

ANAPHORA AND SEMANTIC INTERPRETATION IN IGBO

Abstract

This paper investigates the syntactic positions of anaphors and the possible semantic interpretations, which may be generated from those syntactic positions. The paper is significant because it is written as a litmus test to ascertain the applicability of the claims enunciated by the binding conditions and the empty category principle (ECP) of universal grammar to Igbo. It further investigates the relationship existing between the antecedent and the anaphor and the degree of freedom, which the anaphor gets from such a relationship. Finally, it discusses the level at which semantic interpretation is achieved thereto. In other words, it studies the level of syntactic description where full interpretation of antecedent anaphor relationship is realized, namely whether it is at the deep, surface or logical form.

1. Introduction

One of the parameters of universal grammar is to the effect that the lexical items of any languages, in the process of making meaning, establish dependency relations, which enable some lexical items to bind some other lexical items in the structure and ipso facto determine their meaning. However, in so doing, there are co-occurrence restrictions, which the lexical items observe. In observing the co-occurrence restrictions, kernel meanings may be generated and the pronominal anaphor escapes the binding condition, which checks co-indexation. Co-indexation is the marking of the antecedent and pronominal to determine their co-reference or otherwise. This paper studies the nature of anaphors in the language in relation to their antecedents and the degree of semantic freedom, which such anaphors exercise from their antecedents.

Igbo is a Niger Congo language in Eastern Nigeria in West Africa. It belongs to the Benue-Congo phylum. This phylum is under the Kwa group, which includes most of the West African languages. It is one of the three main Nigerian languages officially recognized and used as both a subject of study and a medium of instruction in Nigerian schools.

This paper is divided into six main sections. The first section is the introduction *which gives* a highlight of the content of the paper. The

second section is a theoretical enunciation on the claims of universal grammar (UG). The second is a discussion of the notion of government and its application to Igbo. The fourth section deals with the binding condition in syntax with its application to Igbo. The fifth section studies the level in which anaphora resides, that is, whether it is at the level of deep structure, surface structure or logical form. The final section is the summary of the findings and the summary of the paper.

2. Parameters of Universal Grammar

Universal grammar establishes some criteria or parameters for measuring whether a language is a human language or not. It believes that because a natural language is essentially human, all languages must of necessary consequence share common syntactic characteristics. The common properties, which all languages share form the content of universal grammar. Universal grammar as defined by Chomsky (1988) is a deductive science concerned with the immutable and general principles of language, principles that form part of common human nature and are the same as those that direct human reason in its intellectual operation.

The parameters of universal grammar in a nutshell include syntax, government, binding, theta function, movement, bounding and control. Each of the parameters embodies internal modules, which along with some other aligning principles work in harmony to make the operation of language possible. The parameters are believed to underlie all languages even though each language may observe each module with modification. The parameter that is relevant to this paper is government and binding. For a detailed study of the other parameters, see Chomsky (1981), Radford (1981), Ndimele (1992), and Mbah (2006).

In syntax, it is assumed that for a sentence to be well formed, the composite lexical items must follow a certain order with marked agreement features. In other words, given any pair of nodes X and Y in a syntactic structure, then for that syntactic structure to be well formed, either X must precede or dominate Y or Y must precede or dominate X. The agreement feature is a feature of well-formedness. In other words, without the condition, the syntactic pattern will not be well formed.

When the well-formedness condition is in place, it establishes dependency relation or ranking among the items comprising the sentence structure. In addition to the above condition, meaning will not be generated if they do not exert interactive government among themselves. The well-formedness condition is formalized in Mbah (2006) as follows:

Well-formedness Condition in Phrase Marker (PM)

Given any pair of nodes X and Y in PM, that PM demands well-formedness namely that either X precedes or dominates Y, or Y precedes or dominates X.

Another well-formedness condition is that for the interactive government relationship to take place, the lexical item (governor or antecedent) exerting dominance relation over another lexical item must be within its sphere of influence to exercise jurisdiction over the governed lexical item (anaphor or governee). The interaction between the governor and the governee is stated formally in the following way:

Government

α is the governing category of β if α is the minimal category containing β

The minimal category, which makes government possible is generally assumed to be the noun phrase (NP), the complement phrase (S^1) and the sentence (S). For a detailed study of *minimal category*, see Jackendoff (1977). The minimal category generally coincides with bounding nodes across languages. When the elements X and Y are within a governing category, X or Y may be the governor or Y or X a subject accessible to each other depending on whether the language is right or left branching. In other words, it depends on whether the language observes precedence or subsequent command. For a detailed study of precedence or subsequence command, see Reinhart (1985) and Mbah (2001). Another well-formedness condition implies that if X is a governor of Y or otherwise, then X is accessible to Y or Y is accessible to X. The above well-formedness condition flows from the principle of accessibility, which holds *inter alia*:

Accessibility

α is accessible to β if α constituent-commands β and the assignment of the referential index α to β does not lead to a violation of the *i-within -i condition* (cf Cullicover (1997))

The implication of the accessibility condition is that both the elements, which are within the governing category and which exercise government relationship between themselves refer to one and the same entity and the governed item is within the domain of governor, that is, the governee and governor respectively.

i-within -i Condition

[Y... δ ...] Y

where Y and δ have the same index

(cf Cullicover (1997))

In other words, for a node to be accessible to another, such a node must be within the domain of application of such other. The rule on application of the rule is summarized in the following schema

Domain of application

The domain of application of any rule is the minimal category dominating every constituent involved in the application of the rule (where minimal means lowest in the phrase marker)

The domain of application is thus crucial to the operation of the government and binding theories. These principles are a sine qua non in determining the status of anaphors and their relationships with other lexical items in the language. Let us examine these concepts in the literature.

3. Government

The theory of government centres on the empty category principle (ECP). ECP states that an empty category must be properly bound in the clause containing it. In other words, government assigns semantic roles to the constituents of the syntactic structure. Government is stated as follows

Government

X governs Y if X is the minimal potential governor commanding Y, and there is no intervening S-bar or NP barrier between X and Y where governors are listed as follows:

Governors

(a) X^0 (N, V, A, P)

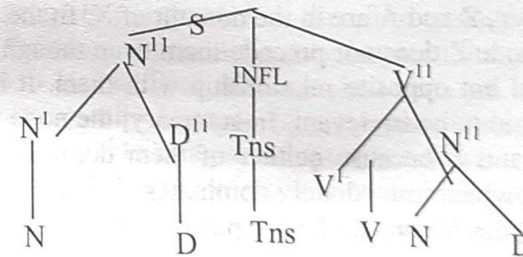
(b) INFL [+tone [tense] AGR] INFL

(c) NP_i where Y (the governee) = NP_i

See Reinhart (1983), Riemsdijk and van Williams (1986), Chomsky (1992) and Mbah (2006)

The governor of a lexical item necessarily dominates it. Dominance is said to exist between two lexical items if one of them occurs on top of the other one and there is no node intervening between them in a phrase marker. A dominated item and its dominator are usually linked by an unbroken line. In the following figure, the principle of dominance is elucidated.

Fig. 1



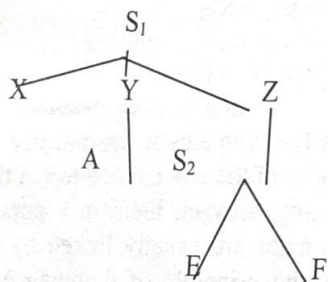
In Fig. 1, the node S dominates the nodes N^{11} , INFL and V^{11} . N^{11} dominates N^1 and D^{11} . INFL dominates Tns while V^{11} dominates V^1 and N^{11} . When a lexical item dominates another lexical item, it may simultaneously constituent-command it. In other words, it may occur adjacent to it so that government or dominance or both may be enabled. The principle of constituent-command (hereafter c-command) is stated as follows:

C-command

A node Y c-commands another node δ if neither Y nor δ dominates the other and the sentence node (S-node) most immediately dominating Y also dominates δ (order irrelevant).

Let us examine Fig. 2 to see how the principle of c-command works:

Fig. 2



In Fig. 2, the domain of the node X is inclusive of all the other nodes of S_1 . The reason is that X precedes and c-commands Y, Z, A, S_2 , E, and F. Put differently, the nodes Y, Z and A are in the domain of X. In the same vein, the domain of the node Z does not precede them even though both of them exercise an equal but opposite relationship with them. It is the reason why the order is said to be irrelevant. In summary, the node X, c-commands the nodes Y and Z because neither of them dominates the other. Furthermore the S_1 , which immediately dominates X also immediately dominates nodes Y and Z. Two types of government have been distinguished:

Lexical Government

Lexical government requires that a lexical item be the head of its complement. This type of government includes traces and their antecedents bearing identical indices. Because there is a high level of intimacy between the governor and the governee, the type of government has come to be known as proper government. Proper government is formulated formally as

Proper Government

X properly governs Y if X governs Y, and X is the lexical head or X is the antecedent of (and is co-indexed with) Y
(see Mbah (2006))

The following examples drawn from Igbo illustrate the principle of proper government:

1. (a) Okeke, s_i na ya, $huru$ onye?
Okeke, say that he, seepast whom
Okeke said that he saw whom?
- (b) Onye, ka Okeke s_i na ya $huru$ t_i ?
Whom $_i$ that Okeke say that he seepast t_i ?
Whom did Okeke say that he saw?

In the above example, the lexical item *Okeke* governs *ya*. They share the referential index and are therefore the same and one person. In 1(b), Onye, which is the logical object of the sentence is focused and has therefore occupied the grammatical subject position. It leaves behind a trace in its original logical object position. By the principle of ECP, it must be properly governed. It is therefore co-indexed with t_i (its trace). There is therefore a clear difference between the traces in 1(a) and 1(b). The trace in 1(a) is filled with a lexical item, *ya*. It is consequently said to be phonologically filled. In 1(b), the trace is not phonologically filled. It is therefore said to be a phonologically null trace.

It is necessary to point out that the above exemplification appears to violate the formulation of government theory and c-command formulated above. Example 1 presents a case where there is an

intervening node between the antecedent (governor) and the anaphor (governee) yet the governee is not too far from the governor and is consequently within its domain of application. In the above example, the intervening S¹ node is a transparent node and therefore not a barrier to government. In the emerging standard variety of Igbo, there exist examples, which resemble what occurs in English and some other languages, e.g.

2. (a) Okeke_i s_i na o_{ij} h_{ur}u onye?
 Okeke_i say that he_{ij} seepast who
 Okeke_i said that he_{ij} saw whom?
- (b) Onye ka Okeke_i s_i na o_{ij} h_{ur}u t?
 Who that Okeke say that he seepast
 Whom did Okeke_i say that he_{ij} saw t?

In example 2(a), the logical subject of the sentence (Okeke) may be interpreted as either co-referential with or disjoint from the anaphor (o). The same is true of 2(b). In example 2, the theories of government and c-command become true in the sense that the S-bar has intervened between the governor and the governee and therefore amenable to disjoint reference.

In certain syntactic structures with an unfilled subject position (tensed S-clauses), the raising of the subject of the subordinate clause to the matrix subject position leaves behind a trace. Let us examine example 3.

3. (a) Ndi ole ka unu chere na Okoye l_usara o_{gu}
 People which that you (p1) thinkpast that Okoye wageagainstpast war
 Which people did you think that Okoye fought?
- (b) Ndi ole ka unu chere Okoye l_usara o_{gu}?

Examples 3 are capable of the following semantic interpretations:

4. (a) Ndi ole ka unu chere [na [Okoye l_usara o_{gu}]]?

People which that you (p1) thinkpast that Okoye wageagainstpast war
 Which people did you think that Okoye fought?

- (b) Ndi ole ka unu chere [[Okoye l_usara o_{gu}]]?
 Which people did you think that Okoye fought?

The verb che in Igbo is one of the verbs that do not subcategorise subjects at their underlying structure. That being the case, at the underlying structure, the matrix subject position is empty:

5. (a) e ka unu chere [na [Okoye l_usara ndi ole o_{gu}]]?
 People which that you (p1) thinkpast that Okoye wageagainstpast war
 Which people did think that Okoye fought?

- (b) e ka unu chere [Okoye [l_usara ndi ole o_{gu}]]?
 Which people did you think Okoye fought?

In example 5, the that-clause, which is marked by na is the complement of the verb che (think). However, na which is the head of the complement clause contained in the subcategorized clause is not the governor of *ndi ole*. In other words, the governor, if any, is outside that clause. Because the matrix subject position is empty, and because the vital rule in sentence projection, namely projection principle, stipulates that a sentence must have a subject, raising a subject to fill the subject position becomes imperative. The logical object is inevitably moved to the grammatical subject position (cf Mbah (2006)). When this happens, then example 6 with its semantic interpretation results:

6. (a) [Ndi ole]_i ka unu chere [na [Okoye l_usara t_i o_{gu}]]?
 People which that you (p1) thinkpast that Okoye wageagainstpast war
 Which people did think that Okoye fought?
- (b) [Ndi ole]_i ka unu chere [[Okoye l_usara t_i o_{gu}]]?
 Which people did you think Okoye fought?

In example 6, if the head of the na-clause (na) is divorced from the clause, the construction becomes ungrammatical. This is so because the following interpretation will be implied:

7. (a) * $[Ndi\ ole]_i$ ka unu chere $[na\ t_i\ l\usara\ Okoye\ o\gu]$?
 People which that you (p1) thinkpast that Okoye wageagainstpast war
 Which people did you think fought Okoye?

(b) $[Ndi\ ole]_i$ ka unu chere $[[t_i\ l\usara\ Okoye\ o\gu]]$?
 Which people did you think Okoye fought?

Example 7(a) demonstrates that the trace (t) is supposed to be lexically governed. This claim is so because it cannot be co-indexed with the wh-head. On the other hand, 7(b) shows a situation where the absence of the wh-complementiser makes co-reference possible between the wh-head and its trace. Consequently, it becomes lexically governed in that position. As a result, while 7(a) is ungrammatical, 7(b) is grammatical; (see also Mbah (2006))

The antecedent in 7(a), that is, *ndi ole* does not govern the trace t_i but there is antecedent government in 7(b). Antecedent government is formulated as

Antecedent Government

X antecedent governs Y if X binds Y and X and Y are not too far apart
 Too far is:

Too Far

X is too far from Y if X is contained in an S^1 node that does not contain Y

In example 7(a), the antecedent *ndi ole* is too far from the anaphor t_i . This distance created by the intervening S^1 node blocks co-reference. Consequently, neither binding nor government takes place. The na-clause is absent in 7(b). This absence makes both the antecedent and the anaphor lie within the same domain to enable a government relationship to exist between them. The following principles can therefore be said to hold of antecedent government in Igbo

Antecedent Government in Igbo

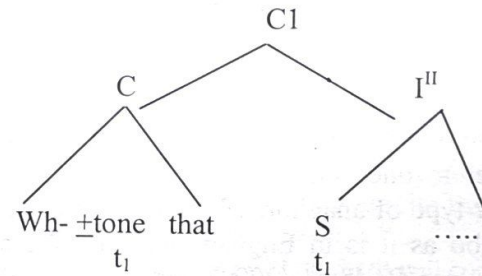
- (a) A nominative anaphor must be bound inside its clause (see binding)
- (b) The presence of the n-clause prevents the trace from being bound in its clause; S^1 is a barrier to antecedent government

INFL (action) Government

Inflection government (INFL government) is characterized by van Riemsdijk and Williams (1986) and Mbah (2006) to include the following:

- (a) It is not proper government. This is because it is not lexical government
- (b) It governs the subject position in the following configuration

Fig. 3



Mbah (2006) posits that the trace in the subject position and the element in the complement phrase (COMP) must be co-indexed, otherwise the complementiser *that* or some other wh-phrase or its trace with a different referential index could serve as governor, hence disjoint reference will be imputed. In addition, the trace in the subject position must have case since it is the subject of a tensed clause, which is assigned case under the normal definition of case theory, e.g.

- 8. $[Okeke\ na\ Okaf\o]_i$ tosiri na $[ha]_i$ ga-abya
 Okeke and Okafor fitbe that they will come
 Okeke and Okafo are supposed to come

In 8, the subject and the trace are co-referential. They therefore share the same agreement feature [+plural]. See also van Valin, and Lapolla (1997). As such, +number, which is an element of INFL, governs both the subject and the trace (See also Mbah (1989)).

4. Binding

Binding determines the semantic relationship of anaphors and pronominals, if any. Radford (1981) has identified three types of noun phrase. The first is the anaphor, which he defines as "an NP, which can have independent reference, but rather which takes its reference from some other expression in the sentence, the antecedent" There are two types of the anaphor. They are the reflexive and the reciprocal anaphor. In Igbo, the reflexive anaphor takes its meaning from its antecedent and serves as the object of the same antecedent, e.g.

9. [Okeke]_i hụrụ [onwe ya]_i
 Okeke seepast selfhim
 Okeke saw himself

In 9, *Okeke* and *onwe ya* refer to one and the same entity. They are therefore co-indexed. The other type of anaphor, which is the reciprocal anaphor, is not clear-cut in Igbo as it is in English (for reflexive and reciprocal anaphors in English, see Radford (2004) and Mbah (2006). The grammatical marker of reciprocity in Igbo is *rita/rite*. Reflexive constructions in Igbo may as well be interpreted as reciprocal construction, e.g.

10. Oge na Odo hụrụ onwe ha n'anya
 Oge and Odo see self them in eye
 Oge and Odo love themselves

The interpretation of 10 may be that Oge loves herself and Odo loves himself or that Odo and Oge love each other. In other words, Oge loves Odo and Odo loves Oge. Reflexive may be interpreted as being reciprocal but the reverse is not the case, e.g.

11. Oge na Odo marịtara onwe ha ụra
 Oge and Odo slapeachother self them slap
 Oge and Odo slapped each other
 Oge and Odo each slapped himself

The example in 11 is a reciprocal expression, that is, Oge slapped Odo and Odo slapped Oge. No reflexive interpretation may be imported into its meaning.

The second type of the NP is the pronominal. *Pronominal* refers to personal pronouns. It is generally stated to be free, that is not bound, in the clause in which it is contained, e.g.

12. (a) O siri ya
 He/She cookpast it
 He/She cooked it
- (b) Unu hụrụ ha
 You (pl) see past them
 You saw them

In 12, all the pronouns are free and cannot be co-indexed with any other pronominal or nominal within the clause. However, when the pronominal is outside the clause, it may or may not be free:

12. Okonkwọ sị na ọ ga-abya
 Okonkwo say that he/she/it will come
 Okonkwo says that he/she/it will come

In 12, the subject or the sentence *Okonkwọ* is not contained in the same clause as the pronominal *ọ*. The complement head *na* intervenes between them. Since they are not contained in the same clause, they may be interpreted to refer to the same or different persons. These semantic possibilities are reflected in 13

13. Okonkwọ_i sị na ọ_{ij} ga-abya
 Okonkwo say that he/she/it will come
 Okonkwo says that he/she/it will come

In 13, ϕ may be interpreted to be co-referential with Okonkwo or it may refer to some other person than Okonkwo. Indeed, the more clauses that are generated, the more the possibility of disjoint reference between the antecedent and the anaphor. Example 14 is illustrative of this claim.

14. Okonkw ϕ_i s i na ϕ_{ij} s i na ϕ_{ijk} ga-abya
 Okonkw ϕ say that he/she will come
 Okonkw ϕ says that he/she/it will come

In 14, while the first pronominal may refer to the antecedent or a person different from him, the second pronominal may refer to a person who is neither the person referred to in the antecedent or the first pronominal. When a pronominal does not take its semantic interpretation from an antecedent whether nominal or pronominal but has an independent reference, it is said to be deictic or obviate.

The third type of noun phrase is the lexical NP or referential expression. The referential expression is free in all its positions in a sentence, e.g.

15. Okonkw ϕ ch ϕ Okonkw ϕ
 Okonkw ϕ wants Okonkw ϕ

In 15, even though there are two Okonkw ϕ , both of them are interpreted as two separate individuals with their individual references. They are free though they are contained in the same clause. From the above discussion, three binding conditions can be deduced, namely:

Binding condition

- A bound anaphor (or a potentially anaphoric item in an environment of bound anaphora) must be bound in the smallest domain of a subject in which it occurs.
- A pronoun must be free in the smallest domain of a subject in which it occurs
- A lexical NP must be free in all domains (where "domain of" is formulated as: X is in the domain of Y if $X=Y$ and Y c-commands X) (Culled from van Riemsdijk and Williams (1986 p. 191))

5. Level of Operation of Government and Binding Theory

The theory of government and binding has been thought to operate at the surface structure level. See Riemsdijk and Williams (1986). Current research appears to support the idea that it is at the level of logical form (LF) that interpretation resides. Chomsky (1992) argues so. Logical form claims that some aspects of sentence meaning should be characterized in terms of the structure of the sentence above word level. Furthermore, it is also contended that the laws of meaning that hold above and below word levels are quite different from each other and belong to different theses of meaning. Logical form is derived from the surface structure. This claim appears true in the sense that the rules at LF are basically defined by indexation rules. Indexation relates argument positions to one another. The rule of indexation is "co-index two or more NPs under appropriate conditions, structural or otherwise, thus indicating the sameness or distinctness of variables" (cf van Riemsdijk and Williams (1986))

Chomsky (1992) argues that the operation of rules at the level of LF concretizes and spells out clearly what legitimate objects are. He claims that legitimate objects are assumed to be at least chains in the following form:

Chain

$$C = (\alpha_i \dots \alpha_n)$$

where C is a head, an argument, a modifier or an operator-variable construction.

It is also argued that a representation L satisfies full interpretation (F) at LF if it comprises entirely legitimate objects otherwise it crashes. The following illustration taken from Mbah (2006) is to the effect that binding conditions operate at LF rather than surface structure;

- 16 (a) Ha juritara ihe ha cheritara maka onwe ha ha kwuputara
 They askoneanotherpast thing they thought about self them
 they uttered think....utter?
 They asked what they thought about themselves that they uttered

- (b) O gbara Odo gharị bụ foto onwe ya Ngozi miri
 It surprises Odo which picture self him/her Ngozi slipped away
 It surprised Odo which picture of himself/herself Ngozi took away.

In 16 (a), the anaphor *ha* can take its antecedent from either the matrix or embedded clause. In 16(b) also, *ya* may refer to Odo or Ngozi. If we follow the copy theory, 17 will result

- 17 (a) Ha juru [ihe ha cheritara maka onwe ha][ha kwuputara ihe hacheritara maka onwe ha]
 They ask-past [thing they think-each-other-past about selfthem] [they say-out-past thing they think-each other about self them]
 They asked [what they thought about themselves][they confessed]

- (b) O gbara Odo gharị [bụ foto onwe ya][Ngozi miri foto onwe ya]
 It set Odo surprise [which picture self him][Ngozi draw-past picture self him/her] It surprised Odo which picture of him/her that Ngozi took

As 17 present two optional structures, LF principles map 17(a) to 18(a) and 18(b) and 19(a) to 19(b)

- 18(a) Ha juru [ihe ha cheritara maka onwe ha][wh-t][ha wuputara ihe ha cheritara maka onwe ha][wh-t]
 They asked [what they thought about themselves][which-t] [they confessed what they thought about themselves]
 (b) Ha juru [ihe[wh-t]] ha cheriara maka onwe ha [ha kwuputara ihe][wh-t ha cheritara maka onwe ha]
 [They asked [wh-t] [they thought about themselves] [they confessed] [wh-t] they thought about themselves]

18(a) and 18(b) have the following interpretation:

- 19(a) Ha juru [olee X, X ihe cheritara maka onwe ha] [ha kwuputara X]
 They asked [which X, X that which they thought about themselves] [they confessed]
 Ha juru [olee X] [ha kwuputara [X ha cheritara maka onwe ha]
 They asked [which X][they confessed][X what they thought about themselves]

From whichever angle we may look at the structures, *ha* may take its antecedent from either the subject of the embedded or matrix clause. A similar analysis applies to 17(b). If we select either *onwe ha* as referring to *ha* of the matrix sentence or the embedded clause, the interpretation refers to *ha* of either the matrix or embedded clause respectively. If the interpretation were at the surface structure, then *ha* of the matrix clause would be the antecedent of *onwe ha* in 17. Binding conditions are therefore assumed to take place at the LF.

6. Summary of Findings and Conclusion

Universal grammar contends that every language must have certain common properties with other natural languages. The common properties include word order, lexical function, government, binding, movement, bounding, and control. Each language does not realize these features in its grammar the same way as the others even though some of the languages may well share some of the features. This paper has considered how two of the parameters, namely government and binding apply to the Igbo language. Apart from the fact that they are related, one syntactic principle underlies them, that is, the empty category principle. The principle states that an anaphor must be properly governed. For a lexical item to be governed, it must as well be bound. This paper has discovered that it is not always the case that an anaphor is bound even in syntactic slots where the case will be true is some other languages like English. For example when the third person singular (object) (*ya*) or indeed any pronominal of similar effect is used even across clauses, government and binding operate and there is co-reference therein. This kind of construction is not acceptable in English. Here, we have suggested that since the head of the clause, which would have ordinarily blocked co-reference, has failed to do so, the only possible imputation is that the supposed barrier which ought to have but did not block grammaticality is transparent. Furthermore, in instances where any of the pronouns is not in the object state, it is also free in the minimal clause containing it but across clause, it may be interpreted as disjoint or co-referential to the antecedent. Indeed, it is observed that the more the

number of clauses generated, the more the possibility of disjoint reference from the antecedent. Finally, two types of anaphors have been identified in this paper: they are the phonologically empty and the phonologically filled anaphors. Of the phonologically filled ones, there are the reflexive and reciprocal anaphors. Another finding which departs from the structure of English is that in Igbo reflexive anaphors may be interpreted to be reciprocal but the reciprocal anaphors cannot be so interpreted. Again, there are three types of noun phrase: the lexical NP or referential expression, the pronominal and the reflexive. Finally, binding conditions are believed to take place at LF.

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