazier *in prep.*) I expand on these predictions, as well as giving a more full account of the derivational properties of the decomposed-operations approach to structure-removal.

[6]Possibly simply a generalised version of the Feature Condition in (Heck & Müller 2003).

3. Conclusion

So-called obligatory adjuncts are among the most readily apparent cases in widely-studied languages where the argument/adjunct dichotomy shows evidence of being derived rather than primitive. By decomposing the apparently primitive grammatical operations, and provided the usual monotonicity of these operations is a result of convergence considerations and not a basic property of the operations themselves, we can assimilate these cases to the normal mechanisms of selection and adjuntive modification needed for the rest of the grammar.

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