A STRICT DERIVATIONAL APPROACH TO MINIMALITY IN WH-IN-SITU LANGUAGES

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It has been suggested in the literature that operator-variable constructions in wh-in-situ languages are subject to Minimality, which has been characterized as a condition on representation (c.f. Rizzi 1990, Cinque 1990 and Aoun and Li 1993). The representational constraint, however, fails to account for parametric variations with respect to the wh-island effect. It is observed that languages like Japanese and Korean display the wh-island effect (Nishigauchi 1986, Kim 1989), while languages like Chinese display no wh-island effect (Huang 1982). If operator-variable constructions in Chinese are subject to Minimality, as argued by Aoun and Li (1993), the fact that Chinese induces no wh-island condition requires some explanation. My proposed analysis is primarily based on the theoretical framework recently outlined by Uriagereka (1997, 1998), who proposes a so-called "dynamically split model," which allows Spell-out to apply multiply. Given Uriagereka's approach, I claim that the wh-island effect in wh-in-situ languages arises as a result of partial Spell-out and that whether to apply Spell-out is determined by the morphological properties of a head.

1 A Representational Approach to Minimality

1.1 Aoun and Li (1993)

Aoun and Li (1993) show that wh-words in Chinese can be construed either as interrogatives or as non-interrogative indefinites, and that they only appear within the scope of quantifier-like elements, such as question particles and conditionals, as given in (1a-b).

(1) a. Shei/Shenme ren xihuan ta ma?
who/what man like him Q
'Does anyone like him?'

b. yaoshi/ruguo shenme ren/shei xihuan ta,
if what man/who like him
'If anyone likes him, ...'

Examples (2a-b) show that a wh-word cannot appear in the affirmative root clause, but that it may occur inside the complement of the bridge verb yiwei 'think.'

(2) a. *Ta xihuan shenme.
he like what
'He likes something.'

b. Ta yiwei wo xihuan shenme.
he think I like what
'He thinks that I like something.'

Since the indefinite reading of a wh-word requires a c-commanding operator-like element, Aoun and Li assume that in (2b) a phonologically null [-Qu] operator is base-generated in the embedded

CP and binds the semantically variable wh-word. Aoun and Li argue that the operator-variable construction in Chinese must satisfy Minimality, defined in (3).

(3) Minimality
The Linking of A with B [...A...B...] obeys Minimality iff there is no intervening C [...A...C...B] such that C is linked to another element D, D≠B≠A.
(Aoun and Li 1993:216)

Now consider example (4), as represented in (5).

(4) Ta yiwei shei xihuan shenme ne?
he think who like what Q
(a) Who (x), what (y), he thought x liked y?
(b) *Who (x), he thought x liked something?
(c) *What (y), he thought someone liked y?

(5) a. [Qu$_{i,j}$ ...[-Qu...wh$_i$..wh$_j$..]]
b. *[Qu$_i$...[-Qu$_j$...wh$_i$..wh$_j$..]]
c. *[Qu$_j$...[-Qu$_i$...wh$_i$...wh$_j$...]]

(4) contains two wh-words inside the complement of the bridge verb yiwei. As represented in (5b-c), the linking of the wh-word to the matrix [Qu] is not possible when the other is bound to the embedded [-Qu] operator. This is due to Minimality. (6) is another example that shows that operator-variable constructions in Chinese are subject to Minimality.

(6) Ta yiwei wo xiang-zhidao shei xihuan shenme.
he think I wonder who like what
(a) 'He thinks that I wonder who likes what.'
(b) *'He thinks that I wonder what someone likes.'
(c) *'He thinks that I wonder who likes something.'

The embedded wh-word cannot be linked to the [-Qu] operator generated in the higher CP since there is a lower [Qu] operator that intervenes between the wh-word and [-Qu] operator, which yields a violation of Minimality.

1.2 A Problem with A&L's Representational Approach to Minimality

Aoun and Li's representational Minimality faces a problem for the lack of the wh-island effect in Chinese, as originally pointed out by Huang (1982). Consider (7).

(7) Ta xiang-zhidao shei maile shenme?
he wonder who bought what
(a) what (x), he wonders who bought x?
(b) who (y), he wonders what y bought?
(c) He wonders who bought what.

Huang shows that Chinese exhibits no wh-island effect, and that one of the embedded wh-words in (7) can extend its scope to the matrix clause. Given the fact that operator-variable constructions in Chinese exhibit Minimality, the wide scope readings in (7a-b) demand some explanation. Aoun and Li (1993) provide the condition (8) to account for the lack of the wh-island effect in Chinese.

(8) A wh-in-situ such as who or what in argument position need not have a local antecedent in the minimal clause in which it occurs.

(Aoun and Li 1993:219)

Condition (8) applies for the interrogative reading of wh-in-situ in Chinese. Notice, however, that (8) is problematic in that it is in an apparent conflict with Minimality. Furthermore, consider the Japanese and Korean examples in (9) and (10).

Japanese

(9) John-wa [dare-ga nani-o katta-ka] tazuneta-no?
John-TOP who-NOM what-ACC bought-Q asked-Q
(a) 'Did John ask who bought what?'
(b) *'What did John ask who bought t?'
(c) *'Who did John ask t bought what?'

Korean

(10) John-un [nwu-ka mwues-ul sat nunci] mwulet-ni?
John-TOP who-NOM what-ACC bought-Q asked-Q
(a) 'Did John ask who bought what?'
(b) *'What did John ask who bought t?'
(c) *'Who did John ask t bought what?'

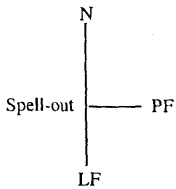
Nishigauchi (1986) and Kim (1989) have independently observed that Japanese and Korean display the wh-island effect. Namely, (9-10) are grammatical as yes-no questions, but they do not allow the matrix wh-interpretation. Since in Chinese a wh-word inside a wh-island can have a matrix reading, a question arises as to why languages like Japanese and Korean do not allow a similar matrix reading. Aoun and Li (1993) claim that Japanese and Korean differ from Chinese in that wh-words in Japanese and Korean, must undergo LF movement, which is subject to the wh-island condition. It seems, however, that the parametrization of such LF movement is completely adhoc in that there is no principled explanation for why wh-in-situ in Japanese and Korean must move at LF, while those in Chinese do not move at all.

Notice that in the Japanese and Korean examples (9-10), the Q-particle obligatorily marks the embedded question, while in the Chinese example (7), the embedded question has no phonetic effect. In the following, I assume that the PF requirement of the embedded Q is strongly correlated with the presence or the absence of the wh-island condition. That is, the wh-island effect arises only in languages in which the embedded Q is phonologically marked.

2 Analysis

To provide a principled account for the parametrization of wh-in-situ languages, I will be assuming with Chomsky (1992, 1995) that the Minimality condition is taken to be a condition of derivation, rather than a condition on representation, and further that LF movement of wh-in-situ is eliminated on conceptual grounds. My proposed analysis is based on the theoretical framework recently developed by Uriagereka (1997, 1998), who proposes a so-called "dynamically split model." Under Chomsky's (1995) minimalist approach, Spell-out is the operation that takes place once after all the lexical items in the Numeration are exhausted. After Spell-out, the computational system proceeds to form two independent representations, PF and LF, as shown in (11).

(11)



Uriagereka departs from this basic assumption and takes Spell-out to be part of the checking operation and to apply multiply. An important consequence that follows from Uriagereka's "dynamically split model" is that the phonological and interpretive components of languages are accessed derivationally, which departs from Chomsky (1995) in which lexical arrays are insensitive to the PF and LF components of languages.

Following Chomsky's (1995) minimalist assumption, Comp properties are stated in terms of a wh-feature and a Q-feature. The target wh-feature on Comp is Uninterpretable and thus it must be checked off and deleted since uninterpretable features are not legitimate objects at LF. Unlike a wh-feature, a Q feature is Interpretable and enters into interpretation. Thus a Q-feature need not be checked unless it is strong. Based on this assumption, Collins (1997) proposes that there is an asymmetry between root and embedded clauses concerning the driving force for movement, as stated in (12).

(12) a. movement to intermediate Spec CP:
The strong [+wh] feature of C enters into a checking relation with the wh-phrase.
b. movement to matrix Spec CP:
The strong Q feature of matrix C (along with the strong [+wh] feature) enters into a checking relation with the wh-phrase.

(Collins 1997:105)

In the following, I assume that (12a) is applicable to intermediate interrogative CP; that is, in some languages, the strong Q appears only in the matrix clause and in others it appears in the intermediate CP as well. I will be assuming with Chomsky (1995) that strong features are visible at PF and that weak features are invisible at PF. That is, (13a-b) hold:

(13) a. A strong Q-feature is visible at PF.
b. A weak Q-feature is invisible at PF.

It seems that Q in the matrix clause is universally strong. But languages differ with respect to the strength of Q in the embedded Comp. Only the strong Q must be checked by the checking operation. Given that Spell-out is part of the checking operation, strong Q is forced to undergo Spell-out, while weak Q is not. The example of classical Japanese, as given in (14) provides some interesting predictions.

Classical Japanese
(14) Dare-**ka** sumaFamU ?
Who-Q is-live-ADN.
'Who is living (there)?' (Ogawa 1976)

In classical Japanese, Q is located in wh-in-situ, which differs from modern Japanese in which Q appears in a sentence final position. I have argued in Yanagida (1995) that this diachronic change in the position of the Q-particle provides evidence that the Q-particle undergoes head movement in the overt syntax to Comp, as represented in (15).

(15) Q-raising
[+Q [...[Q wh]...]]--> [Qi [+Q] [...[ti wh]...]] (order irrelevant)

Assuming that Spell-out is part of the checking operation, the head movement as given in (15) takes place to check off a strong Q. This process forces the intermediate CP to undergo partial Spell-out. After Spell-out, Q enters into interpretation. Since Q has its own quantificational force, it must bind variable-like elements at LF, due to the condition given in (16).

(16) The Ban against Vacuous Quantification
An operator must bind a variable.

Let us assume that (16) is derived from the Principle of Full Interpretation (FI). Then, the configuration given in (17) is ill-formed since one of the wh-words is not bound to the intermediate Q, which is spelled-out when introduced into the derivation.

(17) Japanese/Korean
*[Qj ...[Qi...whi ...whj...]]

As a result, Minimality in wh-in-situ languages is reducible to a strict derivational approach that forces wh-in-situ to be bound to the nearest Q.

In Chinese and Sinhala, Q is weak. Since Q is Interpretable, it need not be checked. It follows that in Chinese-type languages, Spell-out does not apply to the intermediate CP headed by Q, and that the operator-variable relation takes place after the matrix Q is introduced into the derivation. This means that the domain of the operator-variable relation includes the entire clause:

(18) Chinese
[Qj ...[Qi ...whi ..whj ...]]

(18) does not violate (16), which is reducible to FI. Given that Aoun and Li's representational Minimality is eliminated in favor of a strict derivational approach, there is nothing to prevent the two wh-words from having different scope in Chinese.[1]

Let us now return to the Minimality effect in Chinese, as illustrated by Aoun and Li (1993) in example (4), repeated in (19).

(19) Ta yiwei shei xihuan shenme ne?
he think who like what Q
(a) Who (x), what(y), he thought x liked y?
(b) *Who (x), he thought x liked something?
(c) *What (y), he thought someone liked y?

[1] As is well-known, wh-in-situ in English lack the wh-island effect. Thus in (i), the wh-word in-situ can have either a matrix or an embedded reading.
(i) Who wonders where John bought what?
If (12) is applicable to the intermediate interrogative CP, then the strong Q appears only in the matrix clause in English. This may explain why wh-in-situ in English can have a matrix reading.

Although wh-in-situ in Chinese are insensitive to the wh-island condition, Minimality is still at work in cases involving non-interrogative indefinite readings of wh-words. The basic assumption is that Q is Interpretable but [±wh] feature on Comp is Uninterpretable. This means that unlike Q-features, [±wh] on Comp must be checked off for LF convergence. I suggest that it is checked off by inserting the null OP, as represented in (20).

(20) [±WH [...wh....]] --> [OP [±WH] [....wh....]] --> [OP$_i$ [....wh$_i$....]]

Since the checking of [-wh] feature requires the intermediate CP to undergo partial Spell-out, the Minimality effect in Chinese follows straightforwardly.

3 Scrambling

Finally, this section briefly discusses scrambling in Japanese. Although the operator-variable relation in Japanese displays the wh-island effect, it has been widely recognized that scrambling is not subject to the wh-island condition, as shown in (21).

(21) Nani-o$_i$ John-wa [Mary-ga doko-de t$_i$ katta ka] tazuneta.
what-ACC John-TOP Mary-NOM where-LOC bought Q asked
'(Lit.) What$_i$, John asked where Mary bought t$_i$'.

Scrambling differs from wh-movement in that it generally exhibits a so-called "reconstruction effect" (Saito 1989); that is, in (21) the scrambled element behaves as if it were in the original position.[2]

The reconstruction effect in (21) is accounted for by the strict derivational approach that I am assuming. I will adopt the copy theory of movement in which a trace left behind is a copy of the moved element, as shown in (22).

(22) [nani-o ...[...nani-o$_{(trace)}$ ...Q]]

The embedded Q-particle is moved from the wh-in-situ to the Comp to check off the strong Q, which forces the intermediate CP to be spelled-out. After Spell-out, the structure is sent to the LF component where the embedded Q binds the wh-word. The wh-word then undergoes scrambling. Uriagereka, however, shows that no syntactic operation is allowed after Spell-out, as stated in (23).

(23) A spelled-out structure is inaccessible to the syntax.

(23) follows from the minimalist assumption that syntactic movement is forced to check off strong features. If strong features enter the PF component, the derivation crashes at PF. A question then arises as to why (21) allows a wh-island violation and nani-o 'what' is able to move out of the already spelled-out structure. Following the general assumption that scrambling is completely optional and has no driving force (c.f., Fukui 1986, Kuroda 1988, Saito 1989), I suggest that scrambling is not an operation of the overt syntax, but rather it is formed within the PF component. There are two pieces of supporting evidence. First, given that the copy and deletion

[2] Under Chomsky's (1992, 1995) minimalist approach, the reconstruction operation is replaced by the copy theory of movement; the trace left behind is a copy of the moved element, deleted at the PF component. But at LF, the copy remains, providing the materials for "reconstruction."

operation of scrambling takes place within the PF component, LF is obviously not affected by scrambling, which conforms with the general assumption that scrambling is semantically vacuous. (A semantically vacuous element can be inserted in the PF branch of the derivation.) Second, a scrambled element can be adjoined to the TP, but not to the VP. That is, while (21) is acceptable, (24) is completely ungrammatical.

(24) *John-wa [VP nani-o_i [VP Sue-ni [CP Mary-ga doko-de t_i katta ka] tazuneta]].
John-TOP what-ACC Sue-DAT Mary-NOM where-LOC bought Q asked

The sharp difference between (21) and (24) shows that the copy and deletion operation does not take place in the course of the derivation, which in turn supports the idea that scrambling is formed within the PF component.

To summarize, I have discussed the Minimality effect of operator-variable constructions in wh-in-situ languages. I have been assuming with Uriagereka (1997, 1998) that Spell-out is taken to be part of the checking operation and that the interpretive aspects of operator-variable relations are accessed derivationally. Under this new approach, it has been shown that Minimality in wh-in-situ languages emerges as a result of partial Spell-out, and whether to undergo partial spell-out has to do with the morphological strength of Q.

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