

## TOWARDS A MINIMALIST ANALYSIS OF THE ARGUMENT-ADJUNCT ASYMMETRIES IN ENGLISH

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### 1. Introduction

The discussion in the present article will centre on the intriguing Locality phenomenon known as the argument-adjunct asymmetry. The problem gained a considerable amount of interest in GB and P and P models, and is almost completely absent from minimalist papers. The aim of the paper is to suggest a minimalist analysis of the argument-adjunct asymmetry. This means a complete departure from the pre-minimalist – GB and P and P solutions, and is achieved through a modification of Chomsky's (1995) Minimal Link Condition.

Section 1.1. of the paper presents the pre-minimalist account of wh-movement and, thus, of the structures in question. In Section 2 the main assumptions of the Minimalist Program of Chomsky (1993) are sketched, followed by a step by step minimalist analysis of argument – adjunct asymmetries.

#### 1.1. Wh-movement in GB and P and P

Wh-movement moves a wh-XP (argument or adjunct) to spec CP. As a result, an A' binding relation is created between the moved wh-constituent and its trace. Argument wh-constituents move from a position to which case and theta role is assigned. Simple argument and adjunct wh-movement is illustrated in (1) and (2) respectively:

(1) [ CP What [ C' did [ IP you do t ]]] ?

(2) [ CP How [ C' did [ IP you do it t ]]] ?

Long wh-movement is assumed to operate successive cyclicly, and, as other instances of *move α* (e.g. NP or head movement), is locally bound:

(3) [ CP What did Max want Tim [ CP t'' [ to tell Lucy [ CP t' [ to do t ]]]]] ?

- (4) [ CP How did Max want Tim [ CP t' [ to tell Lucy [ CP t' [ to do fix the car t ] ] ] ] ?
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The intermediate traces are necessary to 'link an antecedent and a trace which are not in the same local domain' (Koster 1987). The examples can be contrasted with (5) and (6) where the embedded specs CP are occupied by *wh*-elements and as such are not available as the intermediate landing sites:<sup>1</sup>

- (5a) (?) What did you wonder whether Jim told Lucy to do?  
 (5b) \*How did you wonder whether Tom fixed his car t?  
 (6a) (?) Whose car were you wondering how to fix t t?  
 (6b) \*How were you wondering whose car to fix t t?

As can be seen from the above examples, while the argument movement across a *wh*-island yields only slight deviance ((5) and (6a)), extraction of an adjunct from such an island is highly ungrammatical ((5) and (6b)). In GB and P and P models these argument – adjunct asymmetries are accounted for in terms of the Empty Category Principle. As other instances of *Move*  $\alpha$ , *wh*-movement is constrained by this principle. Despite the differences in the actual definition of the ECP in different pre-minimalist models, all the explanations are based on the notion of (antecedent and head) government. All traces must be either antecedent or head governed. Failure of a trace to be governed results in ungrammaticality. In the above examples, the argument traces are head governed by the verb *fix* and the adjunct traces must be antecedent governed by their antecedents. This is only possible if no barrier of Chomsky (1986) or a Z of Rizzi (1990) intervene, as in the (5a) and (6a) examples. The additional assumption is that the *wh*-in-situ phrases raise for scopal reasons at LF and that, for the adjunct traces, the ECP operates on LF (see Lasnik and Saito 1992). This way *wh*-adjuncts-in-situ are excluded.

The problem with a minimalist account of the argument-adjunct asymmetries is that, according to the main assumptions of MP, the notion of government is excluded from the language design. Thus, no representation can be excluded on the basis of the ECP violation, as no government, and so no ECP, exists. In the following sections the main postulations of MP will be presented and applied to a minimalist analysis of *wh*-movement.

<sup>1</sup> Manzini (1993) finds the movement of argument *wh*-elements across *wh*-islands acceptable and on this basis concludes that argument *wh*-movement does not have to be locally bound in the sense just described. Rizzi's (1990) analysis is similar. For Chomsky (1986) the weak island violations are slightly deviant.

## 2. The Minimalist Program

The Minimalist Program (1993) of Chomsky offers a wholesale revision of the principles of the Universal Grammar. The general aim is to develop a theory of grammar based exclusively on natural concepts, ones required by "virtual conceptual necessity" (Chomsky 1993: 2). The (1995) framework further develops the ideas introduced in (1993) MP and modifies them in many respects. As such, the theory makes a considerable departure from the language design proposed in P and P. UG has only two levels of representation (as opposed to the four levels in P and P): PF and LF. PF interfaces with Perceptual-Articulatory system responsible for sound, and LF with Conceptual-Intentional system responsible for meaning. The two levels are the minimum required by any theory of grammar, as they are the "theoretical reflexes of the fact that sentences in a natural language are pairings of sound and meaning" Hornstein (1995: 60). The two additional levels of Surface Structure and Deep Structure postulated in P and P are dispensed with. Chomsky argues that they are conceptually superfluous and internal to the syntactic component. He also provides empirical evidence for the possibility of excluding these levels from UG (Chomsky 1993: 188, 192).

### 2.1. Basic Operations in MP

As in P and P, in MP language is assumed to consist of a lexicon and a computational system. The computational system draws from the lexicon to form derivations presenting items from the lexicon in the format of X-bar theory. The standard X-bar theory is largely eliminated in favour of bare essentials: non-branching intermediate projections are excluded from the system.

The simplest operation for constructing larger units from lexical items is *Merge*.

#### (7) Merge

Applied to two objects  $\alpha$  and  $\beta$ , Merge forms the new object K by concatenating  $\alpha$  and  $\beta$ .

(Chomsky 1995: 243)

When the new object is formed by concatenating two objects that are already in the phrase marker, the operation is called *Move*.

#### (8) Move

Applied to the category  $\Sigma$  with K and  $\alpha$ , Move forms  $\Sigma'$  by concatenating  $\alpha$  and K.

(Chomsky 1995: 243)

Both *Merge* and *Move* operate cyclicly (are subject to the Extension Condition of Chomsky 1993: 22) with two stipulations: adjunction and post Spell Out movement



are not structure building in this way, i.e. they are exempt from the strict cycle condition.

### 2.2. Language design in MP

Forming a linguistic expression consists in selecting, merging, moving and deleting syntactic objects to form a structure in accordance with the X-bar schemata. The initial set from which the syntactic objects are drawn is called *numeration*. A derivation ends when all the lexical items from *numeration* have been selected and moved/merged as many times as necessary (which is stated by the index each item bears) (Chomsky 1995: 225). Selected lexical items merge with contentful categories to receive thematic roles, they move to functional categories to check features (e.g. case, *phi* features, mood etc.).<sup>2</sup> All these operations are performed under agreement, either between two heads or between a head and its specifier, depending on the type of the moved category and timing of the operation.<sup>3</sup> As has been mentioned, no operation takes place under government. The notion of (head) government is removed from the inventory of basic grammatical relations.

The differences among languages concerning word order in MP are ascribed to different timing of movement operations: whether they apply before Spell Out, in the so called *overt syntax*, and their result is pronounced, or after Spell Out *covert syntax* in which case they are invisible to the phonological interface. Feature checking that takes place before Spell Out is said to involve strong features as opposed to checking at LF where weak features are licensed. In addition to the strong/weak distinction Chomsky (1995) suggests a distinction between + and –interpretable features. ‘Interpretable features need not enter checking relations, since they survive to LF in any event’ (Chomsky 1995: 285). Categorical and *phi* features of NPs need not be checked i.e. are interpretable, which, as Chomsky argues, resolves the problem of inherent case checking (since there is assumed to be no functional category checking inherent case, an NP with such a case does not move at all). The additional assumption is that features cannot be optionally weak or strong, rather their strength is set in each language, and does not change from sentence to sentence.

### 2.3. The economy principles of MP

In contrast to the *Move  $\alpha$*  hypothesis of P and F, transformations in MP are subject to general conditions of economy. As Chomsky (1993: 5) notes, ‘with a proper formulation of such principles it may be possible to move toward the minimalist design: a

<sup>2</sup> Unlike the P and P, MP, applying the strong lexicalist approach, bans any word formation to take place in the syntactic component. Lexical items that enter the computation are fully inflected. That is why the items are only assumed to check their features rather than acquire them.

<sup>3</sup> Chomsky (1995) assumes that LF movement can be only adjunction of appropriate features to a functional head, he thus bans LF substitution.

theory of language that takes a linguistic expression to be nothing other than a formal object that satisfies the interface conditions in the optimal way.’ In other words a legitimate expression satisfies the economy of representation and derivation. The economy of representation excludes the presence of uninterpretable material on the interface levels, PF and LF. This requirement is known as the principle of Full Interpretation (FI). PF is a representation in universal phonetics, with no identification of syntactic or morphological features. At LF, each legitimate object is taken to be a chain  $CH(\alpha_1, \dots, \alpha_n)$ . A derivation satisfying FI at LF and PF is said to *converge*, one that does not, *crashes*. A derivation crashes when the uninterpretable strong features of the functional category to which an element moves are not checked prior to Spell Out. This principle, called *Attraction* is introduced in Chomsky (1995) as opposed to *Greed* of (1993) paper.

The economy of derivation determines whether a convergent derivation from a given numeration is optimal: the economy principles hold only among convergent derivations. The two main principles that block convergent but unwanted derivations are the *fewest steps* (Procrastinate) and the *shortest links* (Minimal Link Condition) requirement. Procrastinate postpones any unnecessary movement till after Spell Out where the operations are assumed to be less costly.<sup>4</sup> The only movement that takes place in overt syntax is forced by strong feature licensing. Procrastinate can be defined as in (9):

#### (9) Procrastinate

Minimise the number of overt operations necessary for convergence.

Chomsky (1995) gives the following definition of MLC:

#### (10) The MLC

With *Attraction* as the driving force:

$\alpha$  can raise to target  $\beta$  only if there is no legitimate operation Move  $\beta$  targeting K, where  $\beta$  is closer to K.

(Chomsky 1995: 297)

### 3. Wh-movement in MP

In contrast to the pre-MP generative theories, the MP is highly derivational. The structures where overt movement unquestionably takes place (e.g. wh-questions) necessarily involve strong feature licensing. If the feature strength is set once for all, FI is satisfied by default whenever wh-movement takes place. The fact that despite the impossibility of violating FI, some wh-questions are ungrammatical means that,

<sup>4</sup> This is stipulated by Chomsky and derived by Kitahara (1997), in terms of the number of operations that are performed (overt movement is followed by deletion of the copy (copies), (at least in the case of NP and V movement), which for Kitahara is one operation more and thus is more costly).

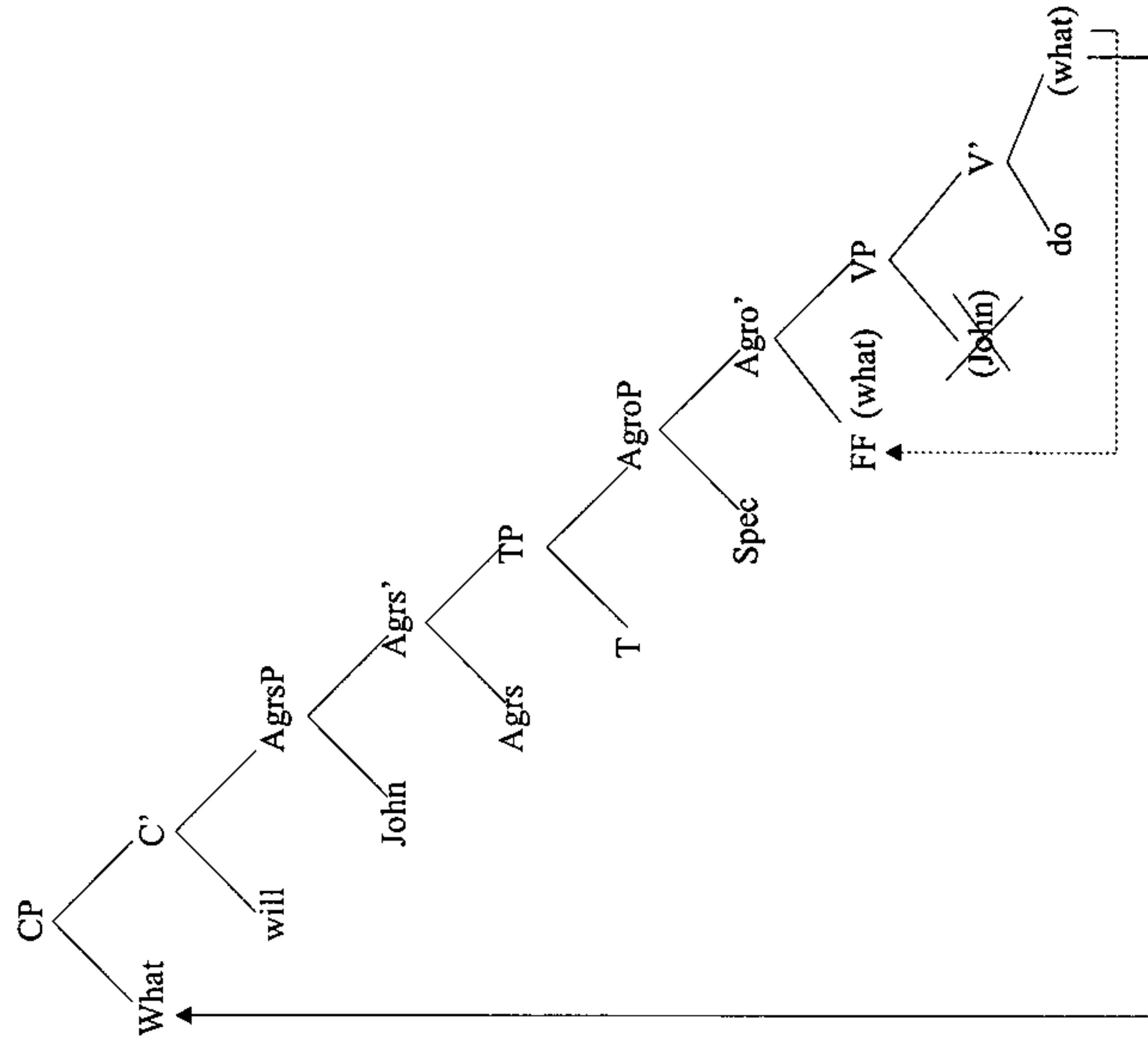
in all the ungrammatical examples, a violation of the economy of **derivation** must be taking place. Of the two candidates – Procrastinate and MLC – only the latter qualifies. Procrastinate being excluded for the same reason FI is – strong features mean overt movement, which in turn means no possibility of postponing the movement till after Spell-Out. We are thus left with MLC as the only constraint for wh-movement. However, as will be argued in Section 3.3., as defined in (10) this condition is unable to account for the argument adjunct asymmetries.

### 3.1. Simple argument wh-movement

Wh-movement moves a wh-XP to spec CP. As a result, an operator-variable chain is created. Wh-movement enables feature checking between the interrogative C and the wh-element to take place. As has been mentioned, the interrogative C is considered to be always strong in English, thus it always triggers overt wh-movement.

A simple argument wh-question has the following structure:

(11) What will John do?



The proceedings of NP and V movement are glossed over for the sake of simplicity. Under the copy theory of movement of Chomsky (1993) traces left behind by the moved categories are their complete copies. Thus (*what*) in (11) is a complete copy of *what*. Normally it is assumed that copies created by overt movement are deleted after Spell Out. However, (at least) wh-argument copies are not deleted once the movement has taken place, as the constituent has to check its (accusative) case features. Chomsky (1995) assumes that this is done by adjunction of the case features of the copy to Agro.

### 3.2. Wh-in-situ in MP

As has been noted, in the traditional P and P analysis it is assumed that the in-situ wh-phrases raise at LF for scopal reasons. This is done through adjunction to Spec CP. The argument wh-in-situ constructions like (12) below are problematic for MP.

(12) You did what?!

Assuming that features cannot be optionally weak or strong in a given language and that interrogative C is strong in English would force us to rule out (12) as ungrammatical, contrary to facts. If failure to check a strong feature by an element results in violation of FI, we would have to assume that (12) is acceptable because *what* licenses its features by moving at LF. This would in turn suggest that features can be optionally strong, a result at variance with main assumptions of MP. A way to overcome this problem is to maintain the requirement that the interrogative C (CQ) is always strong, and failure to licence it causes a derivation to crash, at the same time assuming that C in structures like (12) is not interrogative but indicative, or that it does not project at all and as such cannot attract *what*:<sup>5</sup>

(12)' ([c +ind.] [You did what]?)

As a result, *what* remains in-situ with its features unchecked. This, however, does not violate any economy principles, wh-elements belonging to the interpretable group, i.e. ones that need not raise when unchecked.

Next, let us consider the ungrammatical adjunct-wh-in-situ. Again FI is satisfied, as well as Procrastinate (strong features are involved).

### 3.3. Long wh-movement in MP

As has been said, in P and P long wh-movement is treated on a par with other instances of *Move*  $\alpha$  and is assumed to be locally bound. In a minimalist analysis of

<sup>5</sup> The question whether it is one or the other amounts to the question about the structure of affirmative clauses, which are analysed as containing an indicative C, by Chomsky (1993) and as bare IPs by, among others, Girmshaw (1993) and Radford (1997).



movement one needs to decide whether the locality condition on movement is a part of UG and whether all kinds of movement should be treated identically with this respect. According to Chomsky (1995), long NP-raising, as in (13) below, must be cyclic if we want to maintain the requirement that all sentences have subjects (EPP):

(13) John is likely  $t'$  to have been seen  $t$ .

To provide a minimalist derivation of (13) Chomsky suggests that the features of the moved category are not eliminated once checked and that is why the NP in (13) can be attracted by the matrix clause when it has checked the features of the embedded T. In the case of long wh-movement there seems to be no independent requirements for the moved element to land in the intermediate positions on its way to the matrix clause. Chomsky (1995: 267) states that it still "remains an open question" how the long wh-movement constructions should be derived in MP. One could easily assume the following derivation:

(14) What did Max want Tim to tell Lucy to do?

(15) [<sub>CP</sub>+Q What did Max want Tim [<sub>CP</sub>-Q] [to tell Lucy [<sub>CP</sub>-Q] [to do  $t$ ]]]]?

The embedded clauses here are analysed similarly to whs-in-situ in Section 3.2., as containing a noninterrogative C or no C at all. The movement of the wh-element *What* is not successive cyclic in this example, because the only head that needs to have its features licensed, and thus attracts *What*, is the matrix C. On the other hand, if we derive (14) successive cyclicly, we need to assume that the embedded clauses contain interrogative Cs, which attract *What* and as soon as they have their features licensed they let the element be attracted by the next, higher C:

(16) [<sub>CP</sub>+Q What did Max want Tim [<sub>CP</sub>+Q( $t'$ )] [to tell Lucy [<sub>CP</sub>+Q( $t'$ )] [to do  $t$ ]]?

The latter account might seem more plausible as it continues the GB and P and P tradition of unification of all kinds of movement. Here the derivation is identical to the derivation of the NP-raising. It also, straightforwardly, contrasts sentences like (14) with wh-island violations, which, for obvious reasons, cannot proceed successive cyclicly. However, in many respects the derivation in (16) is much more problematic than the one in (14). Empirically, it leaves structures like (17) without a proper account:

(17) \*Whom do you wonder  $t$  he will give what?

Neither the principles of economy nor FI seem to be violated here if we assume that a wh-element can be attracted by an interrogative C, check its features and

leave. The matrix C is licensed by *Whom*, the other wh-phrase can remain in-situ without causing a *crash*, wh-features being +interpretable. The "shortest move" requirement has been fulfilled, Procrastinate is not violated. The reason why we do not normally form structures like (17) is because licensing the strong Q in the matrix clause in (17) would necessarily demand that the wh-constituent move from the Spec CP of the embedded clause, which unarguably contains an interrogative C. Since such a movement yields ungrammatical results, one seems forced to assume that wh-features can only be checked once, and when a wh-element has reached a specifier position it is blocked there.

In addition, the successive cyclic derivation seems conceptually disadvantaged. Although Chomsky does not exclude it, he treats all the instances where it does not hold (extractions from wh-islands) as MLC violations. This suggests that, unlike the standard P and P analysis of wh-movement, which was based on locality, the minimalist account refers to Rizzi's Relativised Minimality, which, in turn, implicitly dispenses with the necessity to derive long wh-movement successive cyclicly.

Thus, it seems more plausible in MP to derive long wh-movement as operating in one step than, as was standardly assumed in early GB and P and P papers, successive cyclicly.

#### 4. Argument-adjunct asymmetries in MP

In this section, minimalist analysis of the argument-adjunct asymmetries will be attempted. It will be based on the distinction between *Merge* and *Move*. A modified definition of MLC will be proposed and the inefficiencies of the definition in (10) will be shown.

##### 4.1. MLC and wh-islands

Chomsky (1995) ascribes the ungrammaticality of the extraction from wh-phrases to MLC. He calls the principle a "condition on movement" and separates it from the typical derivational principle – Procrastinate. The distinction is necessary, as unlike Procrastinate, MLC does not seem to operate on convergent structures only. According to Marantz (1995: 355), this conclusion is supported by the analysis of wh-island violations like (18):

(18a) ?Which car<sub>i</sub> do you wonder how to fix  $t_i$   $t_j$ ?

(18b) \*How<sub>j</sub> do you wonder which car to fix  $t_i$   $t_j$ ?

He assumes that (18a) and (18b) are ungrammatical because in each case there was a closer element that could move and licence the strong Q of the matrix clause – *how* in (18a) and *which car* in (b). If obeying MLC does not save a construction, which would be the case in (18) the derivation is nonconvergent. (18) can be contrasted with typical superiority violation as in (19):

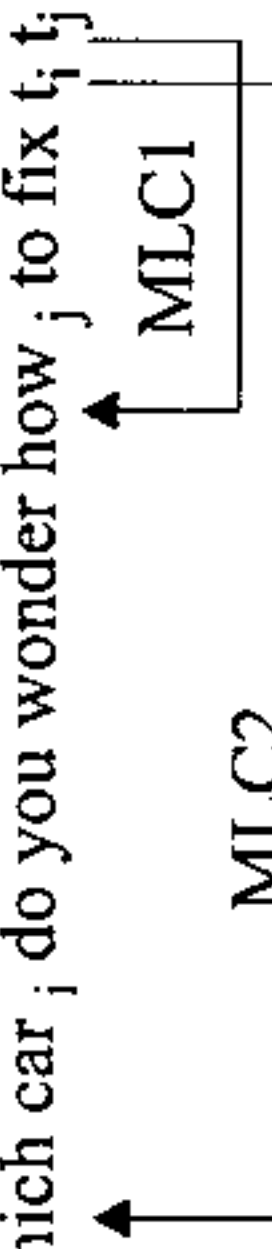
- (19a) \*What did you persuade whom to buy?  
 (19b) Whom did you persuade to buy what?


Here, the ungrammaticality of (19a) is only due to MLC violation. The sentence is saved if MLC is obeyed (19b), which suggests that the derivation is convergent.

As has been suggested, the above analysis of *wh*-islands is insufficient in accounting for a strong asymmetry between (18a) and (18b). It is also unsatisfactory in other respects. First, it assumes (18a) to be ungrammatical due to its non-convergence and MLC violation. It seems redundant to rule out (18a) as violating MLC if it is also assumed to violate FI and if a derivation obeying it would yield much worse results:

- (20a) \*How do you wonder *t* to buy which car.  
 (20b) \*How<sub>*j*</sub> do you wonder which car<sub>*i*</sub> to buy *t<sub>i</sub>* (noncyclic).

Furthermore, it seems odd that a nonconvergent derivation, which in addition violates MLC should yield only mild ungrammaticality, and one that only violates MLC and is convergent should be not comparatively better, but much worse:

- (21a) Which car<sub>*i*</sub> do you wonder how<sub>*j*</sub> to fix *t<sub>i</sub>* *t<sub>j</sub>*      nonconvergent  


- (21b) \*What did you persuade whom to buy *t* ?      convergent  


Another problem the standard analysis poses is the assumption that (18a) and (18b) are nonconvergent. The principle of Full Interpretation seems to be satisfied in both sentences. All the strong features are licensed, no feature mismatch can take place as both *Q* and *FF<sub>q</sub>* are always strong in English.

#### 4.2. *Wh*-adverbs in-situ

Similar problems with MLC appear in the analysis of *wh*-adverbs in-situ. The relevant examples are provided in (22):

- (22a) \*Which car did you fix how?  
 (22b) How did you fix which car?

The MLC seems to be obeyed in (22a) and violated in (22b), which is a surprising result if (22b) is grammatical. Additionally, there seems to be no explanation for the ungrammaticality of (22a). Again, FI is satisfied, together with the derivational principles. *Attraction* is satisfied in both sentences. The *P* and *P* account of (22a) is

not available anymore. As was noted in Section 1, under *P* and *P* analysis, the ungrammaticality of *wh*-adverbs in-situ was ascribed to ECP violation at LF. Dispensing with the ECP and LF as one of the four levels of representation leaves us with no account for (22a). On the basis of the distribution of *how* and in the light of the above considerations one might suggest that *how* cannot be generated under IP or VP, but is base generated under spec CP. The same assumption is made by Hornstein (1995: 147), on a slightly different basis. Analysing the manner adverbs as generated in spec CP provides us with a simple explanation for the ungrammaticality of (22a). There seems to be a preference of Merge over Move in the case of *wh*-constituents and a construction where *Attraction* favours an element which has already been introduced in the derivation to one that has to be selected, is banned.<sup>6</sup> This is summarised in (23):

#### (23) MLC (b)

In *wh*-movement,  $\alpha$  can raise to target *K* only if there is no legitimate operation Merge  $\beta$  targeting *K*.

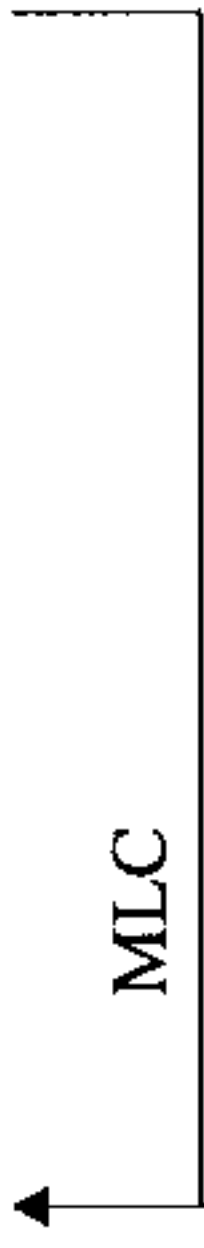
(23) excludes (22a) and other structures in which elements generally assumed to be generated in Spec CP are placed in different positions. Thus, on the assumption that *how* is base generated in spec CP, (22a) is analogous to structures like (24) below:

- (24) \*You wonder which car they fixed whether ?

The only minimalist condition that (24) and (22a) violate is (23).

#### 4.3. Weak *wh*-islands

In the light of the above analysis, in the derivation of weak *wh*-islands like (25) below, no violation of MLC in stage (b) takes place, as *how* is base generated in Spec CP of the embedded clause:

- (25a) to fix which car  
 (25b) you wonder how to fix which car  
 (25c) Which car do you wonder how to fix *t* ?  


<sup>6</sup> Chomsky (1995: 348) states that there can be a preference of merge over move for the analysis of expletives if the FI conditions are fulfilled. At the same time he notes that it still "remains to investigate further cases and consequences" of *Merge/Move* considerations.





(33) excludes all derivations where two elements (to be merged) target one position.

## 5. Conclusions

In conclusion, it was shown in this article that the MLC as formulated in (10) is not able to account for argument – adjunct asymmetries. As extractions from wh-islands do not violate any other minimalist rules (Procrastinate, Attract, and FI being satisfied in the structures in question) a reformulation of MLC is proposed based on the distinction between *Merge* and *Move* operations. This can be summarised in (34):

### (34) MLC

With *Attract* as the driving force for *Merge* and *Move*,

- a) Move  $\alpha$  can target K only if there is no legitimate operation Move  $\beta$  targeting K, where  $\beta$  is closer to K.
- b) Move  $\alpha$  can target K only if there is no legitimate operation Merge  $\beta$  targeting K.
- c) Merge  $\alpha$  can target K only if there is no legitimate operation Merge  $\beta$  targeting K.

Thus, all things being equal, *Merge* is selected over *Move*, no legitimate operation can take place when there is a competition between two cases of *Merge*, and in the case of *Move*, a closer element wins over the more distant one (where the closeness is understood in terms of c-command) With an additional assumption, argued for in Section 3.3., that wh-features are eliminated once checked, and on the assumption that *how* and *why* are base generated in spec CP, such a tripartite formulation of MLC can successfully account for the argument – adjunct asymmetries. It has the advantage over the simple MLC formulation in that its violation predicts similar degrees of ungrammaticality irrespective of the type of the construction. The superiority violation exemplified by (19) is subsumed under the clause (33a) of the modified definition of MLC. Its deviance is comparable to the deviance of extractions from strong wh-islands (29) and manner adverb wh-in-situ structures (22), which violate clause (33b) of the definition. It can be contrasted with weak wh-islands (25) where no MLC violation takes place. The slight deviance of (25) remains unexplained. However, as the grammaticality judgements of structures like (25) differ among the speakers (see footnote 1), it is at least questionable whether any rules of grammar are indeed violated in here.

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