

A NOTE ON LONG EXTRACTION IN VATA
AND THE ECP*

Arguments of a predicate and adjuncts behave differently with respect to Wh-extraction. Most current assumptions attribute this asymmetry to a single requirement on Wh-traces that adjunct traces fail to observe. Huang (1982) and Lasnik and Saito (1984) (henceforth HLS) suppose this requirement follows from the ECP.¹ Aoun (1984, 1986) assumes it to be the principle A of the Generalized Binding Theory (henceforth GEBI). This paper presents new data from Vata, a West-African language of the Kru family. Our main purpose here is to show that such analyses as HLS's and Aoun's are not sufficient to account for the full range of extraction possibilities and the distribution of Wh-traces. Instead, we argue that two distinct principles must be postulated: first, a principle like the ECP, requiring empty categories to be governed in an appropriate sense and, in addition, a second principle regulating the distance between a target of Wh-extraction and its immediate antecedent. Many possible alternatives come to mind to solve the problems that the Vata data reveal. Here we will limit ourselves to showing that the Condition on Long Extraction, argued for in Koopman and Sportiche (1985, 1986) will handle these problems straightforwardly and better than some existing alternatives.

The paper is organized as follows. Section 1 briefly describes the HLS account. In section 2, we present the Vata data. We discuss its theoretical implications and show why they pose problems for the HLS account. In section 3, our analysis is sketched. In section 4, we show why GEBI is not sufficient by itself and we briefly discuss the extension of GEBI proposed in Wahl (1985).²

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¹ Recall that the ECP requires empty categories to be governed either by a lexical head or by a position containing an antecedent, this last case being called antecedent government.

² There are of course other proposals not discussed here, in particular Stowell (1985) and Kayne (1983), but see Koopman and Sportiche (1986).

in LF, traces of arguments are *lexically* governed (either by the verb, or – a property specific to Chinese – by INFL.³ Wh-arguments can thus be interpreted as having wide scope, as in (1). Traces of adjuncts, however, being adjoined to VP, are lexically governed neither by V nor by INFL. The ECP can therefore only be satisfied through *antecedent* government. Huang then proposes that (LF or syntactic) traces of adjuncts satisfy the ECP exactly as traces of (English) subjects do: a COMP that is coindexed with an adjunct trace acts as antecedent governor for it. This implies that a trace of an adjunct always needs an antecedent governor in the clause in which it occurs. The interpretation (2a), with *why* having wide scope, is then correctly excluded: *why* cannot move into the immediately adjacent COMP since that COMP will be occupied by *who*, and its trace will therefore not be antecedent governed. The interpretation in (2b) is possible, provided that LF Wh-movement is successive cyclic, and that COMP-indexing occurs at LF. (In this, Huang's account differs from AHS.)

Generalizing the usual account for subject-object asymmetries to complement/non-complement asymmetries creates a problem, as Huang notes. One would expect that, in a language like English, subjects and adjuncts behave in the same fashion, since neither subjects nor adjuncts are lexically governed, and this predicts that there is a two-way distinction (subject-adjunct versus complement) with respect to the ECP. This is incorrect, since there is in fact a three-way distinction: COMP-indexing for antecedent government of subject traces is sensitive to the presence or absence of *that*, but COMP-indexing for antecedent government of the adjunct trace is not:⁴

- (3)a. *Who do you think [*t* that [*t* left]]
 b. Why do you think [*t* that [John left *t*]]

Lasnik and Saito (1984) further develop and refine the analysis of Huang. They propose in addition that a trace in COMP itself must be antecedent governed, and develop a system that accounts for the three-way distinction noted above. Their system proposes essentially that the ECP applies at S-structure only to arguments, and to all empty categories (arguments, adjuncts, and traces in COMP) at LF (and in particular after LF deletion of *that* in (3b)).

³ This assumption accounts for the absence of subject/object asymmetries in Chinese.

⁴ We assume that (3) is grammatical. For a different view, see Wahl (1985).

2. THE VATA DATA

Let us start by reviewing the basic Wh-movement patterns in Vata, as well as their analysis (see Koopman 1984, for more details). We will limit ourselves to cases of syntactic Wh-movement,⁵ and discuss in turn short Wh-movement (sections 2.1 and 2.2) and long Wh-movement (section 2.3).

2.1. *Short Wh-Movement of Subjects, Objects, Subcategorized PPs and Verbs*

The pattern of Wh-movement of a phrase to the initial position of its clause or, through 'COMP-to-COMP' movements without skipping any intermediate COMP, to the initial position of a higher clause, is presented in (4) below.⁶ We will henceforth refer to this type of movement as SHORT WH-MOVEMENT, contrasting this with LONG WH-MOVEMENT, such as movement out of a Wh-island.

(4) *Subject:*

- a. àlÓ Ò/*[e] nÛ mí lá
who he-R did it WH

Who did it?

Subject:

- b. àlÓ ò gùgù nā Ò/*[e] nÛ mí lá
who you thought NA he-R did it WH

Who did you think did it?

⁵ Wh-phrases in situ seem to have a very limited distribution (cf. Koopman, 1983, for a partial distribution); it is clear that they are excluded from subject and adjunct position (which is exactly what we expect – see below). It is also clear that they may appear in object position or inside a subcategorized PP in main clauses. They seem to be excluded from all other positions, but contrastive judgments are difficult to elicit.

⁶ For extensive discussion of the syntax of Vata, a language of the Kru family spoken in the Ivory Coast, see Koopman (1984). Here we use the following conventions:

- Tones are indicated as: ˊ High Tone; ˋ Mid High; ˌ Mid, and ˎ Low;
- I, U, E, and O are [–ATR] vowels with the [+ATR] counterparts i, u, e and o;
- DET: determiner;
- WH: particle indicating the clause is a Wh-question;
- REL: particle indicating that the clause is a relative clause;
- FUT-A, NEG-A: future or negative auxiliaries;
- IT, THERE: preposed pronouns in topicalizations;
- NA: marker of subordination;
- R: resumptive pronoun.

Direct Object:

- c. yĪ Kòfí nŪ [e] lá
what did WH

What did Kofi do?

Subcategorized PP:

- d. yĒ nání` sléé mlí kòfí zŪ` mí [e] lá
what that house in put it WH

In which house did Kofi put it?

If the target of extraction is in the subject position, a resumptive pronoun must appear; if it is the direct object (or the indirect object or a subcategorized PP), a trace occurs in the extraction site.

Besides Wh-movement of the usual categories, there is another instance of Wh-movement in Vata: Wh-movement of main verbs, a process that underlies the predicate cleft construction. In this construction, the main verb occurs in initial position, and is understood as focused. The sentence contains a copy of the verb, which we refer to as a RESUMPTIVE verb. This process exhibits the usual diagnostic properties of Wh-movement, being apparently unbounded, subject to the usual constraints on Wh-movement etc. It is discussed at length in Koopman (1984, chapter 6).⁷

(5) *Wh-movement of V:*

- a. nŪ kòfí ká mí nŪ
do F-AUX it do

Kofi will DO it.

- b. nŪ h̄ gūgū nā kòfí ká mí nŪ
do I think NA F-AUX it do

I think that Kofi will DO it.

Given that Subjacency is the diagnostic property for movement, we treat (4a, b) and (5) as cases of syntactic Wh-movement: the resumptive pronoun and the resumptive verb must be subjacent to their respective ante-

⁷ This construction shows that the *Head movement constraint* of Travis (1984, section 3.4.1), which states that a head can only move into a head position that properly governs it, is too strong: Wh-movement of the verb violates this condition: in examples like (5) the verb moves into a position from which it would not properly govern the extraction site (see below). It is argued in Koopman (1984) that the properties of verb movement covered by the Head movement constraint basically follow from the ECP. (See Koopman 1984, pp. 177ff for discussion.)

cedents. The resumptive pronoun, in addition, behaves in all other respects like a Wh-trace: it participates in weak crossover effects (Koopman and Sportiche, 1982), and does not prevent licensing of parasitic gaps (Sportiche, 1983).

So far, the distribution of empty categories (as opposed to resumptive pronouns or verbs) in Wh-constructions shows that traces (i.e., empty categories) are not allowed in precisely those cases in which the extraction site is not lexically governed. This follows from the ECP (see Koopman, 1983, 1984), provided preposed Wh-phrases or verbs are not antecedent governors: a trace in subject position or verbal position cannot obey the ECP. To avoid an ECP violation, an overt category, i.e., a resumptive pronoun or verb, occurs. For concreteness assume that these resumptive forms arise through a process of trace spell-out.⁸ That preposed Wh-phrases are not antecedent governors need not be stipulated; it follows from the fact that in Vata these elements do not occur in (or adjacent to) COMP. They occur clause initially but the COMP-position in Vata is clause final. Percolation of the index to the governing head – the mechanism of COMP indexing – cannot therefore occur.

2.2. Short Movement of Adjuncts

Let us next turn to Wh-extraction of adjuncts. The following discussion is restricted to extraction of reason, cause and manner adjuncts.⁹ The syntactic behavior of manner and reason/cause adjuncts is illustrated in the examples (6)–(8):

- (6)a. yĔsÓ` ñ dĭdÒdĭdÒ sūŌ lā
how you cut-M-cut-M tree-DET WH

How did you cut the tree?

- b. yĔsÓ` ñ ká sūŌ dĭdÒdĭdÒ lā
how you FUT-A tree-DET cut-M-cut-M WH

How will you cut the tree?

If a manner adjunct is extracted, a special form of the verb must appear:

⁸ Note that there is no principled reason whatsoever why traces should be empty. A better name than resumptive pronoun or verb would be overt trace, as opposed to covert trace, since the term *resumptive* is usually applied to cases not involving movement.

⁹ Locatives and temporals behave in the same way as in Chinese, English, etc. (Huang, 1982). For the behavior of other adjunct types, see Koopman and Sportiche (1985).

a suffix (#CV or #IE)¹⁰ is attached to the base form of the verb and the newly formed verb is reduplicated.

- (7)a. yĚsÓ` ñ dldÒ sūŌ lá
how you cut-M tree-DET WH

How come/why did you cut the tree?

- b. yĚsÓ` ñ dlIÈ sūŌ lá
how you cut-M tree WH

How come/why did you cut the tree?

- c. sÓ ñ ná ñ ká sūŌ *dĭ/ dldÒ/dlIÈ
*like-this I said I FUT-A tree-DET *cut/cut-M*

It is like this that you said you cut a tree.

If a reason or cause adjunct is extracted, as in the examples of Wh-question or topicalization in (7), the verb *must* carry a particular suffix (#CV or #IE). This is actually the same suffix as in (6). The verb, however, is not reduplicated.

The Wh-phrase together with the particular type of morphology in (6) and (7), yields the interpretation of manner and reason or cause respectively. We will henceforth refer to the morphology in (6) and (7) as the *adjunct* morphology, and to these adjuncts as adverbial adjuncts or non-PP adjuncts.

The presence or absence of the adjunct morphology depends on the internal structure of the proposed Wh-phrase: it is *obligatory* if the Wh-phrase **yEsO** – a non-PP adjunct – is extracted, but *excluded* if a PP adjunct is extracted, as in the example in (8) where **gbU** is a postposition:

- (8) yĪ gbŪ ñ ká sūŌ dĭ/*dldÒ
*what reason you FUT-A tree-DET cut/*cut-M*

Why are you going to cut the tree?

The adjunct morphology, furthermore, occurs only if the adjunct has been extracted by Wh-movement. It may not occur in sentences like (9) and (10) with **sO**, the non-Wh-counterpart of **yEsO**, which differ

¹⁰ The actual form of the suffix is either *IE/IO* or *CE/CO*, with *C* a copy of the preceding consonant. The former morphology is productive; the latter only appears with certain frequently used verbs.

minimally from (6) and (7):

- (9) \acute{n} dĭ / *dĭdÒ(dĭdÒ) sūŌ fáfá
 *I cut/*cut-M tree-DET quickly*

I cut the tree quickly.

- (10) \acute{n} ná \acute{n} ká sÓ sūŌ dĭ́ / *dĭdÒ(dĭdÒ)
 *I said I FUT-A like-this tree-DET cut/*cut-M*

I said I will cut the tree like this.

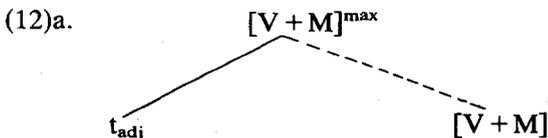
So far, then, adjunct extraction in Vata displays the following characteristics:

- (11) the verb carries adjunct morphology iff a non-PP adjunct is extracted;

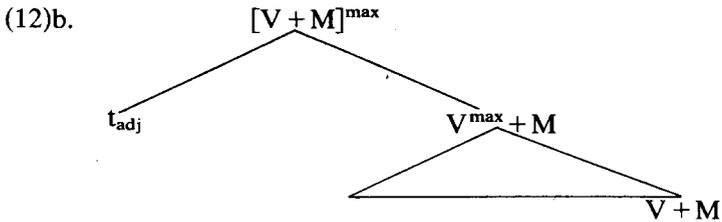
Any analysis has to account for the two parts of (11): (i) why must adjunct morphology appear if a non-PP adjunct is extracted, and (ii), why cannot it appear if an adjunct is not extracted or if a PP adjunct is.

Let us start with the first problem: why must adjunct morphology appear on the verb in Vata if a non-PP adjunct is extracted. The relevant difference between the examples in (6) and (7) and the examples in (9) and (10) seems to be the appearance of an adjunct trace. An adjunct trace must be properly governed: this requirement is usually fulfilled by antecedent government from COMP. But recall that in Vata there is no antecedent government from the initial position. Questions therefore arise: how can adjuncts be extracted at all (we will return to this problem below), and how can an adjunct trace satisfy the ECP?

Since antecedent government does not obtain, the only other possibility is that the trace of an adjunct is in some other way properly governed. It is natural to assume that adjunct morphology precisely serves this purpose: it provides a way to fulfill the proper government requirement imposed by the ECP. There are several ways to obtain this result. Suppose for example that adjunct morphology allows the extension of the government domain of the verb to include the adjunct marked by the verbal morphology, i.e., [V + M] (cf. 12a).



If this is correct, the adjunct will be lexically governed by the verb. Or, suppose alternatively that the projection of $[V + M]$ is (12b), with V the head of the theta projection V^{\max} and M the head of the projection of $[V + M]$:



In this structure, the adjunct trace will be governed by M. This can be conceived of either as a case of lexical government – the morphology will subcategorize for it, and subcategorization is often considered the core case of lexical government – or as antecedent government. We will assume it is a case of lexical government. Whether it is lexical government or antecedent government, however, is irrelevant to our arguments, as we will show in section 2.3. What counts is that the adjunct trace is properly governed.

The ECP thus accounts for the obligatory appearance of adjunct morphology: in Vata preposed Wh-phrases do not antecedent-govern their traces. The trace of an adjunct must therefore be licenced in a different way. Since a bare verb will not properly govern the adjunct trace, adjunct morphology must appear on the verb so as to make proper government possible. This analysis establishes a close parallel between the Vata adjunct morphology phenomenon and COMP-trace effects. When movement of an English subject takes place, *that* must delete, because of the ECP. When movement of a French subject takes place, the **que** → **qui** rule (Kayne, 1972) must apply for the same reason.

Let us next turn to the second problem of (11): why is adjunct morphology excluded in the following examples?

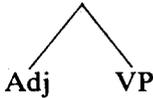
- (13)a. \acute{n} $d\check{I}/*d\check{I}d\grave{O}(d\check{I}d\grave{O})$ $s\bar{u}\bar{O}$ $f\acute{a}f\acute{a}$
 I cut *tree-DET quickly*
 I cut the tree quickly.
- b. \acute{n} $n\acute{a}$ \acute{n} $k\acute{a}$ $s\acute{O}$ $s\bar{u}\bar{O}$ $d\check{I}/*d\check{I}d\grave{O}(d\check{I}d\grave{O})$
 I say I FUT-A like-this tree-DET cut
 I say that I will cut the tree like this.

- c. $y\bar{I}$ gbŪ ñ ká sūŌ dǐ / *dǐdŌ
*What reason I FUT-A tree-DET cut/*cut-M*

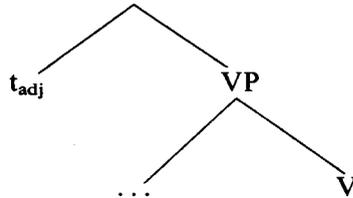
Why are you going to cut the tree?

The grammaticality of (13a, b) and the contrast with (6) and (7) indicates that the licencing conditions for the appearance of phonologically realized adjuncts and adjunct traces are different. It is sufficient for a lexical adjunct to be a sister of a predicate as in (14a);¹¹ this is insufficient for the licencing of an adjunct trace, as in (14b), basically, as we have shown above, because of the ECP:

(14)a.



b. *



The exclusion of adjunct morphology in (13a, b) is part of a pattern found much more generally across languages. It is an often made observation that languages seem to adopt 'minimalist' strategies as unmarked strategies when possible: licencing processes are invoked only when necessary. The French *que* → *qui* rule mentioned earlier is a case in point. It applies only when necessary. Consider, in this light, the resumptive pronoun strategy in Vata. Resumptive pronouns may only appear in subject position (15a), and are excluded from object position (15b):

(15)a. *Wh*-phrase [**[e]*/ *res. pron.*

b. *Wh*-phrase [NP . . . [_{VP} . . . [*e*]/**res. pron.* V].

Wh-traces in object position obey all the demands the relevant principles impose on them: they are locally A-bar-bound, they are subjacent to their antecedent, and they satisfy the ECP by being lexically governed. No other licencing condition is necessary. Because of the minimalist strategy, insertion of a resumptive pronoun is excluded. The impossibility of adjunct morphology in (13a, b) represents exactly the same case: these adjuncts may occur by virtue of their sisterhood to VP, the only licencing condition they need to fulfill. Applying adjunct morphology would lead to non-minimality, and is therefore ruled out.

¹¹ Note that languages vary in the licencing conditions governing the appearance of adjuncts. In Poular (also called Fula), for example, certain adjuncts may appear only if the verb carries the appropriate morphology (Arnott, 1970).

The absence of antecedent government from initial position yields an account of the obligatoriness of adjunct morphology in (6) and (7). But how can PP adjuncts be extracted in examples of the type illustrated in (13c), and why is adjunct morphology excluded in these cases?

The contrast between (6) and (7) on the one hand and (13c) on the other shows that the internal structure of the adjunct must be taken into account. While the adjuncts in (6) and (7) cannot be related to any major syntactic category, the adjuncts of the type illustrated in (13c) are clearly PPs. If PP adjuncts may be extracted, it must be the case that they satisfy the ECP at the relevant level of representation, i.e., LF. To overcome a similar problem, Huang (1982) proposes an analysis that we adopt here. He assumes (i) the need for a LF process of reconstruction, and (ii) that Ps are proper governors – at least at LF.¹² This implies that at the LF level of representation the S-structure (13c) is represented as follows:

- (16) LF: $yI \dots [_{VP} [_{PP} t \text{ gbU}] [_{VP} \dots V]$
 what *for*

In (16), the trace will satisfy the ECP by virtue of being properly governed by P; PP adjuncts, therefore, can undergo short Wh-movement.

The fact that adjunct morphology cannot appear with PP-adjunct extraction can be accounted for by the minimality requirement discussed above: it suffices for a PP-adjunct trace to be a sister of VP, to be locally A-bar bound, and to satisfy the ECP. All these conditions are fulfilled, and appearance of adjunct morphology would violate minimality.

Our analysis makes an interesting prediction. Suppose that there exists a language which shares with Vata the absence of antecedent government from initial position, but which differs from Vata in not having any morphological process that can be used to circumvent the ECP. One would expect that all adjuncts under extraction are PPs. Exactly this case is illustrated by Koyo, a language very closely related to Vata, with a much less rich system of verbal morphology. In particular, adjunct morphology is lacking. Just like Vata, Koyo possesses bare lexical adjuncts like *sO* 'in this way'. However, contrary to what happens in

¹² Theta role assignment to a complement is the core case of proper government. It thus seems minimal to assume that Ps are proper governors. One reviewer points out that the assumption that P is a proper governor raises the problem of why there is no P-stranding in a language like French. Huang (1982) argues that the possibility of having P-stranding is a PF property, not necessarily related to the ECP. (See section 4 for additional remarks.) It appears plausible to try to relate the possibility of P-stranding to the existence of verb particle constructions, that is, with an overt difference independent of proper government as suggested by the Germanic and Kru languages.

Vata, it is impossible to topicalize it bare, as in (7c), exactly as we would expect. The only way it can be topicalized is in a PP of the form **sO ml** 'in this way'.

2.3. Long Wh-Movement

HLS derive the difference in locality requirements on complements and adjuncts from the ECP. Complements are lexically governed, and can undergo long Wh-movement, provided that Subjacency is obeyed in the case of syntactic movement. Traces of adjuncts, however, (as well as of subjects in languages like English and French) can only satisfy the ECP through government by an antecedent or its trace in COMP. Moreover, a trace in COMP that ensures antecedent government must be antecedent governed in turn.

As shown above, traces of (non-PP) adjuncts in Vata are properly governed by the verb carrying adjunct morphology. Furthermore, subject and verb extraction escape the ECP, since an overt category – either a resumptive pronoun or a resumptive verb – appears in the extraction site. Given this state of affairs, the HLS account makes the prediction that there should be no asymmetry between the long extraction possibilities of complements, non-PP adjuncts, subjects and verbs.

This prediction can be very simply tested. As shown in Koopman (1984), Vata resembles French or Italian (Rizzi, 1984; Sportiche, 1981) in allowing the Wh-island constraint to be violated, thus indicating that \bar{S}^{13} and NP are Bounding nodes for Subjacency:

- (17)a. àlÓ ñ ní [̄s zĒ [ñ ká -bÓ [e] nyĒ]]
who you NEG-A thing you FUT-A REL give
 yì lá
know WH

'Who don't you know what you will give to?'

- b. táblÒ kÚ bĒ ñ ní [̄s zĒ ñ ká -bÓ [e]
table on THERE I NEG-A what I FUT-A REL
 zÚ] yì
put know

'It is on the table that I don't know what I will put.'

In (17a), a direct object and in (17b), a subcategorized PP, has been

¹³ Although indirect questions superficially resemble relative clauses, their behavior with respect to Subjacency is that of an \bar{S} , not of a relative clause. We will therefore treat indirect questions as (syntactic) \bar{S} (cf. Koopman 1984, for discussion).

extracted. Their traces must – and do – satisfy lexical government, since antecedent government is blocked, the other Wh-phrase occupying the intermediate COMP position.

Consider now the case of a Wh-moved non-PP adjunct. We have argued that its trace is properly governed by the adjunct morphology. It should therefore be extractable out of a Wh-island. The following examples illustrate that this prediction is not borne out:

- (18)a. *yĚsÓ` ñ ylá nynl [zĒ ñ dldÒdldÒ -bÓ [e]] lá
how you wonder thing you cut-MORPH REL WH
 ‘How do you wonder what you cut *t*?’
- b. *yĚsÓ` ñ ylá nynl [nyÓ` Ò ká -bÓ [e] mĒ
how you wonder who he-R FUT-A REL it
 dldÒdldÒ] lá
cut-MORPH WH
 ‘How do you wonder who cut it *t*?’
- c. *yĚsÓ` ñ nl [zĒ Ó ká -bÓ [e] dldÒ]
why you NEG-A thing he FUT-A REL cut-M
 yì lá
know WH
 ‘Why don’t you know what he cut *t*?’

Even though the adjunct trace is properly governed, long movement is impossible. This pattern of data establishes that it cannot be the ECP which accounts for the strict locality of adjunct movement.¹⁴

The same conclusion can be reached when we consider long extraction of subjects and verbs, which also yield ungrammaticality:

- (19)a. *álÓ ñ nl [zĒ mĒmĒ` gbÚ Ò dl` -bÓ
who you NEG-A reason it-it for he-R cut REL
 t mĒ] yì lá
it know WH
 ‘Who don’t you know why *t* cut it?’

¹⁴ In section 2.2, we stated that it was irrelevant for our purposes whether adjunct morphology satisfies the ECP through lexical government or through antecedent government: in both cases long Wh-movement should be possible, either because the trace would be lexically governed, or because it would be antecedent governed by lexical material, i.e., by something that is *not* a trace, and that therefore need not be antecedent governed in turn.

- b. **álÓ* ñ *nylá* *nyini nā* Ò *dí* *mÉ lá*
who you wonder NA he-R cut it WH
 'Who do you wonder whether *t* cut it?'
- c. **dĪ* ñ *nĪ* [*zĒ* ñ *ká* -*bÓ* *dĪ*] *yì*
cut you NEG-A thing you FUT-A REL cut know
 You don't know what to CUT.

Thus, neither subjects nor verbs nor adjuncts may be extracted out of a Wh-island, despite the fact that their traces, being either non-null or lexically governed, obey the ECP.

PP-adjuncts, finally, cannot be long-extracted either:

- (20)a. **yĪ* *gbŪ* ñ *nĪ* [*zĒ* ñ *ká* -*bÓ* *t t nŪ*]
what cause you NEG-A what you FUT-A REL do
yì lá
know WH
 'Why don't you know what to do *t*?''

This constitutes an additional problem for Lasnik and Saito's analysis: after reconstruction, the P properly governs its complement. Since the ECP only applies at LF to adjuncts, the structure should be possible.¹⁵

Adjuncts, subjects and verbs thus obey strict locality, they may only undergo short extraction; but objects and subcategorized PPs are long extractable. The ECP, as formulated in HLS, can therefore not account for the strict locality imposed on non-lexically governed targets of extraction.

3. ANALYSIS

The data discussed so far are summarized in the table below; recall that by short movement of a phrase, we mean movement to clause initial position of the first clause containing that phrase.

¹⁵ This kind of example does not constitute a problem for Huang, since he assumes that the ECP applies at S-structure and at LF to traces; (20), therefore, would violate the ECP at S-structure. (See Huang 1982, for discussion.)

(21)

		<i>Short Wh-movement</i>	<i>Long Wh-movement</i>
		<i>one clause</i>	<i>COMP-to-COMP</i>
Subject:	a.i	*WH [<i>t</i> ...	*
	a.ii	WH [pron-R ...	*
Object:	b.	WH [... <i>t</i> ...	OK
Adjuncts:	c.i	*non-PP [... <i>t</i> ... V ...	*
	c.ii	non-PP [... <i>t</i> ... [V+M]	OK
	c.iii	PP [... <i>t</i> ... V	OK
Verb:	d.i	*V [... <i>t</i> ...	*
	d.ii	V [... V ...	OK

In the case of short movement, we have seen that the ECP accounts for the distribution of empty categories and forces the appearance of a resumptive pronoun (a.ii), the obligatoriness of adjunct morphology (c.ii), and the appearance of a resumptive verb (d.ii). But, as we have shown, it cannot account for the configuration of data found with long Wh-extraction. Another principle regulating the distance between the antecedent and the target of extraction must be involved. Various possibilities come to mind to cover the cases not handled by the ECP, e.g. require both lexical government *and* antecedent government and separate the notion of antecedent government from the ECP so that it applies to overt traces in the desired way (as we in fact propose in Koopman and Sportiche, 1985, 1986). Our purpose here is not to discuss the form such a principle might take. We would merely like to point out that, if it implies the following condition, it will cover the data successfully:

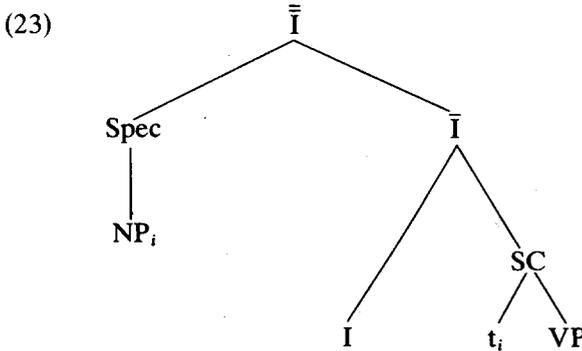
Condition on Long Extraction:

- (22) *x* is a possible long extraction site iff *x* is a theta-position.

We motivate this condition extensively elsewhere (Koopman and Sportiche, 1985, 1986). Here we will show how it very simply accounts for the data discussed. Direct objects and subcategorized PP's are long extractable, as predicted by (22) since they appear by definition in theta-positions. Adjuncts, whether adverbial or PP, do not appear in theta-positions. They are modifiers rather than arguments: for them, only short extraction is possible. Finally, verbs are predicates rather than arguments. They do not appear in theta-positions either and are thus only short extractable.

Subjects seem to pose a problem. It is usually assumed that a subject does appear in a theta-position when it is the external argument of some verb. We argue in detail in Koopman and Sportiche (1985, 1986) that

this assumption is incorrect, at least as far as languages like English, French, and Vata are concerned. Rather we show that the subject position (of clauses) in these languages is never a theta-position,¹⁶ because their basic sentential structure is as in (23) below (where SC is a small clause with VP head), leaving order aside:



For convenience, we can describe t_i as the base generated position of subjects, assigned the external theta-role of the VP, and NP_i as the position in which lexical subjects or subject Wh-traces must appear at S-structure. Since this position is always a non-theta position, only short extraction is permitted. In our view, it is the independent strong plausibility of this sentential structure that makes the Condition on Long Extraction so appealing.

4. REMARKS ON GEBI

We now briefly consider the Generalized Binding theory proposed by Aoun (1984, 1986). We have seen that two principles are required: one along the lines of the ECP, and a second along the lines of the Condition on Long Extraction.

GEBI is an attempt to generalize principle A of the Binding theory so as to entirely eliminate the need for the ECP. Basically, this generalization requires elements of a certain set H to be bound in a certain structural domain D . H is defined to contain English subjects (but not Chinese subjects) and non referential elements (including adverbial adjuncts, and traces in COMP). Given x a member of H , x must be bound in D , where D is the first \bar{S} containing x .

¹⁶ We claim that this is precisely the difference between these languages and languages like Chinese and Japanese which allow long extraction of subjects. In Japanese, for example, we propose that subjects of clauses may appear in theta-positions: essentially, their basic clausal structure is reduced to \bar{I} in (23) below, with subjects appearing in the position of t_i .

Our previous argumentation shows that the ECP cannot be entirely reduced to GEBI.¹⁷ This can easily be seen. Movement of adverbial adjuncts is short and triggers the insertion of the adjunct morphology. GEBI cannot account for both properties. As formulated, it predicts short movement for adverbial adjuncts, but says nothing about the adjunct morphology. The same applies to subjects (or verbs). GEBI predicts short movement of subjects but says nothing about the obligatory spell-out of their traces. Note that taking domain *D* to be *S* in Vata rather than \bar{S} would not work: it could explain why subject and verb traces must be spelled out or why the adjunct morphology must appear. (It would count as antecedent for the adverbial adjunct trace.) But it would fail to explain why movement of subjects, verbs, adverbial adjuncts and PP adjuncts must be short.

In conclusion, GEBI must also be supplemented by some other principle. This conclusion has been independently reached by Wahl (1985), which proposes a system very close to ours in its division of labor.¹⁸ Specifically, it is argued that GEBI applies to LF representations, but that the ECP (limited to head government) applies on the PF side of the grammar. As it stands, the GEBI/ECP approach faces a problem that our present account does not face. The problem has to do with PP adjuncts. Since the ECP applies in PF, it must be assumed that PP adjuncts are head governed. In order to derive the fact that only short movement of PP adjuncts is possible, it must also be assumed that they fall under the GEBI requirement that they be bound in *D* at LF. Since they are not subjects, they must, in order to fall under GEBI, be considered non referential. Wahl otherwise assumes that PP adjuncts in, e.g., English, French, and Chinese are referential. The necessary assumption for Vata appears ad-hoc: Wahl's framework would therefore seem to require some modification.¹⁹ Note that adopting the idea that there is reconstruction of the P, as we have assumed, would not work in Wahl's system. At LF, the trace governed by the reconstructed P would be an NP, and as such referential. This trace would therefore not be subject to the locality requirement imposed by GEBI: the impossibility of long movement of PP adjuncts would not be accounted for.

¹⁷ The same conclusion applies to the Connectedness approach of Kayne (1983), but for other reasons: in Vata, both subjects and objects are canonically governed from the right, yet behave differently with respect to extraction.

¹⁸ This is also true of Stowell's (1985) proposal.

¹⁹ We believe that this by itself shows that the notion of referentiality is not the relevant notion, but see Koopman and Sportiche (1986) for additional discussion.

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