Wh-Movement in Igbo

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Abstract

This paper gives a unified account of *wh*-movement in Igbo *wh*-questions, relatives and cleft constructions contrary to the analysis in Goldsmith (1981). It demonstrates that Igbo like French has both syntactic *wh*-movement and LF *wh*-movement, and claims that Igbo has, therefore, two types of mechanisms with which to deal with those phenomena which in the literature are associated with *wh*-movement. By investigating a number of phenomena including:

(i) pied piping
(ii) complex NP constraint and *wh*-island constraint
(iii) that trace
(iv) cross over effect
(v) parasitic gaps
(vi) superiority effects
(vii) adjunct traces

it will be demonstrated that Igbo shares some properties of English type languages, which characteristically have syntactic *wh*-movement, and some properties of Japanese-Chinese languages, which have only LF Wh movement. Finally, the paper suggests that the proper parameterization of *wh*-movement may not be along a two- but a three-position switch, a conclusion which finds support in the works of some linguists like Riemsdijk and Williams (1988).

This paper is in three sections. Section 1 investigates *wh*-movement in main and embedded clauses establishing a case for a *wh*-analysis of Igbo *wh*-questions, relatives and cleft constructions. Section 2 investigates the above mentioned phenomena associated with *wh*-movement in Igbo. In section 3 the summaries and conclusions are given.

1.1 *Wh*-movement in direct questions

In Igbo *wh*-questions are formed either as in set A or as in set B below.

Set A:

(1) ì hụ̀rụ̀ ònye
you see-rV(past)[1] who
"Who did you see?"

(2) ì mèrè gịnī
you do-rV(past) what
"What did you do?"

(3) ị gàrà òleẽ/èbeẽ
you go-rVpast) where
"Where did you go?"

Set B:

(4) Ònye$_i$ kà ị hụ̀rụ̀ t$_i$
who that you see-rV(past)
"Who did you see?"

(5) Gịnī$_i$ kà i mèrè t$_i$
what that you do-rV(past)
"What did you do?"

(6) Èbeẽ$_i$ kà ị gàrà t$_i$
where that you go-rV (past)
"Where did you go?"

Examples (1-3) exemplify the options in which the *wh*-phrase remains in situ while in examples (4) through (6) the *wh*-phrase is moved to clause initial position.

In the literature, languages like Chinese and Japanese, whose *wh*-question constructions pattern like those in set A, are said to have only LF *wh*-movement. On the other hand, languages like English with *wh*-question structure similar to that in the Set B examples are said to have syntactic *wh*-movement. However, all languages are assumed to have LF *wh*-movement (Chomsky 1986, and Lasnik and Uriagereka 1988). The important point for our purposes is that Igbo has syntactic as well as LF *wh*-movement. Our prediction

[1]A number of rV suffixes including "rV past", "rV assertive", "rV benefactive" etc. have been distinguished for Igbo. (Cf. Uwalaka, M.A. 1988). The rV suffix is so called because its vowel "reduplicates the vowel of the preceding syllable..." (Green & Igwe 1963).

is that Igbo will exemplify to some extent characteristics associated with each of the two language types. Note that the postulation that all languages have LF *wh*-movement enables us to give a unified analysis of the two types of structures available for Igbo *wh*-questions. It needs to be pointed out that the two structure types occurring in Igbo *wh*-questions also occur in French as this data from Riemsdijk and Williams (1987:65) shows[2]:

(7) (a) Tu as vu qui?
You have seen who
(b) Qui as-tu vu?
who have you seen
"Who have you seen?"

Therefore in Igbo direct questions as in French the rule of *wh*-movement is optional. In addition the set B examples demonstrate that Igbo, like popular French, allows a preposed *wh*-phrase to co-occur with an overt complementizer in *wh*-direct questions. Compare the Igbo examples with (8) taken from Radford (1988:501):

(8) Où que tu vas? (Popular French)
Where that you go
"Where are you going?"

With reference to the two construction types found in Igbo direct *wh*-questions, Goldsmith (1981:367) asserts that they are the same semantically and pragmatically. But the native speakers' intuition about the said structures is that the construction type in set B is pragmatically different from that in A. Even though each relevant pair, for instance (1) and (4) encode basically the same meaning, yet sentence (4) is more emphatic than (1).

We shall summarise our discussion so far by stating that while each example in Set A and its equivalent in Set B differ at S-structure, each such pair has the same LF representation. Thus sentences (1) and (4) have the same LF which can roughly be represented as (9).

(9) [$_{CP}$ Ònye$_i$ kà [ị hụ̀rụ̀ t$_i$]
who that you see-rV(past)
"Who did you see?"

The S-structures corresponding to (1) and (4) are given in (10) and (11), respectively:

[2]The numbering is ours.

(10) $[_{CP}\ [_{C}$ <+wh>] $[_{IP}$ ì hùrù ònye]]
(11) $[_{CP}$ Ònye$_i$ kà $[_{IP}$ ị hùrù t$_i$]]

1.2 The interaction of segmental and autosegmental morphemes in Igbo questions

It needs to be pointed out that the low tone on the *wh*-element in the data under investigation is significant. The initial low tone on the *wh*-phrase patterns the low tone on Igbo pronouns which are used to initiate Yes/No questions. Consider (12-13):

(12) Ezè, Ọ̀ gàrà ọ̃ru̇?
Eze, he go-rv(past) farm
"Did Eze go to the farm?"
(13) * Ezè gàrà ọ̃ru̇?
Eze go-rv(past) farm

Example (12) is fine but (13) is ruled out if an interrogative interpretation is intended. It is grammatical if a declarative reading is intended. The fact is that a definite NP does not initiate a question in Igbo. In cases like (12), i.e. in Yes/No questions a low tone resumptive pronoun is inserted. The pronoun does not in this case make any semantic contribution to the relevant string. Its function appears to be similar to that of the English verbal *do* in the *do*-support rule. In the Igbo case the resumptive pronoun carries the auto-segmental low tone that ensures the interrogative reading. In the case of the *wh*-questions, the rule which inserts a low tone pronoun appears to be irrelevant. This is because all Igbo *wh*-words except *gini* have initial basic low-tone as is evident in the data under investigation. This has led Nwachukwu (1990) (unpublished paper) to claim that in Igbo *Q* is realised as an autosegmental low tone. It seems then that the initial low tone in the relevant *wh*-phrase serves to define the structure in which it occurs as an interrogative. Of course this claim calls for an explanation for the initial high tone on *gini* (*what*). Goldsmith (1981) accounts for this by suggesting that *gini* has been borrowed into Igbo from Yoruba which has a similar lexical item *kini* (*what*). On the other hand, Nwachukwu accounts for this by claiming that both *gini* and *kini* have come from a common source, namely Proto Kwa, the parent language of both Yoruba and Igbo. What is important for our purposes is that characteristically Igbo *wh*-phrases have initial low tone and this is tied to the Igbo interrogative structure.

1.3 Embedded *wh*-questions

Now consider sentences (14) through (16) which are instances of Igbo embedded questions:

(14) Ezè jụ̀wa onye$_i$ ị hù̀rù̀ t$_i$
Eze ask-WE (progr.) person you see-rV(past)
"Eze is asking whom you saw"

(15) Ezè jụ̀wa ihe$_i$ ị mèrè t$_i$
Eze ask-WE(prog.) thing you do
"Eze is asking what you did"

(16) Ezè jụ̀wa ebe$_i$ ị gàrà t$_i$
Eze ask-WE(prog.) place you go-rV(past)
"Eze is asking where you went"

The data in examples (14-16) are particularly interesting. Crucially the preposed *wh*-phrase no longer bears a low tone. In addition it is a suppletive form of the relevant *wh*-phrase that is preposed. Finally no overt complementizer is permitted hence a string like (17) is ruled out:

(17) * Ezè jụ̀wa onye$_i$ kà ị hù̀rù̀ t$_i$
Eze ask-WE(prog.) who that you see-rV(past)

The structure of the embedded *wh*-questions (14) through (16) is similar to that in Igbo *Kedu*-questions which form the focus of Goldsmith's (1981) exposition. An example of a *Kedu*-question is given in (18) below:

(18) Kèdu[3] onye/ihe/ebe ị hù̀rù̀ t
? person/thing/place you see-rV(past)
"Who/what/where did you see?"

Goldsmith (1981) argues against a *wh*-movement analysis of *kedu*-questions. In contrast to this, our claim is that both the embedded questions and the *kedu*-questions all involve move-*wh*. Before we give a full characterization of *wh*-movement in Igbo embedded questions it will be necessary to examine other constructions which involve *wh*-movement. These include relatives and Cleft constructions. The data in (19-21) exemplify Igbo relatives:

[3]As Nwachukwu(1990:9) correctly points out it is only when *kedu* combines with a nominal that its semantic range is defined.

(19) Àdha hụ̀rụ̀ onye gburu ewu
Adha see-rv(past) person kill-rV(past) goat
"Adha saw the person who killed a goat"

(20) Àdha hụ̀rụ̀ ihe Ezè mèrè t
Adha see-rv(past) thing Eze do-rV(past)
"Adha saw what Eze did"

(21) Àdha hụ̀rụ̀ ebe Ezè gàrà t
Adha see-rv(past) where Eze go-rV(past)
"Adha saw where Eze went"

It is also clear from the data that all that we pointed out above with respect to embedded *wh*-questions is also true of relative clauses in Igbo. Now consider cleft constructions in (22-24):

(22) Ọ wụ̄ onye gburu eke
It be person kill-rV(past) python
"It is the person who killed the python"

(23) Ọ wū ihe Ezè mèrè t
It be thing Eze do rV-(past)
"It is what Eze did"

(24) Ọ wụ̄ ebei Ezè gara t
It be place Eze go-rV(past)
"It is where Eze went"

Examples (22-24) show that cleft-constructions like relatives and embedded *wh*-questions manifest the same characteristics: the high tone suppletive alternant of the preposed *wh*-phrase and the lack of an overt complementizer. A unified analysis of all these structures is therefore quite in order.

It seems that in the data under investigation, what we have is not just move α but affect α. This is because in addition to move-*wh* other processes including deletion appear to be involved. Thus in example (18) repeated here as (14') for ease of reference:

(14') Ezè jụwa onye ị hụ̀rụ̀ t
Eze ask-WE(prog) person you see-rV(past)
"Eze is asking who you saw"

There is no doubt that *wh*-movement has moved the relevant *wh*-phrase into the initial position of the embedded clause, i.e. into comp position which is a non-argument position. A coindexed trace is left behind at the extraction sight. Therefore the *wh*-phrase *Onye* i.e. the *wh*-operator is licensed by binding a variable (Chomsky 1988:93). Since the *wh*-phrase is in a non-argument position it lacks Case and can only get Case transferred to it through its coindexed

trace, otherwise the Case Filter will be violated, Chomsky (1981). This filter rules out a structure in which a lexical NP has no Case. Similarly the trace of *Onye* is fully licensed. The verb *_hu* (*see*) is subcategorised for both a subject and object NP. The Projection Principle requires that a trace appears in the object position from which the *wh*-phrase has been *wh*-moved. Note that our analysis differs crucially from that of Goldsmith (1981) who maintains that

> "...all complementizer positions in Igbo, both main clause and embedded permit *wh*-words in them, on the surface, however, only main clause complementizers may contain *wh*-words."
> (p.375)

But by our analysis *wh*-words occur both in main as well as embedded clauses. The difference being that for embedded clauses the language selects a suppletive form of the relevant *wh*-phrase which then surfaces in the Spec of CP position. Cross linguistic evidence supports our analysis. As we shall show in greater detail in Section 3, the presence of a *wh*-operator in specCP can trigger off morphological modification(s) in either the head of CP as in the rule converting *que* to *qui* in French; in the Spec of CP as in Igbo or, in both the Spec of CP and in C as in Kinande, a Bantu language spoken in Zaire (Schneider-Zioga, 1987). In Section 2.4 we shall give a principled account of the said morphological modifications of either C or the Spec of CP that occurs in the wake of *wh*-movement in certain languages including Igbo. In the meantime it suffices to say that the selection of the suppletive form of a relevant *wh*-phrase in embedded structures does not imply that no *wh*-phrase occurs in the spec of CP in Igbo embedded clauses as suggested by Goldsmith (1981).

Furthermore, it seems that the Doubly-Filled Comp Filter applies to Igbo embedded *wh*-questions, relatives and cleft-constructions, hence (25) below is ruled out:

(25)	*	Eze juwa	ihe	ka	i	mere T
		Eze ask-WE(progr.)	thing	that	you	do-rv(past)

We shall summarize our discussion by giving the S-Structure of example (14) in (26):

(26) Ezè jụwa [$_{CP}$ onye$_i$ [$_{IP}$ ị hụ̀rụ̀ t$_i$]]

But now consider the following paradigm:

(27) (a) Ì sị nà ị hụ̀rụ̀ ònye/gịnī/èbeē
you say that you see-rv(past) who/what/where
who/what/*where did you say that you saw?"

(b) Ì sị nà ònye/gịnī/èbeē kà ị hụ̀rụ̀
You say that who/what/where that you see-rV(past)
"Who/what/where did you say that you saw?"

(28) (a) ị jụrụ sị ònye/gịnī/èbeē kà ọ hụ̀rụ̀
you ask-rV(past) that who/what/where that he see-rV(past)
"Did you ask who/what/where he saw?"

(b) * ị jụrụ (nà) ònye/gịnī/èbeē kà ọ hụ̀rụ̀?
you ask-rV (that) who/what/where that he see-rV

Each of the sentences (27a-b) contains an embedded *wh*-question and each is grammatical. *Isi* seems to be the only verb that permits syntactic *wh*-movement to be optional in indirect questions, while at the same time allowing a moved *wh*-phrase to occur with its basic form. But now consider example (28a). Here the matrix verb is not the verb *isi* but it co-occurs with the complementizer *si* which is homophonous with the root of the verb *i-si*. Note that the moved *wh*-phrase retains its basic form. On the other hand (36b) is ruled out because a complementizer other than *si* introduces the embedded *wh*-question. Finally (28c) demonstrates that when a matrix verb which is different from the verb *isi* co-occurs with the complementizer *si* the questioned *wh*-phrase in the embedded clause can optionally remain *in situ*.

It seems therefore that the differences which we highlighted between direct and indirect questions become neutralized when the verb of the matrix clause is the verb *isi*. Therefore we say that *wh*-movement is optional in direct *wh*-questions. It is obligatory in embedded questions if the matrix verb is not the verb *isi* or if the matrix verb does not co-occur with the complementizer *-si*. In addition *wh*-movement is obligatory in relatives and cleft constructions in Igbo.

2.1 *Wh*-movement in Igbo and the phenomenon of pied piping

Consider sentences (29) through (31):

(29) Ezè ọ̀ nọ̀ n'[4] èbeē
Eze he be in where/place
"Where is Eze?"

[4]Igbo has very few prepositions the best known and best investigated being the preposition *na*. Consequently much of prepositional function is rendered by verbs and extensional suffixes. The preposition *na* glossed as *in, on, at*, etc. depending on the context assimilates to the vowel and tone of a following vowel.

(30) N' èbeē kà Ezè nọ̀ t
In where/place that Eze be
"Where is Eze?"

(31) * Èbeē kà Ezè nọ̀ nà t
Where that Eze be in

Sentence (30) illustrates that like *wh* NPs, *wh*-movement can also apply to *wh*-PP constituents in Igbo. Whereas in (29) the PP is left *in situ*, in (30) it has been fronted to clause initial position. Furthermore (30) shows that, as in English type languages, the rule move-*wh* can prepose the whole *wh*-PP, that is, with the preposition undergoing pied piping. However, whereas in English the preposition associated with a PP can optionally undergo pied piping, in Igbo this rule is obligatory. Example (31) is ruled out for this reason. In other words we do not get cases of stranded prepositions in Igbo. Note that what is attested for Igbo with respect to preposition stranding is also true of French and Italian. In order to account for this parametric variation with stranding, Kayne (1979) argues that in languages that do not permit preposition stranding, prepositions assign oblique Case. Oblique Case is assumed to be an *inherent Case*, which is assigned at D-Structure. It differs from *structural Case* which is assigned by verbs, in that structural Case is assigned at S-Structure. If preposition stranding were to occur in a language like Igbo, then the remaining trace would lack Case. This means that it would lack case both at S-structure and LF. But since a variable must have Case, preposition stranding is barred in Igbo-French type languages.

An alternative explanation for the parametric variation with stranding is offered by Cinque (1990) and Rizzi (1990). The assumption is that only verbs can properly head govern traces. Consequently, the preposition specified [-V, -N] cannot fulfil the proper head government requirement on a trace. Prepositions in Igbo-French type languages are of this type. What is more, if stranded, the preposition would constitute a Minimality barrier in the sense of Chomsky (1986b) thus preventing the verb from governing the relevant trace. Therefore, in a case like (41) the variable *t* is ungoverned hence there is an ECP violation. In contrast, in English type languages the preposition is "underspecified with respect to the features [+ V, + N]" (Rizzi 1990:109).

2.2 *Wh*-movement in Igbo and the Complex NP-Constraint (CNPC)

The complex NP constraint would define as ungrammatical a structure in which an element "contained in an S dominated by an NP with a lexical head noun" is moved out. (Ross, 1967). It seems that *wh*-movement in Igbo obeys the Complex NP Island Constraint. Consider example (32):

(32) *	Ònye	kà	Ezè	kwere		okwu	ha
	who	that	Eze	believe-rV(past)		talk	they
	kwùrù		nà	Àdha hụrụ			
	talk-rV(past)		that	Adha see-rV(past)			

In example (32) *Onye* has been illicitly extracted from the clause headed by the noun NP *okwu*. The point is that Igbo-French type languages share the property of disallowing extraction of an element from a complex NP with English type languages in contrast to Japanese-Chinese languages (Huang 1982).

2.3 *Wh*-movement in Igbo and the *Wh*-Island Constraint

The *wh*-island constraint rules out a structure in which a constituent is "adjoined to a COMP which already contains a *wh*-complementizer". (Radford 1981: 235). In the light of this constraint consider the data in (33-35):

(33) (a)	Ǹdịị̄	nwatà	na	ị	māghị	onye	murunī
	which	child	that	you	know-not	person	born-ni(cl)
	"Is there any of the children whose parents you don't know?"						
(b) ?	Ǹdjịị̄	nwatà	na	ị	māghị	onye	mụrụ
	which	child	that	you	know-not	who	born-rV(past)
(34) (a)	Gịnī	kà	Àdha	jụwa		onye	merenī
	what	that	Adha	ask-WE(prg)		who	do-clitic
(b) ?	Gịnī	kà	Àdha	jụwa		onye	mere
	what	that	Adha	ask-WE(prg)		who	do-rV(past)

(35) [$_{CP}$ Òleē nwatà akwukwọ$_i$ [$_{IP}$ unù na-amāghị [$_{CP}$ ihe$_j$ [$_{IP}$ onye nkuzi kwhòrò chụọ t$_i$ t$_j$]]]]
which child book you Aux-know-not thing person teacher cause expel
"Which child don't you know why the teacher expelled (him)?"

The grammatical strings (33a), (34a) and (35) appear to violate the stipulation that no constituent should be adjoined to a CP that already contains a *wh*-complementizer. It would appear that Igbo does not show the same sensitivity to *wh*-Islandhood as to CNPC. A closer look at the data in (33-34) reveals that the grammaticality or the deviance of the relevant string is tied to the presence or absence of the clitic *-ni*. Thus (33a) is fine while (33b) is ruled out. The same is true of (34a) and (34b). In each pair, the grammatical string differs from its deviant counterpart in that the well-formed string contains a clitic. It would appear then that the well-formedness of the examples in question is tied to the process of cliticization which operates in Igbo. Igbo therefore is like French, Italian and Spanish in that it has clitics (Chomsky 1981).

With respect to cases like the well-formed (33a) and (34a) our claim is that syntactic *wh*-movement is not involved. Rather the *wh*-phrase in the specCP of the matrix is base generated. In other words no *wh*-Island violation is involved in these cases and the structures are judged grammatical. We still need to account for the acceptability of (35) since no clitic is involved in this case. In (35) Comp-to-Comp movement cannot apply. *Olee nwata akwukwo* cannot move into the lower specCP which is already filled with the *wh*-phrase *ihe*. It seems that Igbo is like Italian and Spanish with respect to *wh*-Islandhood. Rizzi (1982) acounts for such differences between languages by assuming that they differ in their parameter setting for Subjacency. For English the bounding nodes are S and NP, whereas for Italian and Spanish the bounding nodes are S' and NP. It seems then that Igbo shares the parametric value of having S' and NP as bounding nodes. This brings us back to cases like (33b) and (34b) discussed above. The strings are not totally ungrammatical but they have the degraded status of weak Subjacency violations.

2.4 *Wh*-movement in Igbo and *that*-t effects

The *that*-t Filter formulated as follows:

*that [$_S$ t ....] (Cf. Jacobsen 1986:202)

disallows the extraction of the subject of an embedded question even though extraction of the object is permitted. Igbo appears to exhibit a systematic optionality even with respect to the *that*-t Filter. Consider the data below:

Extraction of Object:

(36) Ònye kà i cèrè sị (nà) aghụ gburu t
Who that you think-rV(assertive) lion kill-rV(past)
"Who do you think was killed by a lion?"

(37) Ònye kà i cèrè t aghụ gburu t
Who that you think-rV(assertive) lion kill-rV(past)
"Who do you think was killed by a lion?"

Extraction of Subject:

(38) Ònye kà i cèrè t t gburu ewū
Who that you think-rV(assertive) kill goat
"Who do you think killed a goat?"

(39) Ònye kà i cèrè sị t gburu ewū
Who that you think-rV(assertive) that kill-rV(past) goat
"Who do you think that killed a goat?"

(40) Ònye kà i cèrè sị ga-igbū ewu
Who that you think-rV(assertive) Fut. kill goat
"Who do you think that will kill a goat?"

(41) * Onye kà i cèrè nà gburu ewū
Who that you think-rV(assertive) that kill-rV(past) goat

(42) * Ònye kà i cèrè sị igbú ewu
Who that you think-rV(assertive) that to kill goat

The data clearly show that in Igbo (in the Central Igbo varieties) extraction of the subject like that of the object of an embedded question does not result in *that*-t effects. But notice that example (41) is ruled out. This is because, even in the dialects that permit extraction of the embedded subject NP over an overt that-complementizer (i.e. its Igbo equivalent), it is only if the complementizer *si* occurs in such a string that the result is a well-formed. In other words, there is here a language specific rule which imposes a restriction on the kind of complementizer that allows the extraction of the subject of an embedded question: *si* is the only candidate. In (41) the complementizer *na* occurs and the resulting string is deviant. What is claimed here for *si* is similar to what occurs in Modern Hebrew where extraction of a subject is permitted across the complementizer *she* in declaratives (Rizzi 1990). But since Igbo exhibits systematic violations of the *that*-t Filter, a principled analysis of the Igbo extraction phenomena is in order.

As Rizzi (1989:57) suggests: "...the licensing of a subject trace always needs a special mechanism". In contrast to this, the cases involving the extraction of an object NP do not present any problems. For instance in example (36), the trace of the moved *wh*-phrase is properly head governed and θ-marked by the verb *igbu* (*to kill*). In addition, it is antecedent governed by the *wh*-phrase in the spec of CP of the matrix clause. In other words, the ECP condition is satisfied on all counts.

But now consider examples (38) in which both the complementizer *si* and the subject of the embedded clause do not occur in surface structure. Here the subject trace is not lexically governed since it is not the complement of any head. The subject trace can only satisfy the proper government requirement by being antecedent governed. As it is, it appears to be too far from its antecedent. The problem here has to do with whether or not an intermediate trace in (38) can properly govern the subject trace, since in fact it is this trace that antecedent governs the subject trace, being its nearest binder. As a solution to this problem, Lasnik and Saito (1984) as well as other linguists, including Belletti & Rizzi (1981) and Kayne (1980), have proposed that even though a maximal projection constitutes a barrier for government of any kind, the head

of a maximal projection can be governed by an element outside the projection. Therefore in (52) the intermediate trace is assumed to be lexically marked and consequently properly governed by the matrix verb. Thus licensed, the intermediate trace then effectively antecedent governs the subject trace. In this way cases like (38) are accounted for. Note that the above solution correctly predicts that in a language like English extraction of a subject over a complementizer would yield deviant structures. But considering that similar cases in our Igbo data do not result in the predicted *that*-t effects, a principled account of the Igbo *si*-paradigm appears ok.

Rizzi (1990:61) highlights three major strategies adopted by specific languages to effect subject extraction:

(a) insertion of a resumptive pronoun
(b) extraction from a postverbal object position
(c) Spec-head agreement in the domain of CP.

We shall briefly examine these strategies in the light of our Igbo data. The use of resumptive pronouns to license subject extraction is attested for a number of languages including Swedish (Engdahl 1985) and Vata (Koopman 1984). In Igbo, resumptive pronouns feature prominently. This explains why in the non-Central Igbo dialect varieties, which exhibit that-trace effects, the equivalent of (39) repeated here as (39') would be (43):

(39')	Ònye	kà	i	cèrè	sị	gburu	ewu	
	who	that	you	think-rV(assertive)		kill-rV(past)	goat	
	"Who do you think that killed a goat?"							
(43)	Ònye	kà	i	cèrè	sị(nà)	o	gburu	ewu
	who	that	you	thinkrV(assertive)	that	he	killrV(past)	goat
	"Who do you think that killed a goat?"							

Sentence (43) illustrates that for those Igbo dialects that disallow extraction of a subject over an overt complementizer, the option of a resumptive pronoun is available. Igbo thus permits the two options of the use of a resumptive pronoun as well as the extraction of a subject across an overt complementizer.

The second major strategy which accounts for subject extraction is exhibited by null-subject languages like Italian where post verbal subject extraction is possible (Rizzi 1990). With respect to Igbo, the option of post-verbal subject extraction is totally unavailable. Not only is Igbo not a null-subject language, it has a comparatively poor inflectional morphology. This explains why grammatical functions are coded primarily by strict word order, assisted in some cases by tone.

The third major strategy of subject extraction involves a process of SPEC-head agreement (Chomsky 1986b:24) in the domain of CP. The important

intuition to be captured here is that the presence of a *wh*-operator or trace in the Spec of CP triggers a Spec-head agreement which turns an otherwise inert C into an appropriate governor for a subject trace. The Spec-head agreement in the domain of CP may have an overt morphological manifestation as in *que*-to-*qui* rule in French. The Spec-head agreement may be an abstract one that is without overt morphological manifestation. This is the case with the complementizer *that* which occurs in English relative clauses.

In the case of the Igbo data (39), which exemplify extraction of subject across an overt complementizer *si*, it is possible to argue that we have a case of abstract spec-head agreement in the domain of CP as in English relative clauses. This would imply that the complementizer *si* occurring in such cases acquires a special abstract agreeing form that licences the subject trace.

There is still another option which we would like to adopt for the present analysis. This involves government of the subject trace in question by Infl.(I) But since I is *lower* in the tree than the subject NP as (44) clearly shows, we would like to postulate an LF movement of I-to-C in order for the C-command requirement of government to be met.

(44) Ònye kà i ce sị t Inf gbu ewu?

"who do you think that killed a goat?"

The problem that immediately arises is whether the postulated movement can take place since C is occupied by the complementizer *si*. However, the assumption is that the complementizer *si* (i.e." that") has no lexical content, (cf. Lasnik & Saito 1984). Therefore, in the mapping from S-Structure to LF *si* may be deleted. This makes it possible for I, a zero level category to move into C. The next question is whether in fact the I which is LF-moved into the empty C slot can properly govern the subject trace.

There is empirical evidence from our Igbo data that the tensed Infl in the Comp domain has intrinsic governing properties. This is because in sentence (42) repeated here for convenience as (42'):

(42')	Ònye	kà	i	cèrè	sị	igbū	ewu
	who	that	you	think-rV(assertive)	that	to kill	goat

extraction of subject occurs across the same complementizer *si* yet the result is an ungrammatical string. The only difference between (42') and its grammatical counterpart is that the embedded sentence in (42') is -T. It seems correct then to claim that the tensed Infl or in this case tensed C (since I is LF moved to C) licenses the subject trace in (39). On empirical grounds, this analysis is preferred to that which postulates an abstract spec-head agreement in the domain of CP.

2.5 *Wh*-movement in Igbo and crossover effects

A crossover configuration results when "one of a pair of coreferential expressions crosses over another via *wh*-movement". (Postal, 1971). Following Wasow (1972,1979) Strong Crossover and Weak crossover are distinguished in the literature.

2.5.1 Strong crossover As in English-type languages strong crossover yields ungrammatical strings in Igbo. Consider examples (45) and (46) below:

(45) * Ònye$_i$ kà o cere Adha huru t$_i$
Who that he think-rV(assertive) Adha see-rV(past)

(46) Ònye$_i$ kà o cèrè Adha hùrù t$_i$
who did he think-rV(assertive) Adha see-rV(past)
"Who did he think Adha saw?"

In example (45) but not in (46) the *wh*-phrase *Onye* crosses over the pronominal *o* with which it is coindexed. But the opacity condition on pronouns bars the indicated coindexing (Chomsky 1981:153) It is this that accounts for the grammaticality of (46) in contradiction to (45). It seems therefore that the principle of Strong Crossover is a universal one.

2.5.2 Weak crossover Weak Crossover provides other instances of failed anaphora. Consider sentences (47-48):

(47) ? Ònye kà nwaanyi ọ$_i$ hùrù cowa t$_i$
who that woman he see-rV(past) look for-WE(prg)
"Who is the woman he saw looking for/ being looked for by the woman he saw?"

(48) ? Ònye$_i$ kà nne yā$_i$ hùrù t$_i$
who that mother his see-rV(past)
"Who did his mother see?"

As in cases of strong crossover, one of a pair of coindexed NPs has crossed over another[5]. Thus in (47) the *wh*-phrase *onye* has crossed over the pronominal *o*. Note that the failure of anaphoric relations here does not result from the opacity conditions since in fact the variable is not C-commanded by the pronominal. To account for weak crossover Koopman and Sportiche (1982) have proposed the Bijection Principle which stipulates that:

[5] Lasnik & Uriagereka 1988:147

(a) Every variable must be bound by exactly one operator
(b) Every operator must bind exactly one variable

Considered along these lines, example (47) is ruled out because the *wh*-phrase (i.e. the *wh*-operator binds both the pronominal *o* and the variable, thus violating this principle. But the Bijection Principle has been shown to be inadequate to account for instances of weak crossover (Haik 1983).

Another proposal to account for the phenomenon of weak crossover is the Leftness Condition, which states that "a pronoun cannot be coindexed with a variable to its right" (van Riemsdijk and Williams 1988). The Leftness condition is said to depend on some kind of reconstruction. Thus for example for (48) the *wh*-Interpretation (Reconstruction) will give a structure like (49):

(49) ? x_i[nne ya huru x_i]
mother his see-rV(past)

In (49) the variable *x* is to the right of *ya*, the Leftness condition has to apply to prevent *ya* from being coindexed with the variable,hence the structure is correctly ruled out.

However the above account of weak crossover accounts only partially for the Igbo data (45-46). Each of these sentences is two ways ambiguous. In one interpretation the relation of disjoint reference holds between the pronoun and the trace. But in another an anaphoric relation holds between the variable and the pronoun. This second reading results when the features of the pronoun in particular that of Number matches that of the *wh*-operator as in the cases discussed above. If on the other hand there is a feature mismatch between the pronoun and the *wh*-operator then only one reading will be available. Consider (50-51) below:

(50) Òle ndi nne ya hùrù t
who (pl) mother his see-rV(past)
"Who did his mother see?"
(51) Ònye kà nwaànyị ha hùrù còwà t
who that woman they see-rV(past) look for
"Who is the woman, they saw, looking for?"

In (50) the moved *wh*-phrase is plural while the pronoun is singular. In (51) the reverse is the case, hence only one interpretation is possible in each case. the pronoun cannot therefore be bound by the *wh*-operator.

The problem then is how the Leftness Condition would account for cases in which a non-disjoint reference interpretation is required. It seems that following Jacobsen (1986) we would need to postulate a *wh*-Interpretation (Reconstruction) or rather an LF with the following structure:

(52) ? x_i [nne x_i huru x_i]

In (52) there are no crossover violations, for *wh*-movement has not caused the operator *x* to be to the right of *ya*. In other words, the *wh*-phrase in this formulation has not crossed over a coindexed pronoun. Furthermore, that weak crossover yields ambiguous rather than deviant strings in Igbo is shown by the fact that the effects of weak crossover are not as strong as those of strong crossover. Finally, it is predictable that Chinese-Japanese type languages would show weak crossover effects. Given that all languages have LF *wh*-movement, the variable will occupy the same position in the different language types.

2.6 Parasitic gap phenomena in Igbo

Examples (53) through (55): manifest parasitic gap constructions in Igbo:

(53) Òleẽ akwà$_i$ Ngọzi kwere ọnụ Pro zuru t_i
which cloth Ngozi ? agree-rV(past) mouth buy-rV(past)
"Which cloth did Ngozi prize (before) buying?"

(54) (a) * Òleẽ akwà Ngozi kwere onu t zụghị t
which cloth Ngozi ? agree-rV(past) mouth buy-neg

(b) Òleẽ akwa Ngọzi na-ekwẽghị onu t zuru t
which cloth Ngozi Pref-?agree-neg mouth buy-rV(past)
"Which cloth did Ngozi not prize before buying?"

(55) Akwà Ngọzi na-ekwẽghi ọnụ t tupu ya zụrụ t
cloth Ngozi Aux-prize-neg mouth before she Pref-būy
"Cloth which Adha did not prize before buying" -rV(past)

The assumption is that a parasitic gap is licensed by an S-structure *wh*-trace that does not C-Command it (Chomsky 1982). Thus in example (53) the first empty category, that is, the *wh*-trace is said to license the last which is the parasitic gap. Example (54a) is deviant while (54b) is ok. The deviance of (54b) seems to be tied to the presence of *neg* in the adverbial adjunct. The standard assumption, following Ross (1983) is that negation creates opacity effects on adjunct variables. In this way the deviance of cases like (54a) is accounted for. But now consider examples (56a-b):

(56) (a) Ngozi ahughi akwa kwuo ugwo ya[6]
Ngozi Pref-see-neg cloth pay price it
"Ngozi did not see the cloth and paid for it"

(b) * Ngozi huru akwa ekweghi/kweghi ya onu
Ngozi Pref. see-rV past agree-neg it mouth

Sentence (56a) is a classical example of a Serialization/Consecutivization construction. (56a) is grammatical while (56b) is ruled out. Note that no extraction is involved in the two sentences and so no variables are involved. The deviance of (81b) is due to the fact that the clause containing neg" is not allowed to occur last in the relevant complex sentence. Examples (56a-b) are a pointer to the fact that serialization/consecutivization constructions share some properties of variables, a suggestion which will become more evident in section 2.7. Example (55) shows that parasitic gaps occur in Igbo relatives. This evidently follows from the fact that Igbo relative clauses involve move-*wh*. Furthermore, it is assumed that resumptive pronouns do not license parasitic gaps. This appears to be borne out in Igbo. Consider examples (57-58)

(57) * Òleẽ akwà Ngọzi hùrù ya zụrụ t
Which cloth Ngozi see-rV(past) it buy-rV(past)

(58) ? kèdu akwà Ngọzi ne-ekwẽghị ya ọnụ zụrụ t
which cloth Ngozi Aux-Prefix prize-Ng it mouth buy-rV

Sentence (57) is totally deviant and this is a result of the insertion of the resumptive pronoun *ya* which is coindexed with the operator in specCP. Similarly sentence (58) is ungrammatical in the reading in which the pronoun *ya* is coindexed and therefore coreferential with the moved *wh*-phrase in specCP. Thus in Igbo as in English type languages the resumptive pronoun does not license parasitic gaps.

Finally parasitic gaps are assumed to exhibit left-right asymmetry, in addition to the anti C-command requirement. This implies that in a complex sentence containing a parasitic gap, the gap can only occur to the right of the real gap. Examine (59-60):

(59) * Tupu zuru t akwà Ngọzi na ekwẽghi onyu
before buy-rV(past) cloth Ngozi Aux-Pref-neg mouth

(60) * PRO zuru e olee akwa Ngozi kwere onu e
buy which cloth Ngozi agree-rV(past) mouth

[6] The full characterization of Serialization/Consecutivization construction is beyond the scope of this paper.

Both examples (59) and (60) are deviant. It cannot be that the deviance of (59) is only due to the fact that the neg-clause occurs last since (60) is also ungrammatical. The ungrammaticality of (59-60) must be accounted for by the fact that the parasitic gap in these examples occurs to the left of the real gap, thus justifying the claim that parasitic gaps manifest left-right asymmetry.

2.7 Apparent counter-examples (The Serialization/Consecutivization Parameter)

The definition of parasitic gaps given in 2.6 predicts that when a parasitic gap is not licensed by a *wh*-trace that does not C-command it, ungrammaticality results. In the light of this examine sentences (61-63):

(61) Ònye hụ̀rụ̀ òleē akwà zụrụ t
who see-rV(past) which cloth bought
"Who saw which cloth (and) bought?"

(62) Ngọzi ekwēghị akwà ọnụ zụrụ t
Ngozi Pref-agree-neg cloth mouth buy-rV(past)
"Ngozi did not prize the cloth before buying."

(63) Kèdu akwà Ngọzi na-ekwēghị ọnụ ya zụrụ t
which cloth Ngozi Aux-Pref-agree-neg mouth it buy-rV(past)
"Which cloth did Ngozi not negotiate the prize before buying?"

Examples (61) through (63) are perfect. Yet in none of these examples is there a surface trace to license the parasitic gap. Example (61) would contain an LF *wh*-trace but the standard assumption is that such a trace cannot license a parasitic gap. (Lasnik & Uriagereka 1988). The question then is whether or not we have parasitic gaps in the examples above.

As we noted in 2.6, Igbo is a serializing/consecutizing language. It would appear that in languages of this type a parasitic gap may, but need not occur in the same sentence with the so called *real gap*. It seems then that there is a specific parameter, call it Serializing/ Consecutivizing parameter which licenses a parasitic gap. No doubt the full characteristics of this parameter will need to be investigated in such languages. In the meantime an analysis of the parasitic gaps licensed by the said parameter seems in order. Chomsky's (1986b) modification of the definition of the parasitic gap construction offers the required answer to the questions raised above with respect to gaps in cases as in (61-63). In the modified definition, a parasitic gap is no longer construed as locally bound by the operator of the real gap. Even though it is still parasitic on the *real gap*, it is now considered a real gap with its own chain. A parasitic gap is furthermore construed as involving an empty operator as we have in English relative clauses for instance. This implies that two independent chains

are involved in the classic example of parasitic gap constructions like those considered in section 5.1. Thus the S-Structure of (53) repeated here as (53')(a) is (53')(b):

(53') (a) Òleẽ akwà Ngọzi kwèrè ọnụ Pro zụrụ t
which cloth Ngozi ? agree-Past mouth buy-rV(pst)
"Which cloth did Ngozi prize (before) buying?"

(b) Oleẽ akwà [Ngọzi kwèrè ọnụ t
which cloth Ngozi ?agree-rV(past) mouth
[O [PRO zụrụ t]]
buying
"Which cloth did Ngozi prize (before) buying?"

In (53'b) a chain is headed by *olee akwa* while another is headed by the empty operator (o) of the lower comp. Similarly in a case like (61) its S-Structure would look like (61')

(61') Ònye hùrụ òleẽ akwà, [O [zụrụ t]]
who see-rV(past) which cloth bought
"Who saw which cloth and bought?"

However in cases like (61') the *wh*-phrase is base generated. Therefore only one chain, i.e. that of the parasitic gap is present. In the cases of the standard parasitic gap construction, Chomsky postulates that the two independent chains form a single chain (Chain Composition). With respect to the single gap of the serializing/consecutivizing languages our postulation is that the relevant parameter ensures that the single chain is linked to the base generated operator in order to get the correct semantic reading. An important aspect of this analysis is that it lends support to the existence of two independent chains in the classic examples of parasitic gaps found in the literature. Without this postulation it will be unclear how cases like (61-63) would be analyzed. Furthermore, the fact that parasitic gaps are licensed by the postulated serialization/consecutivization parameter seems to confirm our suggestion that this parameter may be related to variables since, parasitic gaps are also licensed by variables.

2.8 Superiority effects in Igbo

The phenomenon of *superiority* first explored in Chomsky (1973) is now defined within GB terminology in terms of C-Command. Thus Lasnik & Uriagereka (1988:101) stating the Superiority Condition affirm that

> "... if α and ß are potential sources of the same movement on the same cycle, and α asymmetrically C-commands ß, α rather than ß moves. The subject asymmetrically C-commands the object, hence movement has to pick the subject."
> (p.101).

With respect to *wh*-movement, the implication is that when both the subject and object are questioned, it is the subject that is moved to specCP (at S-Structure). Let us see how the superiority condition operates in Igbo. Examples (64 a-b) manifest the said phenomenon.

(64) (a) Ònye [t hùrù gịnị]
who see-rV(past) what
"Who saw what?"

(b) * Gịnị hùrù ònye t
what see-rV(past) who

Sentence (64a) demonstrates that Igbo like English type languages obeys the Superiority Condition since *wh*-movement has picked up the subject and landed it in specCP while the object remains in situ. Notice that the data in (64 a-b) are cases of multiple *wh*-questions. Example (64b) is ruled out on the grounds of Superiority effects.

2.9 *Wh*-movement of adjuncts in Igbo

According to Chomsky's (1986b) definition of *proper government*, an adjunct unlike a complement can only satisfy the ECP requirement for *proper government* if it is antecedent-governed. In this respect adjuncts are similar to subjects. This is the basis of the subject/adjunct-object asymmetries which feature prominently in the literature. Consider examples (65) through (67):

(65) (a) Ì mèrè ya n'ihì gịnị
you di-rV(past) it why
"Why did you do it?"

(b) N' Ihì gịnị kà I jìrì mee yā t
Why that you Aux-rV(past) do-suff it
"Why did you do it?"

(66) (a) Òle mgbè i cèrè nà ha gà-ibīa
when you think-rV(assertive) that they Aux-to come
"When do you think that they will come?"

(b) [Òle ṁgbè [I cèrè [t [ha gà-ịbịa t]]]
when you think-rV(assertive) they Aux-to come
"When do you think they will come?"

(67) (a) N' Ihì gịnị kà Ezè jì-àjụ onye coro izu ewu
why that Eze Aux-ask who want-rV(assert) to buy goat
"Why is Eze asking who would like to buy a goat?"

(b) * N'Ihì gịnị kà [Ezè jì-àju [onye [t coro [t [PRO izu ewu t]]]]
why Eze Aux-ask who want-rV(assertive) to buy goat

(c) N' Ihi gini [Eze ji-aju t [Onye [t coro [PRO izu ewu]]]
why Eze Aux-ask who want-rV(assertive) buy goat
"Why is Eze asking who wants to buy a goat?"

The data in (65a-b) demonstrate one kind of similarity between object and adjunct *wh*-phrases in Igbo-French type languages. Both can either be left *in situ* or be *wh*-moved to Spec of CP. Example 66 (a) shows that, like in English-type languages, adjunct traces do not exhibit *that*-t effects. In (66a) the *wh*-moved adjunct appears to be too distant to properly govern its base position but (66b) shows that this is not the case. As we argued in Section 2.4 the complementizer *that* ,(or its Igbo equivalent) has no semantic content and is deletable at LF. The intermediate trace in (66b) is thus well motivated and the adjunct trace is properly antecedent governed. Sentence (67a) deserves special scrutiny. It is a grammatical Igbo sentence. It is not even mildly degraded. In (67b) the adjunct phrase is associated with the most deeply embedded clause. But here antecedent government in a chain is not possible, t is properly governed by t'. Similarly t' is antecedent governed by t2. But t2 is not antecedent governed by the *wh*-adjunct phrase in the Matrix specCP since the intermediate specCP is filled by the *wh*-phrase *onye*. Since there is no escape hatch for t2, the chain government is broken. The interpretation implicit in (67b) is thus correctly ruled out. But now look at (67c) in which *n'ihi gini* is construed with the matrix verb. Its trace is properly antecedent-governed by the adjunct phrase in the Spec of the matrix comp thus giving the desired reading. It is this that accounts for the grammaticality of (67a).

The behaviour of adjunct *wh*-phrases in our Igbo data confirms the claim in the literature that adjuncts can only undergo successive cyclic *wh*-movement whereas complements can undergo both successive cyclic *wh*-movement as well as long *wh*-movement. A theoretical explanation for this is offered by Chomsky (1986b). In the Barriers system the complement-adjunct asymmetries follows from the fact that adjuncts are categories in A-positions whereas complements are categories in A-positions.

However Rizzi (1990) as well as Koopman and Sportiche (1988) have pointed to the fact that there are counter examples to the claim that phrases in A-positions can undergo long *wh*-movement. Rizzi (1990) suggests that the basis of the adjunct-object asymmetries does *not* lie simply in A-positions

versus A'-positions but has to do with the nature of the θ-role involved. He claims that the target of long *wh*-movement are phrases receiving *referential* θ-role. In other words, that the adjunct phrases in our Igbo data cannot undergo long *wh*-movement is accounted for by the fact the relevant adjunct phrase in each example bears a non-referential θ-role. We shall therefore conclude this section by stating that *wh*-movement of adjuncts in Igbo-French type languages patterns that in English-type languages, since it is successive cyclic.

3 Summary and conclusion

We have presented a principled account of *wh*-movement in Igbo structures where move-*wh* is evident. Our investigation has revealed that *wh*-movement is optional in direct questions but obligatory in embedded questions, just in case the matrix verb is distinct from the verb *-si*, *say* or the matrix verb does not co-occur with the complementizer *si* which is homophonous to the verb *si*. In addition, move-*wh* is obligatory in relatives and cleft constructions.

Furthermore the investigation has given an interesting insight into the grammar of parasitic gaps by showing that these can be licensed by the Serializing/Consecutivizing parameter. Finally the investigation has shown that an in depth study of specific languages can give important insights into U.G. In particular, the present work has implications for the values associated with the parameter of move-*wh*. Our claim is that it is not possible to group Igbo-French type languages with either English type or Japanese-Chinese type languages since Igbo-French type shares some but not all the properties of each set. The generalization which emerges from our study is that move-*wh* has three rather than two switches which can be sketched roughly as follows:

+ syntactic *wh*-movement (Igbo-French languages)

+ syntactic *wh*-movement (English-type languages)

- syntactic *wh*-movement (Chinese-Japanese languages)

On empirical evidence therefore, we conclude that with respect to *wh*-movement, we have English type languages, Igbo-French type languages and Chinese-Japanese languages, a conclusion which is implicit in other work, such as that of van Riemsdijk and Williams (1988). There is no doubt that further research is needed in this interesting area of inquiry.

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