

2000

The Timing of Adjunction

Arthur Stepanov
University of Connecticut

Follow this and additional works at: <https://scholarworks.umass.edu/nels>



Part of the [Linguistics Commons](#)

Recommended Citation

Stepanov, Arthur (2000) "The Timing of Adjunction," *North East Linguistics Society*. Vol. 30 , Article 14.
Available at: <https://scholarworks.umass.edu/nels/vol30/iss2/14>

This Article is brought to you for free and open access by the Graduate Linguistics Students Association (GLSA) at ScholarWorks@UMass Amherst. It has been accepted for inclusion in North East Linguistics Society by an authorized editor of ScholarWorks@UMass Amherst. For more information, please contact scholarworks@library.umass.edu.

The Timing of Adjunction*

Arthur Stepanov

University of Connecticut

This paper proposes a combinatory algorithm of structure building within the bare phrase structure theory of the Minimalist program, which assumes operation Merge as the basic structure building device. The proposed algorithm enforces a particular timing of application of 'substitution' Merge and 'adjunction' Merge. In particular, I argue that XP adjuncts are Merged 'postcyclically' in overt syntax, either upon their insertion into the structure, or as part of the movement process (assuming that Merge is part of the displacement property). In essence, I pursue a stronger version of the thesis advanced, most prominently, in Lebeaux (1988), (1991) according to which adjuncts *can* be Merged late. The present theory effectively maintains that they *must* be: derivations where adjunct(s) are Merged cyclically are ruled out, with correspondent empirical effects. In addition to the minimalist assumptions concerning bare phrase structure (Chomsky (1995), (1998), Watanabe (1995)), the algorithm proposed here employs an intuitive definition of root of the tree/phrase-marker. The restrictive character of the present theory favorably distinguishes it from its competitors, in particular, Ishii (1998) who invokes additional mechanisms to achieve the same result.

I discuss two areas where the proposed algorithm has empirical consequences. First, I offer a simple solution to the 'experiencer puzzle' in languages like English whereby the experiencer does not block subject-to-subject raising contra predictions of the sort of Relativized Minimality/Minimal Link Condition. Second, I sketch a novel analysis of the class of 'island' phenomena falling under the so called Adjunct Condition on movement (Huang (1982)). This analysis holds if the movement is triggered by a morphological inadequacy either inside the moving element ('Move'), or its target ('Attract', Chomsky (1995), Ch. 4).

* I am indebted to the following people who positively contributed to this project at its various stages: Željko Bošković, Robert Frank, Hiroshi Hasegawa, Jon Nissenbaum, Jairo Nunes, Masao Ochi, Penka Stateva, Saša Vukić, and especially Howard Lasnik. Any remaining inadequacies are mine.

In Section 1, the empirical basis for the proposed theory is laid out by reviewing some recent arguments for late adjunction from the literature. After briefly reviewing Ishii (1998) in Section 2, the formal proposal is made in Section 3. Its empirical consequences concerning experiencer constructions and the 'Adjunct Condition' phenomena are discussed in Section 4. Section 5 is a summary.¹

1. Empirical Arguments

1.1 Adjuncts *Can Be Merged Late*

Perhaps the most well known argument for late (non-cyclic) adjunction is due to Lebeaux (1988), (1991) (cf. also Freidin (1986)). It involves certain 'anti-reconstruction' effects with respect to Condition C. Consider the following examples:

- (1) a. ?* Which argument that John_i is a genius did he_j believe?
 b. Which argument that John_i made did he_j believe?
 c. *He_j believed the argument that John_i is a genius
 d. *He_j believed the argument that John_i made

The R-expression inside a clause which is an argument of an NP induces a Condition C violation when a coreferent NP c-commands the extraction site ((1a) vs. (1c)). However, if the clause modifies the NP (that is, is a structural adjunct), the Condition C effect disappears ((1b) vs. (1d)). Assuming that Condition C is an 'everywhere' condition (that is, must be satisfied at every point in the derivation), Lebeaux concludes that the structural adjunct in (1d) has an option of not being Merged at D-structure at all. This option is not available for the argument clause in (1a).²

Bošković and Lasnik (in press) discuss the 'Pseudo-opacity' effects that obtain with adjunct *wh*-extraction, but not with argument extraction (Rizzi (1990)), as shown below:

- (2) a. [Combien de livres]_i a-t-il beaucoup consultés t_i
 'How many of books did he a lot consult?'
 b. *Combien_i a-t-il beaucoup consultés [t_i de livres]?
 'How many did he a lot consult of books?'
 c. Combien_i a-t-il consultés [t_i de livres]?

Bošković and Lasnik's concern is why the extraction of argument in (2a) is not a Subjacency violation, as it would be in case of argument extraction from *wh*-islands (cf. ??*how many books do you wonder whether John read*). Assuming Lasnik and Saito (1984), (1992) theory of locality of movement, according to which the argument traces must be checked for locality restrictions (' γ -marked') in overt syntax, and the adjunct ones at LF, Bošković and Lasnik (in press) argue that the grammaticality of (2a) is expected if the modifier *beaucoup* (an adjunct) enters the structure

¹ The present theory extends to all cases of true XP adjunction. The typology of such cases is not a trivial issue, as is well known (cf. e.g. Larson (1988), Pesetsky (1995)). I spell out relevant assumptions when discussing particular constructions. I will have almost nothing to say about head adjunction here.

² See Lasnik (1998) for discussion of possible interfering factors affecting the grammaticality of 'noun-complement' constructions of the type in (1a).

non-cyclically, after the *wh*-movement has taken place.³ In particular, *beaucoup* may enter the structure after the locality restrictions on the argument trace were checked. ((2b) is out because at LF, when the locality conditions on the adjunct trace are checked, *beaucoup* had invariably become part of the structure.)

Nissenbaum (1998) offers an analysis of parasitic gap constructions based on the idea advanced in Heim and Kratzer (1998) that syntactic movement creates derived predicates (λ -abstracts) at LF. Consider the example in (3):

- (3) Which paper did John [_{VP} [_{VP} file _] [_{Adj Op} without PRO reading _]] ?

According to Nissenbaum, the complex adjunct denotes a two place predicate (type $\langle e, \langle E, t \rangle \rangle$). If so, then its (cyclic) Merger with the VP [*John file which paper*] leads to a compositionally uninterpretable outcome because of type mismatch, since the (segment of the) VP which becomes a sister of the adjunct is a one place predicate (type $\langle E, t \rangle$). Nissenbaum suggests a possible way around this problem. He argues that the *wh*-phrase moves within the VP as an intermediate step of *wh*-movement. This movement creates a λ -abstract which transforms the VP into a predicate of the matching type $\langle e, \langle E, t \rangle \rangle$. Crucially, this movement must take place before the adjunct is Merged with the VP. If the adjunct is Merged prior to the movement, then the latter will create a λ -abstract over the entire VP+adjunct constituent, which gives rise to the type mismatch problem. Thus, in syntax, at least the option of non-cyclic merger must be allowed.

1.2 Adjuncts *Must* Be Merged Late

Ochi (1999a) explores the PF merger analysis of English verbal morphology of the type in Bobaljik (1995) and Lasnik (1995). According to these authors, Infl in English is affixal, hence must merge with a V, a PF process that requires adjacency. The PF merger can proceed in (4a), but not in (4b) where the adjacency is disrupted by the negative head *not* (the working assumption here is that 'Do-support' applies when the PF merger fails):

- (4) a. John Infl [_{VP} leave] (cf. John left)
 b. John Infl *not* [_{VP} leave] (cf. John did not leave)

Bobaljik (1995) observes that adverbs (presumably, adjuncts) apparently do not interfere with the adjacency requirement:

- (5) John Infl *quickly* leave (cf. John quickly left)

Adopting the Multiple Spell-Out hypothesis (cf. Uriagereka to appear), Ochi suggests that this state of affairs arises because the PF merger of Infl and V can take place prior to Merging the

³ Bošković and Lasnik (in press) focus on Chomsky's (1995) definition of 'strong' features:

(i) Suppose that the derivation D has formed Σ containing α with a strong feature F. Then, D is canceled if α is in a category not headed by α . (p.233-234)

They note that this definition allows acyclic merger of *beaucoup* in (2) if it does not have any strong features.

Bošković takes focus-movement in (7) and (8) to be adjunction to the AgrP projection (below the CP). Notice now that the timing of *wh*-movement and focus-movement in (8) is crucial in order to derive the well-formed (8a). Considerations of cyclicity suggest that focus movement takes place before *wh*-movement. But if this is so, then both *ko* and *koga* will move to adjoin to AgrP. Since Superiority is irrelevant for the focus movement, either of these two *wh*-phrases can become the highest *wh*-phrase in the structure. If *koga* happens to be the highest, the Q will attract it for the purposes of *wh*-movement resulting in the ungrammatical (8b), a Superiority violation. On the other hand, if *wh*-movement applies first, this ensures that the highest *wh*-phrase (*ko* in (8) before focus movement) gets attracted, which accounts for Superiority in (8a). This entails that focus movement by adjunction to AgrP must take place non-cyclically.

2. Previous Studies: Ishii (1998)

Ishii (1998) (see also Ishii (1997)) develops a theory of phrase structure that shares with the theory proposed here the insight that adjuncts must be Merged late (postcyclically). Ishii's approach capitalizes on the fact that arguments are selected, whereas adjuncts are not. In particular, Ishii proposes the following condition on phrase structure:

- (10) *Derivational Selectional Restriction*
Satisfy selectional restrictions as early as possible.

(10) forces adjuncts, which are, presumably, not selected, to be Merged after the rest of the structure is built. Note that (10) is not explicit about adjunction by movement, thus leaving open the issue whether it is cyclic or not. Thus (10) cannot account, for instance, for Superiority facts in Serbo-Croatian embedded clauses (see discussion around (8)). In what follows, I propose an algorithm that derives (10) on principled grounds, and also has a wider empirical coverage, in that it accounts for instances of base-generated adjunction as well as adjunction by movement.

3. Formal Proposal

3.1 'Least Tampering'

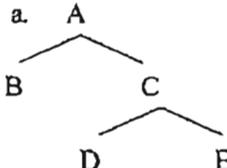
Let us take as a starting point the minimalist bare phrase structure system (Chomsky (1995), (1998)). Specifically, I assume the notion of Numeration, an array of lexical items drawn from the lexicon for construction of the phrase marker. The derivation converges when the numeration is exhausted, otherwise, it crashes. The basic operation Merge combines syntactic objects taken from the lexicon as well as already formed in the course of the derivation. Merge proceeds by building the structure in a 'bottom-up' fashion. I also assume that Merge forms syntactic objects of the set-theoretic form $\{\gamma, \{\alpha, \beta\}\}$, γ a predictable label.

I follow the basic insight of Chomsky (1998), p.53 that operations of the computational system (in particular, Merge) tend to preserve existing structure, rather than 'tamper' with it, where 'tampering' means making certain changes in the structural make-up of the phrase marker. I depart from Chomsky, however, in the formal implementation of the 'preservation' idea. Chomsky proposes that what must be preserved is the 'set of basic relations' established in a phrase marker, such as sisterhood or c-command. Let us, instead, interpret the 'least tampering'

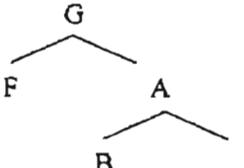
condition along the lines of the 'Avoid Redefinition' proposal in Watanabe (1995). According to this proposal, what should be preserved as much as possible is the definition of 'terms' of the phrase marker. The (recursive) definition of term is as in Chomsky (1995), p.247:

- (11) a. K is a term of K.
b. If L is a term of K, then the members of the members of L are terms of K.

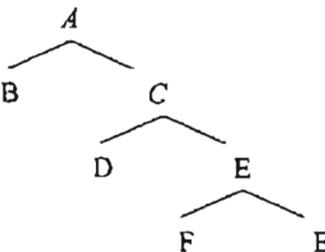
Consider the phrase marker K with terms A, B, C, D, E, as in (12a), defined in accord with (11) via a slightly modified Chomsky's (1995) set-theoretic notation (cf. (12b)):

- (12) a.  b. $A = \{B, C, D, E\}$
B
 $C = \{D, E\}$
D
E

A (cyclic) merger of a new term F as a sister of A in overt syntax does not lead to the change in the definitions of terms in (12b). In addition, a new term G is created:

- (13) a.  b. $G = \{F, A, B, C, D, E\}$
 $A = \{B, C, D, E\}$
B
etc.

On the contrary, merger of F inside the phrase marker K leads to the change in the set of definitions in (12b). In particular, if F is merged (by adjunction) to E, we have:

- (14) a.  b. $A = \{B, C, D, E, F\}$
B
 $C = \{D, E, F\}$
D
E
F

The terms A and C have been *redefined*. Watanabe proposes that derivational operations tend to apply so as to avoid redefinition. This, essentially, derives cyclicity. Any non-cyclic operation in overt syntax is bound to 'tamper' with the existing structure by redefining its terms, hence, all else equal, is dispreferred in favor of cyclic one(s).

Watanabe, and Chomsky (1998) (p. 53), devises his version of the 'least tampering' requirement as an Economy condition.⁶ I follow Watanabe and Chomsky in this interpretation of

⁶ Watanabe shows that the Economy character of 'least tampering' incorporates LF movement which is

'least tampering'. This idea will be used in a particular form as part of the present proposal.

3.2 Definition of Root

Chomsky (1995) assumes that the operation Merge applies at the 'root' of tree/phrase marker. The idea behind Chomsky's conceptual argument is that it is more difficult for Merge to 'look inside' a phrase marker for its target, rather than simply target the root. Here I propose to give more substance to Chomsky's viewpoint by utilizing a particular formal definition of root:

(15) A root is a term which is c-commanded by no other term

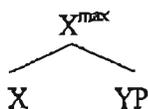
Adopting this formulation, I essentially follow Chomsky (1995), Ch.4., (1998), Frank and Vijay-Shanker (1995), in taking c-command to be a primitive relation in a phrase marker.

Furthermore, in the spirit of Watanabe's 'least tampering'/avoid redefinition' proposal, let us suppose that Merging at the root is a sort of an economy condition. We now have all the necessary parts of the structure building algorithm that we are pursuing:

(16) a. Merge at the root when possible (economy condition)
b. The definition of root in (15)

3.3 How It Works

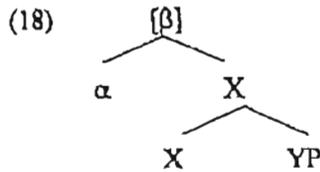
Suppose at some point in the derivation an object $K = \{X, \{X, YP\}\}$ was created:

(17) 

Then by (16b) K is the root. Suppose further the object α is introduced into the derivation. Potentially, α may be merged with K , by substitution or adjunction, or with YP inside K , also by substitution or adjunction (depending on whether α is minimal or maximal). By (16a), α can only merge with K (the merger with YP leads to a redefinition of the term XP).

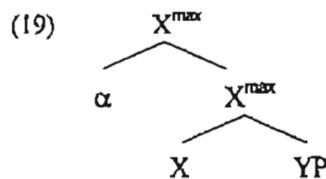
Consider now each possibility for this merger. If Merger is a case of 'substitution' ('set-Merge' of Chomsky (1998)), then merger of α forms a new object $L = \{\beta, \{\alpha, K\}\}$ (the label β is determined by the term that projects), in accord with the minimalist bare phrase structure:

mostly non-cyclic. In effect, he argues for a separate LF cycle, derived from his Avoid Redefinition requirement.



The object L is legitimate and by (16b) becomes the root. It is available for further Merger. Thus, for the cases of Merge by 'substitution' the algorithm proposed here is no different than the regular minimalist structure building procedure.

Suppose now that the Merger of α to K is a case of adjunction ('pair-Merge' of Chomsky (1998)). Here I will only consider the case when both α and K are maximal, putting head adjunction aside. As always assumed in the minimalist phrase structure, the resulting object becomes segmented:



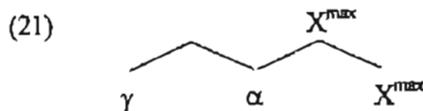
The question now arises as to what the root in (19) is, according to (16b). The answer to this question really depends on the precise definition of *c-command*. Consider now two alternative definitions of *c-command* existing in the literature. One of them goes back, in particular, to Reinhart (1976), May (1985) and Chomsky (1986), and can be formulated along the following lines:

- (20) α *c-commands* β iff α excludes β and every category dominating α also dominates β .
 α excludes β iff no segment of α dominates β .

The second definition (see Barker and Pullum (1990), Reinhart (1981)) essentially dispenses with the 'exclusion' clause, thus allowing (the segment of) α to dominate β .

Under the second definition of *c-command*, the syntactic object in (19) has no root in the sense of (16b): there is no term such that it is not *c-commanded* by any other term. For the purposes of structure building, this means that a cyclic Merger to this syntactic object in the sense of merging 'at the root' is in principle impossible. The syntactic object in (19) then cannot be further extended, either in overt or covert syntax.

On the other hand, under the first definition of *c-command* in (20) the root can be identified in (19), namely, α (cf. Frank and Vijay-Shanker (1995)). α is thus available for cyclic merger. However, Merger of some γ to α results in the following type of structure:



I assume that the structure in (21) is not a legitimate syntactic object. This structure might be ruled out as a violation of (primitive) dominance relations, along the lines of Lasnik and Kupin (1977), whose formalization of phrase marker excludes non single-rooted trees ('forests'). A similar result is achieved by the Single Root Condition of Partee et al. (1993).⁷ That means, again, that a cyclic merger to the object in (19) is excluded.

Hence, the object in (19) can only represent the last cyclic merger in the derivation. If at this point the derivation contains no unused items to be Merged, the overt part of the derivation ends here. The next question is what happens if the Numeration is not yet exhausted, or if there are more syntactic objects available for Merger. Let us now turn to a real example.

Consider the sentence in (22a), the numeration for which is given in (22b):

- (22) a. Adeola frequently visits Paris
 b. {Adeola, frequently, visits, Paris, v , T, C}

I assume here that the adverb *frequently* is a true vP adjunct. Consider the point where the vP is constructed. Suppose that *frequently* is Merged cyclically to vP, forming the segmented constituent, as shown below:

- (23) [_{vP} frequently [_{vP} Adeola visits Paris]]

At this point the Numeration contains the unused items T and C. Neither of these items can be merged cyclically for reasons discussed above. The derivation is thus canceled. Notice that (16a) gives an option for acyclic merger, needed for convergence. In cases like (22a), however, this Merger is impossible for independent reasons, such as selection. For example, one cannot Merge T inside vP simply because the selectional requirements of T would thereby be violated. Similar reasoning applies with regard to insertion of C.⁸ This derivation is then canceled as well, this time because of the non-exhausted Numeration.

Consider now a continuation of the derivation of (22a) in which *frequently* is not Merged cyclically. Rather, when the vP is completed, the next step is a ('substitution') Merger of T (triggering the displacement of *Adeola* to its Spec, as standardly assumed) and then of C.⁹ The

⁷ I do not discuss here the question of translating these alternatives into the bare phrase structure theory. See Frank and Vijay-Shanker (1995) for relevant discussion.

⁸ I assume that Merger to the vP adjunct is impossible as an instance of a postcyclic operation as well. Intuitively, postcyclic Merger should only be allowed to something that 'used to be' a root, in the sense of (15). This should follow, perhaps, from the properties of Merge as an operation establishing syntactic relations, in the sense of Epstein (to appear). I leave a formalization of this intuition open at this point.

⁹ Apparently, the prediction is that Merger of C is overt in structures involving adjunction. At its face value, this consequence seems incompatible with Bošković's (1997) proposal that the interrogative C may be inserted covertly in Serbo-Croatian matrix *wh*-questions (see the discussion around (7) above). The two proposals can be

subsequent Merger of *frequently* is then post-cyclic, and is allowed insofar as it ensures convergence, by (16a). After that, the Numeration is empty and the derivation terminates.

Thus, in the theory proposed here, the cyclic merger of an adjunct prevents further cyclic structure building. If at this point the Numeration is not exhausted, and cannot be exhausted by acyclically merging its remaining members, the derivation is canceled. The theory forces all non-adjuncts to be merged first, and adjuncts postcyclically.¹⁰

3.4 *Wh*-Adjuncts vs. Non-*Wh*-Adjuncts

In this section, I consider the syntactic behavior of *wh*-items like *why* and *how* in the light of the postcyclic Merger proposal.

Wh-items like *how* or *why* have traditionally been called '*wh*-adjuncts', on analogy of their non *wh*-versions, given that they cannot be considered arguments of predicates in the same sense as, for example, direct objects are. This intuition is usually stated in terms of selection: arguments are selected, whereas adjuncts are not (cf. Ishii 1998). Now, if *wh*-words like *how* or *why* are unselected, that is, are real adjuncts, the question arises as to how their postcyclic insertion interacts with *wh*-movement in cases like the following:

- (24) a. John wonders [_{CP} how Peter fixed the car t]
 b. How did John say that Peter fixed the car?

As things stand now, *how* would be Merged postcyclically in (24a). However, a postcyclic Merger of *how* potentially creates problems for the feature checking theory, according to which *how* must check some feature of the interrogative complementizer. Another issue is *where* *how* is Merged. In particular, if it is Merged directly to Spec-CP in (24b) then the question arises as to how to account for the fact that it can modify the lower clause.

It appears that the simplest way to avoid the kind of questions pointed out above is to allow (or force) '*wh*-adjuncts' like *why* or *how* to be inserted cyclically, rather than postcyclically, as always assumed. A straightforward direction to pursue in this respect without jeopardizing the basic assumptions of the present theory is to reconsider their status in terms of selection. If we can state, in a formal manner, that '*wh*-adjuncts' are selected, that would force us to say that they are not 'true' adjuncts, hence must be Merged cyclically. This contrasts with non-*wh*-adjuncts, which are 'true' adjuncts, and, according to the present theory, must be Merged postcyclically.

We can, in fact, put this intuition in more precise terms. Hagstrom (1998) proposes that

reconciled, however. Hagstrom (1998) proposes that the interrogative Q feature is generated internal to the clause, and can later move to within the CP domain. Utilizing this suggestion in our terms, suppose that C in Serbo-Croatian matrix *wh*-phrases is projected overtly, then the *wh*-phrases raise to check their focus feature by adjunction to AgrP, (postcyclically), and then Q moves to C covertly, which then Attracts for the purposes of *wh*-movement. In embedded questions, Q must move to C overtly, presumably for selectional reasons (selection by a higher predicate). See Section 3.4 and Bošković (1998) for discussion of Hagstrom's proposal.

¹⁰ Space limitations do not permit me to discuss the consequences of the present proposal related to the multiple and successive-cyclic adjunction. See Stepanov (1999) for more details.

the interrogative Q feature is generated inside a clause over which interrogation takes place. Bošković (1998) adapts Hagstrom's analysis with respect to overt *wh*-movement languages. He shows that even in those languages the Q feature is generated below CP, and very close to the *wh*-phrase; perhaps it is Merged with it. If so, this suggests, in my view, a reasonable conjecture that the Q feature selects the *wh*-phrase. Being subject to selection, *wh*-phrases like *how* are not 'true adjuncts' in the sense that they should be merged cyclically, rather than postcyclically. That predicts the usual behavior of *wh*-phrases like *how* in (24) with respect to movement and feature checking.

4. Empirical Consequences

4.1 Raising Constructions and the Minimal Link Condition

Examples like (25) involving raising verbs present a well known problem for the minimalist theory, pointed out in Chomsky (1995), Ch.4:

(25) John_i seems to Mary [t_i to be smart]

The grammaticality of (25) is problematic given the minimalist principles Minimal Link Condition or Attract Closest (MLC/AC). Specifically, under the MLC/AC the strong EPP feature of matrix T should not be checked by the D-feature of *John* since there is a closer D-feature, namely, that of the experiencer. Furthermore, these same principles predict at least one of the following sentences to be grammatical:

- (26) a. *[To Mary]_j; seems t_i [John to be smart]
 b. *Mary_i seems to t_j [John to be smart]

In (26) the experiencer raises to the matrix Spec-T, checking the EPP feature, under the MLC. The formal features of *John* may raise to adjoin to the matrix T at LF, checking its Case and, perhaps, ϕ -features. (I assume, following Chomsky (1995), Ch. 4; (1998), p. 47, that (A-) traces do not block raising). Thus under the MLC/AC nothing seems to block this derivation.

Torrego (1996) makes an intriguing proposal that the experiencer in raising to subject languages like English is actually a structural adjunct attached to the lower clause, as (27) shows:

(27) John_i seems [_{CP/TP} to Mary [_{CP/TP} t_i to be smart]]

Torrego's intuition underlying her proposal is that the experiencer is not a 'true' argument of raising verbs.¹¹ Given this proposal, it is now easy to see how the raising across the experiencer facts can be reconciled with the MLC/AC. Under the present theory, if the experiencer is an adjunct, it does not even enter the structure until after the raising took place. That is, at the time of raising, there is no closer candidate to be Attracted to the matrix T than the lower subject. The derivation of (25) should then proceed as follows:

¹¹ Torrego (p. 108) suggests that the experiencer is, rather, a participant of the entire predicate *seem* + [lower] V. That is, for Torrego, *seem* undergoes some sort of restructuring.

- (28) 1) Create: T seems [_{CP/TP} John to be smart]]
 2) Attract *John* (closest): John T seems [_{CP/TP} t_i to be smart]
 3) Insert *to Mary*: John_i seems [_{CP/TP} to Mary [_{CP/TP} t_i to be smart]]

Notice that we do not have to require the experiencer to always be Merged late in this case: a weaker theory having its Merger as an option, would suffice. However, a weaker theory is to no avail with respect to ruling out (26), if the MLC/AC is adopted. As long as the option of cyclic adjunction is available, it is unclear why the experiencer cannot raise to the matrix T. On the other hand, under the present theory (26) will never be generated. The derivation in (28) is the only available one. The MLC/AC series of principles are maintained intact.¹²

4.2 'Adjunct Island' Phenomena

The proposed structure building algorithm offers a new perspective on the issue of minimalist characterization of extraction domains that constitute structural adjuncts. Consider a textbook case of a violation of the so called Adjunct Condition (Huang (1982), Chomsky (1986)):

- (29) ?*What did John [_{VP} [_{VP} go to bed] [_{Adj} after Peter fixed t_i]]?

Takahashi (1994) offers an influential analysis of the island phenomena including the 'Adjunct Condition', assuming the minimalist model of grammar of Chomsky (1995), Ch. 3. That model incorporated the theory of movement based on the operation Move, subject to the Shortest Movement condition (cf. Chomsky and Lasnik (1993)) (SMC) which requires the moving element to make a shortest move possible, in accord with the usual locality/Minimality considerations. Details aside, according to Takahashi, in examples like (29), the SMC is violated when the *wh*-phrase crosses the maximal projection dominating the complex adjunct.

Chomsky (1995), Ch.4. makes a different assumption with respect to the driving force for movement. According to Chomsky (1995), the driving force for movement resides in its target, not the moving element, the intuition behind the notion of Attract F. Under Attract, nothing forces the attracted element to make a shortest move (in the form of adjoining to every XP on its way to the target K). Consequently, the SMC, an integrated part of Takahashi's theory, cannot be maintained.¹³

A possible account of the 'Adjunct Condition' in the present system can proceed along the following lines. Assume that *after*-phrases and the like are true (VP) adjuncts,¹⁴ hence, must be Merged postcyclically. That means, essentially, that at some point in the derivation the structure building procedure creates two phrase markers, unconnected to each other:

- (30) [_{CP} C John go to bed]

¹² See Stepanov (1999) for an account of the binding properties of the experiencer given that the latter has the adjunct status, and also for a discussion of cross-linguistic behavior of experiencers in this respect.

¹³ See Ochi (1999b) for an attempt to restate Takahashi's analysis in terms of Attract F.

¹⁴ Contra Larson (1988), in particular.

[_{Adj} after Peter fixed what]

I suggest that it is the situation in (30) that gives rise to the deviance of (29). Following Chomsky (1995), I assume that the *wh*-phrase in (30) has to move to within the matrix interrogative CP, perhaps for reasons of feature checking.

Observe that the relevant feature in the matrix CP, and the only element that could potentially check it - *what* - are located in different phrase markers. I claim that the feature of C cannot be checked under these circumstances.¹⁵ Specifically, I adopt a version of the checking theory (cf. Chomsky (1995), Ch.4), according to which a (strong) feature must be checked and eliminated (almost) immediately upon insertion into the structure. That is, after the strong feature is inserted, the next step in the derivation must result in its checking and/or elimination. Given this notion of strong features, nothing can check the (strong) feature in the CP phrase marker at the point illustrated in (30).^{16,17}

Note that the proposed 'postcyclic Merger' account of the 'Adjunct Condition' implies an empirical claim concerning its universality. This claim appears to be justified. There do not seem to be languages which uncontroversially allow violations of the 'Adjunct Island' with overt movement. The present theory predicts this state of affairs.

5. Summary

To summarize, I proposed a formal algorithm of phrase structure building within the bare phrase structure theory of Chomsky (1995, 1998), that implies postcyclic Merger of adjuncts. I discussed consequences of the proposed algorithm in two empirical areas: 1) raising constructions with experiencers, and 2) 'Adjunct Condition' phenomena. Other empirical aspects of the proposed algorithm remain to be investigated.

References

- Barker, Chris, and Geoffrey K. Pullum. 1990. A theory of command relations. *Linguistics and Philosophy* 15: 1-34.
- Bobaljik, Jonathan. 1995. *Morphosyntax: The syntax of verbal inflection*. Doctoral dissertation, MIT, Cambridge, Mass.
- Bošković, Željko. 1997. Fronting *wh*-phrases in Serbo-Croatian. In *Proceedings of the V Annual Workshop on Formal Approaches to Slavic Linguistics*, ed. Martina Lindseth and Steven Franks, 86-107. Michigan Slavic Publications, Ann Arbor.
- Bošković, Željko. 1998. *On the interpretation of multiple questions*. Ms., University of Connecticut, Storrs.

¹⁵ One possibility for the *wh*-phrase to check the relevant feature in (30) would be to undergo movement across the phrase markers, perhaps along the lines of Nunes (1995). For the present purposes, however, I assume that movement is always confined within a single phrase marker.

¹⁶ The argument/adjunct asymmetry in extraction (Lasnik and Saito (1984)) remains unaccounted for.

¹⁷ For an extension of this analysis to Complex NP islands, and also for its consequences concerning Condition on Extraction Domains (CED), see Stepanov (1999).

- Bošković, Željko, and Howard Lasnik. in press. How strict is the cycle? *Linguistic Inquiry*.
- Chomsky, Noam. 1986. *Barriers*. Cambridge, Mass.: MIT Press.
- Chomsky, Noam. 1995. *The minimalist program*. Cambridge, Mass.: MIT press.
- Chomsky, Noam. 1998. Minimalist inquiries: The framework. In *MIT Occasional Working Papers in Linguistics*. MIT, Cambridge, Mass.
- Chomsky, Noam, and Howard Lasnik. 1993. The theory of principles and parameters. In *Syntax: An international handbook of contemporary research*, Vol. 1, ed. Joachim Jacobs et al., 506-569. Berlin: Walter de Gruyter.
- Epstein, Samuel D. to appear. Un-principled syntax and the derivation of syntactic relations. In *Working minimalism*, ed. Samuel D. Epstein and Norbert Hornstein. Cambridge, MA: MIT Press.
- Frank, Robert, and K. Vijay-Shanker. 1995. C-command and grammatical primitives. *Paper presented at the 18th GLOW colloquium*, University of Tromsø.
- Freidin, Robert. 1986. Fundamental issues in the theory of binding. In *Studies in the acquisition of anaphora*, Vol. 1, ed. Barbara Lust, 151-188. Dordrecht: Reidel.
- Hagstrom, Paul. 1998. *Decomposing questions*. Doctoral dissertation, MIT, Cambridge, Mass.
- Heim, Irene, and Angelika Kratzer. 1998. *Semantics in generative grammar*. Malden, MA.: Blackwell Publishers.
- Huang, C. -T. James. 1982. *Logical relations in Chinese and the theory of grammar*. Doctoral dissertation, MIT, Cambridge, Mass.
- Ishii, Toru. 1997. *An asymmetry in the composition of phrase structure and its consequences*. Doctoral dissertation, University of California, Irvine.
- Ishii, Toru. 1998. Derivational selectional restriction and reconstruction. *English Linguistics* 15: 28-49.
- Larson, Richard K. 1988. On the double object construction. *Linguistic Inquiry* 19: 335-391.
- Lasnik, Howard. 1995. Verbal morphology: *Syntactic Structures* meets the Minimalist Program. In *Evolution and revolution in linguistic theory: Essays in honor of Carlos Otero*, ed. Héctor Campos and Paula Kempchinsky, 251-275. Washington, D. C.: Georgetown University Press.
- Lasnik, Howard. 1998. Some reconstruction riddles. In *Proceedings of the 22 Annual Penn Linguistic Colloquium*, ed. Alexis Dimitriadis et al., 83-98. University of Pennsylvania, Philadelphia, PA.
- Lasnik, Howard, and Joseph J. Kupin. 1977. A restrictive theory of transformational grammar. *Theoretical Linguistics* 4: 173-196.
- Lasnik, Howard, and Mamoru Saito. 1984. On the nature of proper government. *Linguistic Inquiry* 15: 235-289.
- Lasnik, Howard, and Mamoru Saito. 1992. *Move α : Conditions on its application and output*. Cambridge, Mass.: MIT Press.
- Lebeaux, David. 1988. *Language acquisition and the form of the grammar*. Doctoral dissertation, University of Massachusetts, Amherst.
- Lebeaux, David. 1991. Relative clauses, licensing and the nature of the derivation. In *Syntax and Semantics 25: Perspectives on phrase structure*, ed. Susan Rothstein, 209-239. New York: Academic Press.
- May, Robert. 1985. *Logical Form: Its structure and derivation*. Cambridge, Mass.: MIT Press.

- Nissenbaum, Jon. 1998. Movement and derived predicates: evidence from parasitic gaps. In *MIT Working Papers in Linguistics* 25, ed. Uli Sauerland and Orin Percus, 247-295. MITWPL, Cambridge, Mass.
- Nunes, Jairo. 1995. *The copy theory of movement and linearization of chains in the Minimalist Program*. Doctoral dissertation, University of Maryland, College Park, MD.
- Ochi, Masao. 1999a. Multiple Spell-Out and PF adjacency. In *Proceedings of the North Eastern Linguistic Society* 29. University of Massachusetts, Amherst.
- Ochi, Masao. 1999b. Some consequences of Attract F. *Lingua* 109: 81-107.
- Partee, Barbara, Alice ter Meulen, and Robert E. Wall. 1993. *Mathematical methods in linguistics*. Dordrecht: Kluwer.
- Pesetsky, David. 1995. *Zero syntax*. Cambridge, Mass.: MIT Press.
- Reinhart, Tanya. 1976. *The syntactic domain of anaphora*. Doctoral dissertation, MIT, Cambridge, Mass.
- Reinhart, Tanya. 1981. Definite NP anaphora and c-command domains. *Linguistic Inquiry* 12: 605-635.
- Rizzi, Luigi. 1990. *Relativized minimality*. Cambridge, Mass.: MIT Press.
- Stepanov, Arthur. 1999. *Late adjunction and minimalist phrase structure*. Ms., University of Connecticut, Storrs.
- Takahashi, Daiko. 1994. *Minimality of movement*. Doctoral dissertation, University of Connecticut, Storrs.
- Torrego, Esther. 1996. Experiencers and raising verbs. In *Current issues in comparative grammar*, ed. Robert Freidin, 101-120. Dordrecht: Kluwer.
- Watanabe, Akira. 1995. Conceptual basis of cyclicity. In *Papers on minimalist syntax, MIT working papers in linguistics* 27, ed. Rob Pensalfini and Hiroyuki Ura, 269-291. MITWPL, Department of Linguistics and Philosophy, MIT, Cambridge, Mass.

Department of Linguistics, U-1145
 University of Connecticut
 341 Mansfield Rd.
 Storrs, CT 06269-1145 U. S. A.

avs96001@sp.uconn.edu