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The null operator is reported to be different from all other operators in a non-trivial way (see Yeo 1998). Apart from the fact that it is null- probably a PRO in an A-bar position (see Browning 1987) - it has some other properties that the other operators do not share with it. For example unlike wh-phrases like *who* (which requires a person) and *what* (which requires a thing), a null operator does not put any restrictions on what could be its referent (see Yeo 1998):

- (1) a. Who does John like?  
Bill/\*An apple.
- b. What does John like?  
\*Bill/An apple
- (2) a. An apple is difficult [NO [PRO to like t]]  
b. John is difficult [NO [PRO to like t]]

(Yeo 1998: 327)

Furthermore, a null operator is usually base-generated in an object position (Yeo 1998: 329). Consider the examples in (3) adapted from Yeo's work.

- (3) a. The girl is easy [NO [PRO to please t]]  
b. \*The girl is easy [NO [t to please Bill]]  
c. The theory is hard for us [NO [PRO to believe t]]



- d. \*The theory is hard for us [NO [PRO to believe [t to be true]]]

I show in chapter 3 of this work that the inability of the null operator to occur in a subject position has some non-trivial consequences for Yoruba syntax with respect to satisfying the EPP requirements of INFL.

Another property of the null operator that has been identified in the literature is the fact that null operators do not induce weak crossover effects (Lasnik and Stowell 1991):

- (4) \*Mary asked me [who<sub>i</sub> [PRO to persuade [his<sub>i</sub> mother]][PRO to vouch for t<sub>i</sub>]]  
 (5) Who<sub>i</sub> should be easy [NO<sub>i</sub> [to persuade [his<sub>i</sub> mother]][PRO to vouch for t<sub>i</sub>]]

This property of null operators will play a central role in chapter 2 of this work.

I show in this dissertation that the properties identified above for null operators among others are also true in Yoruba. More than that, I show that Yoruba makes extensive use of null operators in constructions –e.g. wh- and focus constructions- that have received construction specific analyses in the literature. This realization leads to a unified account for the constructions in question.

Our characterization of null operators in Yoruba diverges from Yeo's (1998:324) assumption that null operators cannot satisfy the wh-criterion in syntax (cf. Rizzi 1991). For example, I show that Yoruba uses only null operator movement in the derivation of its particular version of wh-questions. Thus, a null operator can occur in the Spec CP of an interrogative complementizer (C<sub>0</sub>)

- (6) Kí<sub>i</sub> ni [CP NO<sub>i</sub> C<sub>Q</sub> Adé rà t<sub>i</sub> ]  
 what be Ade buy  
 ‘what did Ade buy?’

## 1.2 The Yoruba Personal Pronouns

In addition to null operators, the other major player – in this dissertation- will be personal pronouns in Yoruba. Much work has been done on pronouns in the literature.<sup>3</sup> In general, it is assumed that every language has pronouns, although they may behave in somewhat different ways from one language to another (Bresnan 1998). Following Safir (2004a), we assume in this work that pronouns can be described as reduced names or definite descriptions consisting only of grammatical features.

If one adopts Bresnan’s (1998) classification, there are five morphological types of pronouns. A minimally modified version of her list is given in (7).

- (7) a. Zero/null pronouns  
 b. bound pronouns  
 c. clitics  
 d. weak pronouns  
 e. independent/strong pronouns

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<sup>3</sup> The reader is referred to Bresnan (1998), and Safir (2004 a) and (2004b) among others.

Considering the fact that the first four types (7a-d) are considered to be reduced forms of the independent pronouns, they could be classified as super-reduced names or definite descriptions.

Our main interest lies in the Yoruba personal pronouns. These have been divided into two classes: clitics/weak pronouns and independent/strong pronouns (Pulleyblank 1986). This suggests that Yoruba has two morphological sets of pronouns - weak and strong- in contrast to English, which has only one set of pronouns morphologically. This subtle distinction will be useful in this work as we try to understand why the Yoruba pronouns differ from the English pronouns in some syntactic respects. We give an inventory of the Yoruba personal pronouns in table (8).

(8)

	Strong Pronouns		Weak pronouns		
	NOM/ACC	GEN	NOM	ACC <sup>4</sup>	GEN <sup>5</sup>
1 <sup>st</sup> Singular	èmi	èmi	mo	mí	L+ mi
2 <sup>nd</sup> Singular	ìwọ	ìrẹ	o	ọ / ẹ	L+rẹ
3 <sup>rd</sup> Singular	òun <sup>6</sup>	tirẹ <sup>7</sup> /oun	ó	un / V	M+rẹ
1 <sup>st</sup> Plural	àwa	àwa	a	wá	M+wa
2 <sup>nd</sup> Plural	ẹyin	ẹyin	ẹ	yín	M+yín
3 <sup>rd</sup> Plural	àwọn	àwọn	wọn	wọn	M+wọn

There have been numerous studies of the Yoruba pronouns (See Bamgbose 1967, 1990, Awobuluyi 1978, Pulleyblank 1986, Manfredi 1987, 1995, Akinlabi and Liberman 2000, Adesola 1999, 2001, Dechaine 2001, Dechaine and Witschko 2002 and Ajiboye 2003 among others). All sources agree that the distinction between weak and strong pronouns is important. The two kinds of pronouns have morphological and syntactic similarities and differences. Some analysts, including Pulleyblank (1986) classify Yoruba weak pronouns as clitics<sup>8</sup> because of their morpho-syntactic features. Basically, the weak pronouns are monosyllabic in the language, whereas the strong pronouns are independent

<sup>4</sup> We follow Akinlabi and Liberman (2000)'s assumption here that the clitics have high tone underlyingly.

<sup>5</sup> We follow Manfredi (1995)'s notation here.

<sup>6</sup> Manfredi (1995) assumes that this item is not a pronoun because it can act as a conjunction etc. We assume that it is necessary to appeal to homophony here.

<sup>7</sup> The genitive case marker **ti** is obligatory with the 3<sup>rd</sup> Singular genitive

<sup>8</sup> See Dechaine (2001) for a detailed discussion of Yoruba clitics.

phonological words. They are analyzed as nouns by Awobuluyi (1978) and Bamgbose (1990) because they have the phonological structure and functions of a canonical noun in the language. They also count as what Safir (2004a) describes as tonic pronouns.

What differs systematically among the authors' accounts is the characterization of how the pronouns are derived and their status in *wh*-questions, focus constructions and logophoric constructions. Of all the personal pronouns, the status of the third person (singular) pronoun has been the most controversial. Whereas, Awobuluyi (1999) claims that the so-called third person singular pronoun *ó* is not a pronoun in any context, Bamgbose (1990:114) considers it to be a pronoun. In Dechaine's (1992) account, *ó* is an agreement marker. The strong counterpart of the third person singular pronoun *òun* generates the same level of controversy. For example, Manfredi (1995) claims that it is not a pronoun while Bisang and Sonaya (1999) consider it to be a name. Abstracting away from the controversies, this dissertation will make use of the basic fact that Yoruba has weak and strong pronouns. Their dependency requirements are taken to be central to the way they behave in Yoruba syntax. In this dissertation, the contrast between weak and strong pronouns will be particularly important in chapter 4 when we investigate logophoricity in Yoruba.

Most of the remainder of this dissertation will focus on the third person pronouns, which enter into the widest set of dependency relationships.

Next, we comment briefly on the interaction of null operators and pronouns in syntax.

### 1.3 Null Operators and Pronouns

Pronouns have featured prominently in the discussions on how referents are tracked in discourse across languages. This extends to abstract phenomenon such as the weak crossover effects. However, until Lasnik and Stowell (1991) no one paid much attention to the distinctive impact of null operator in some of the configurations where pronouns are found. Lasnik and Stowell note that moving a null operator across a pronoun that depends on it does not induce weak crossover effects. The extension of weak crossover domain to the so-called superiority effects in Hornstein (1995, 2001) also opens another door to observing how operators and pronouns interact. The present work is the first to investigate the interaction of null operators and pronouns with respect to the so-called superiority effect. The present work is also the first to examine the near absence of weak crossover effects in Yoruba.

Another context in which researchers have examined the interaction of pronouns and operators is in the consideration of resumptive constructions - See for example Aoun, Choueri and Hornstein (2001), Ntelitheos (2002), McCloskey (2002). In the present work, we assume that null operator movement cannot be resumed – copy of a null operator cannot be replaced with a resumptive pronoun in its extraction site. I show, following Pesetsky (2000) that only feature movement leaves resumptive pronouns. As a result, null operator movement does not lead to reconstruction effects.

Another type of construction in which researchers have observed interesting interactions between pronouns and null operators is the logophoric construction (see Koopman and Sportiche 1989 among others). We assume following such work that

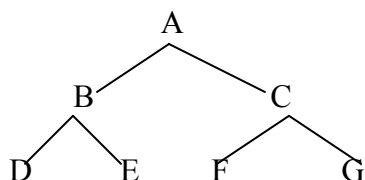
understanding the relationship between pronouns and null operators is essential to understanding what happens in logophoric constructions.

In general, we assume in this work that the structural relationship between pronouns and the operators that they interact with is important for understanding the impact of their interaction in syntax. The structural relationship that is relevant here is c-command. This is because the null operator must take scope over the pronoun before its effect can be observed. A null operator - derived or base generated - must c-command the pronoun that depends on it.<sup>9</sup> In the present work, we assume that for A to bind B, A must c-command B. This relation is defined in Chomsky (1995:35) as in (9).

(9) **C-command**

$\alpha$  c-commands  $\beta$  if  $\alpha$  does not dominate  $\beta$  and every  $\gamma$  that dominates  $\alpha$  dominates  $\beta$ .

(10)



For example, in (10), B c-commands C, F, and G. C c-commands B, D and E while D c-commands E and conversely (Chomsky 1995:35).

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<sup>9</sup>Following standard assumptions, we take binding to be co-indexation plus c-command. Safir (2004a) notes though that dependency does not require c-command. However, in all the data given in this work, A c-commands B wherever B depends on A. Thus, we will use the terms “A binds B” and “B depends on A” interchangeably.

Once a null operator c-commands a pronoun, the pronoun can potentially depend on it.<sup>10</sup> The dependency relationship can be characterized as in (11).

- (11) **Dependency:** A depends on B if A does not c-command B, and A's referential value is determined as a function of the interpretive content of B.

We assume, following Safir (2004a), that dependency relations are regulated by the Form to Interpretation Principle, such that only the most dependent form that is available among the elements on the scale in (12b) can be used to express a dependent reading in each situation.

- (12) a. **Form to Interpretation Principle (FTIP)**

If x c-commands y and z is not the most dependent form available in position y with respect to x, then y cannot be directly dependent on x.

- b. **Most Dependent Scale:** syntactic anaphor >> pronoun >> name

(Safir 2004c)

Next we survey some of the problems that we plan to address in this dissertation.

Our goal is to show that each of the puzzles can be resolved once we have a full understanding of how null operators interact with personal pronouns.

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<sup>10</sup> We will describe the relationship between a null operator and the pronoun that depends on it in terms of dependency in this dissertation. (See Safir (2004b) for more on dependency relations). However, we would still be using the more familiar traditional binding theory terms when they do not conflict with the dependency notion. Also, for the most part, we will use indices to represent the dependency relations that are identified in this dissertation. That is not to say that indices have official theoretical status in this work.



#### 1.4 The Puzzles

The following sentences, which are not acceptable in English and many other languages, are perfectly acceptable in Yoruba.

##### Set One:

13. (a) Ta<sub>j</sub> ni ìyá rẹ̀<sub>j</sub> fẹ̀ràn t<sub>j</sub> ?

who be mother his like

‘who does his mother like?’ (*bad in English on the bound reading*)

(b). Kí<sub>j</sub> ni o fún olówó rẹ̀<sub>j</sub> t<sub>j</sub> ?

what be you give owner its

‘what did you give its owner?’ (*bad in English on the bound reading*)

##### Set Two:

14. (a) Kí ni ta ni rà ?

what be who buy

‘what did who buy?’ (*bad in English*)

(b) Kí<sub>k</sub> ni o fún tani t<sub>k</sub> ?

what be you give who

‘what did you give who?’ (*bad in English*)

The unacceptability of the examples in (13) in English and many other languages has been used to illustrate the effect of the Weak Crossover Condition in Universal Grammar (see Koopman and Sportiche 1982, Safir 1984, 2004). In a similar way, the unacceptability of the examples in (14) in English has been ascribed to the effect of the so-called superiority condition (see Kuno and Robinson 1972, Chomsky 1973). The

acceptability of the two sets of examples in Yoruba suggests that Superiority and Weak Crossover Effects are probably not universal. It is legitimate therefore to ask questions about why the effects of these two syntactic conditions, which regulate A-bar phenomena seem to collapse in Yoruba.

Furthermore, the following example, which is not acceptable in English is perfectly acceptable in Yoruba among other languages:

**Set Three:**

(15) Ta ni ìyá rẹ̀ rí Olú

who be mother his/her see Olu

‘who did his mother see Olu’ (*bad in English*)

The unacceptability of (15) could be ascribed to an illicit wh-movement. In essence (15) could be said to have violated the so-called subject condition, which prohibits moving a phrase out of a subject. The relevant question here is why the sentence is acceptable in Yoruba. We assume that the sentence is acceptable because of the presence of a resumptive pronoun in the extraction site.<sup>11</sup> As noted earlier, only feature movement leaves resumptive pronouns. Although, null operator movement is the preferred operation in the derivation of questions in Yoruba, feature movement is used when null operator movement is not available – from inside an island.

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<sup>11</sup> The impossibility of a resumptive pronoun in the English counterpart of (15) might be related to the restrictions on the use of resumptive pronoun in English questions as opposed to relative clauses, in which English allows resumptive pronouns (Safir 1986). Thus, if the Yoruba question as in (15) are indeed a sort of cleft as analyzed in this dissertation then it makes sense that Yoruba allows resumptive pronouns in its questions. Clefts are more like relative clauses than wh-questions.

In contrast to the sets of example given in (13) through (15), there are some sentence interpretations that are supported in English and other languages, which Yoruba restricts. For example, the following examples, which are bad in Yoruba on the bound reading indicated by the indices, are acceptable in English:

**Set Four:**

- (16) a. \* Olú<sub>i</sub> sọ pé ó<sub>i</sub> rí bàbá òun<sub>i</sub>  
           Olu say that he see father him  
           ‘Olu<sub>i</sub> said that he<sub>i</sub> saw his<sub>i</sub> father’
- b. \*Olu<sub>i</sub> gbà kí ó<sub>i</sub> rí bàbá òun<sub>i</sub>  
           Olu accept that he see father him  
           ‘Olu agreed that he should see his father’

The unacceptability of the examples such as (16) has been described as an (anti)logophoric effect in the literature (Hagege (1974) and Clements (1975)). Several analyses have been proposed to account for such sentences in Yoruba.<sup>12</sup>

The four sets of examples that we have given above raise interesting questions about restrictions on the interpretive and the dependency patterns that are allowed in Yoruba. Whereas some work has been done on how to explain the paradigm in (15) and (16), little or nothing has been done on how to account for the paradigms in (13) and

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<sup>12</sup> See Pulleyblank (1986), Manfredi (1987, 1995), Baker (1998), Safir (2000) Adesola (2001), Dechaine and Witschko (2002) and Ajiboye (2003) for some of the proposed analysis.

(14). It is our goal in this dissertation to account in a consistent way for the above sets of examples among other things.

## 1.5 **An Overview of the Chapters**

I show in this dissertation that the paradigms in (13) through (16) among others would receive a straightforward account if we pay a close attention to the interactions between null operators and pronouns in the language. The goal of this dissertation therefore is to provide a unified analysis for constructions such as wh-movement constructions, focus constructions and logophoric constructions, which involve occurrences of null operators and pronouns. It is our hope that an in-depth understanding of the properties of null operators will lead to some important contributions to the debate on some current issues in generative grammar including Superiority Effects, Weak Crossover Effects, Resumptive Constructions and Logophoricity.

There are five chapters in this dissertation. In the following, I highlight some of the key issues discussed in each of the chapters.

### 1.5.1 **Chapter 2**

One of the current issues in generative Syntax and Semantics is how to account for the presence or absence of superiority effects in languages (C. Barker and C-C. Shan. 2003). I discuss the phenomenon in chapter two. Descriptively speaking, a Superiority Effect is displayed in a language if moving a lower interrogative noun (e.g. **what** in (17)) instead of a higher one (e.g. **who** in (17)) leads to unacceptability as in (17).

(17) \*What<sub>i</sub> did who buy t<sub>i</sub>

The unacceptability of (17) could be because languages prefer moving the first out of a sequence of two or more phrases, either of which would have served the same purpose. In this case, moving *who* to the sentence initial position is preferred to moving *what*, giving an acceptable sentence like *who bought what*. This phenomenon has been referred to as the Superiority Condition in the literature (Chomsky 1973). I show in chapter 2 that superiority is absent from Yoruba (18) (cf. Manfredi and Oyelaran 2000 and Adesola 2000). This is illustrated by the acceptability of (14a) repeated below as (18b) in contrast with its English equivalent.

- (18) a.     Ta   ni   ó   ra   kí ni  
           who be he buy what  
           ‘Who bought what?’
- b.     Kí   ni       ta ní   rà  
           what be       who buy  
           ‘what did who buy’ (*bad in English*)

Also, in chapter 2, I re-examine most of the proposals that have been made in the literature to account for the unacceptability of (17). I conclude following Hornstein (1995, 2001) (among others), that the Superiority Effect is in fact a special case of the

Weak Crossover Effect (WCO), which involves moving a quantifier such as *ẹnìkan* ‘someone’ in (19) across a pronoun (e.g. *rẹ̀*) that depends on it.

- (19) a. \**Ìyá rẹ̀j fẹ̀ràn ẹnìkan<sub>j</sub>*  
 mother his like someone  
 ‘His<sub>j</sub> mother loves someone<sub>j</sub>’ (*bad in English as well*)
- b. \**[ẹnìkan<sub>j</sub> [Ìyá rẹ̀j fẹ̀ràn t<sub>j</sub> ]]*  
 someone mother his like

In chapter 2, I also provide a theoretical account for the absence of Superiority Effects and the near absence of WCO in Yoruba (20). I show that question formation in Yoruba actually involves null operator movement, which creates a configuration, which provides an external antecedent for the pronouns in the scope of the null operator, thereby neutralizing the effects of the Weak Crossover condition (and with it the effects of the so-called superiority condition) in Yoruba (cf. Safir 2004b). It is argued that the absence of the superiority effect in Yoruba follows naturally from the fact that WCO Effect is generally absent in constructions involving null operator movement in the language. It surfaces only in configurations that do not involve an overt movement as in (19) above.

- (20) [<sub>PredP</sub> Ta<sub>k</sub> ni [<sub>CP</sub> [<sub>IP</sub> NO<sub>k</sub> ìyá rẹ̀<sub>k</sub> fẹ̀ràn t<sub>k</sub> ]]]  
 who be mother his like  
 ‘Who<sub>j</sub> does his<sub>j</sub> mother like t<sub>j</sub>’ (*bad in English*)

I also show that null operator movement in Yoruba is like tough movement constructions in English, which do not exhibit WCO (22) (Lasnik and Stowell 1991). For example, in (19b), as in structure (21), the WCO effect is absent because the variable left by the moved object null operator is bound by an external antecedent which is outside the scope of the null operator. The Yoruba example patterns in the same way with (22) in English.

21.    [<sub>PredP</sub> Kí<sub>k</sub> ni    [<sub>CP</sub> [<sub>IP</sub> NO<sub>k</sub> ∅    [<sub>pro<sub>k</sub></sub> person] (= ta ni)    rà    t<sub>k</sub> ]]]  
           what be                   NO    C       who                   buy

22.    [John<sub>i</sub> was hard [<sub>NO<sub>i</sub></sub> [<sub>PRO</sub> to persuade his<sub>i</sub> boss [<sub>PRO</sub> to vouch for e<sub>i</sub>]]]]

### 1.5.2 Chapter 3

In chapter 3, I discuss the interaction of null operators and pronouns in resumptive constructions in Yoruba. Broadly speaking, a resumptive construction involves leaving a pronoun in place of a moved phrase.<sup>13</sup> Two types of resumptive pronouns are identified for Yoruba in the chapter – the agreeing and non-agreeing resumptive pronouns.

I will show in chapter 3 that the reason why the non-agreeing subject resumptive pronoun is required in Yoruba is because a null operator cannot satisfy the Extended Projection Principle (EPP) requirement of T(ense). The EPP requires T to have a subject. Thus, the inability of T to attract the null operator into its Spec position forces the

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<sup>13</sup> See Perlmutter (1972), Borer (1984), Shlonsky (1992), Fox (1994), Pesetsky (1998, 2000), Aoun, Choueri and Hornstein (2001), Ntelitheos (2002), McCloskey (1990, 2002), and Boeckx (2003) for diverse views on resumptive pronouns.

insertion of an expletive pronoun in the subject position, to satisfy the EPP requirement of T. A consequence of this insertion process is that the subject RP is not required to agree in Phi-features (that is, in person and number) with the null operator nor with the c-commanding external antecedent (23 b), since it is not part of the chain.

- (23) a. Olá<sub>i</sub> ni NO<sub>i</sub> Ø ó t<sub>i</sub> ra iṣu  
 Ola be C 3s buy yam  
 ‘It was Ola who bought yams’
- b. Olá àti Adé ni NO<sub>i</sub> Ø ó t<sub>i</sub> ra iṣu  
 Ola and Ade be C 3s buy yam  
 ‘It was Ola and Ade who bought yams’

The occurrence of a non-agreeing RP in the subject position contrasts sharply with the fact that agreement is required between a non-subject RP and its antecedent (24a).

- (24) a. [Àìná àti Olá]<sub>i</sub> ni Adé n' nà lẹ̀hìn tí' Òjọ̀ bẹ̀bẹ̀ fún wọ̀n<sub>i</sub>  
 Aina and Ola be Ade PROG beat after COMP Ojo plead for them  
 ‘Aina and Ola were the people who Ade beat after Ojo had pleaded for them’
- b. \* [Àìná àti Olá]<sub>i</sub> ni Adé n' nà lẹ̀hìn tí' Òjọ̀ bẹ̀bẹ̀ fún un<sub>i</sub>  
 Aina and Ola be Ade PROG beat after COMP Ojo plead for him



In chapter 3, I also claim that the agreeing resumptive pronoun is a partial pronunciation of the trace of the moved phrase (cf. Pesetsky 1998).

### 1.5.3 Chapter 4

Chapter 4 is on logophoricity, which unlike the construction types discussed so far involves base generated null operators and pronouns. In Logophoricity, languages track discourse referents through the distinctive use of certain pronouns. In such a situation, one type of pronoun (*the strong form*) is required to have the same referent as an antecedent outside its own clause. The languages that require some particular pronoun to be obligatorily co-referent with a c-commanding antecedent usually disallow another form of pronoun (*the weak form in Yoruba*) from being co-referent with a c-commanding antecedent in the same context. The question then is why the strong pronoun must take an antecedent outside its own clause while the weak pronoun is not usually allowed to do the same in identical contexts. Various analyses have been proposed in the literature to answer this question.<sup>14</sup> An example of the phenomenon is given in (25).

[ òun<sub>i</sub> ]

25. Olu<sub>i</sub> gbà kí { ó<sub>j,\*i</sub> } rí bàbá òun<sub>i</sub>

Olu accept that he see father him

‘Olu agreed that he should see his father’

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<sup>14</sup> See Hagege 1974, Clements 1975, Comrie and Hyman (1981), Pulleyblank (1986), Koopman and Sportiche (1989), Manfredi (1987, 1995), Kinyalolo (1993), Baker (1998), Safir (2003), and Dechaine and Wiltscho (2002), and Ajiboye (2003)

In (25), the strong pronoun *òun* is required to take its antecedent outside the clause in which it occurs, whereas the weak pronoun *ó* is not allowed to have the same referent as its antecedent.

In chapter 4, we argue that what has been referred to as logophoricity in the literature is a natural consequence of the binding requirements of the pronouns in question. We propose that a pronoun can be used logophorically if and only if it is A-bar dependent on a null operator (cf. Koopman and Sportiche 1989, Baker 1998 and Safir 2004). Conversely, the pronouns that are usually barred from taking a c-commanding antecedent are those that are not A-bar dependent. Antilogophoric effects, only arise in Yoruba when an A-bar dependency relation between a weak pronoun and a null operator hinders a strong pronoun from fulfilling its own A-bar dependency relation. Thus, we do not need a construction specific analysis for the phenomenon known as logophoricity.

We conclude the dissertation in chapter five. There, we summarize the results of our findings on the interaction of null operators and personal pronouns with specific reference to Yoruba.

## Chapter 2

## WCO Subsumes Superiority Effects

For more than thirty years, generative grammar has been interested in accounting for the acceptability of (1) in contrast to (2). In (2), a lower wh-phrase has been moved when there was a closer wh-phrase that could have been moved. This phenomenon has been referred to as Superiority Condition in the literature (Kuno and Robinson 1972, Chomsky 1973).

- (1) Who do you think \_\_ bought what?  
 (2) \* What do you think who bought \_\_?

The paradigm becomes more challenging because the equivalent of the contrast between (1) and (2) has been reported in many languages thereby giving superiority effect the status of a phenomenon that is probably in Universal Grammar (UG). Indeed, many researchers including Chierchia (1991), Chomsky (1995), Wiltschko (1998), Huang (1995), Barker and Shan (2003), Hornstein (1995, 2001), Dayal (1996), and Boskovic (1999) have made some proposals on how to account for the unacceptability of examples such as (2). It is generally believed that there is superiority effect in every language.<sup>15</sup> However, as widely reported as the contrast in (1) and (2) is, it seems that the phenomenon that it characterizes is not universal after all. There is at least one language

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<sup>15</sup> For example, Wiltschko (1998) argues for the presence of Superiority effects in German thereby re-analyzing the earlier claims to the contrary about the language.

in which the equivalents of (1) and (2) do not show any contrast, namely Yoruba. Consider the examples in (3).

- (3) a. Ta ni ó ra kíni  
 who be he buy what  
 ‘Who bought what’
- b. Kíí ni ta ní rà t<sub>i</sub>  
 what be who buy  
 ‘What did who buy’ (*bad in English*)

Whereas, it is not surprising that (3a) is good in Yoruba, the acceptability of (3b) is not expected if superiority effects are universal as implied in the literature. The question then is- why is (3b) acceptable in Yoruba but not in English and many other languages? This is the question that I will attempt to answer in the rest of this chapter. Here, I argue that superiority effects are absent in Yoruba language. I claim that the absence of superiority effects in Yoruba is subsumed under the near absence of weak crossover effects in the language. This is accomplished by analyzing superiority effect, as an instance of weak crossover effects following Chierchia (1991) and Hornstein (2001) among others.<sup>16</sup> This dispenses with superiority effects as an independent notion in syntax. My conclusion in

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<sup>16</sup> Whereas, this chapter is built around Hornstein’s assumption that weak crossover effects subsume superiority effects, I rely largely on Safir (2004)’s theory in my account for the near absence of weak crossover effects in Yoruba.

this respect is premised on the fact that the nature of movement that is allowed for (information seeking) interrogative sentences in English and Yoruba is different. As argued in section (2.4), Yoruba questions involve null operator movement, which does not induce weak crossover effects. Consequently, it silences superiority effects in the language. I show in this chapter that weak crossover effects are attested only in contexts where there is no overt movement in Yoruba. This suggests that the near absence of weak crossover effects in the language is restricted to constructions involving movement in overt syntax.

This chapter is divided into eight sections. In Section one, I highlight the motivation for movement operations in Yoruba. In section two, I examine the differences between English and Yoruba with respect to superiority effects. Section three is on Weak Crossover Effects in English and Yoruba while section four is on weakest crossover and the structure of the Yoruba questions. Section five is on the effects of genitive pronouns in weak crossover configurations. In section six, I explore three alternatives to the theory that I have adopted in this chapter. I show reasons why those alternatives are not optimal. I provide some cross-linguistic supports for my theory in section seven. Section eight is the conclusion.

In order to understand what is usually referred to as the Superiority effect in the literature, it would be very useful to first understand why constituents have to move. For example, if there were no need for movement, then it would be useless to start a discussion on moving one phrase before the other. So, in the next section, we turn our attention briefly to checking un-interpretable features in syntax.

## 2.1 The Triggers for Movement

We assume following Chomsky (1995) that movement is done only when there is a need to check some morphological features failing which, the derivation will not converge. The un-interpretable features are in the functional categories. We assume that the lexical items do not have an un-interpretable feature that must be checked (cf. Ndayiragije 1999). Put another way, movement is done for the benefit of functional items (the attractors) in Yoruba as in other languages. In that sense we can say that for every  $\alpha$  that moves,  $\alpha$  does not move because of its own greediness. It moves to satisfy the greediness of the attractor.

In general, all nominal and nominalized items can be moved in Yoruba (see Carstens 1986, Sonaiya 1988 and Awoyale 1985, 1990, 1997).<sup>17</sup> This is seen primarily in focus constructions and wh-movement constructions in the language. Such overt movement violates Procrastinate, which requires that we wait until LF to do any operations if at all possible (cf. Lasnik et al 2000:183). However, the movement is obligatory since an unchecked strong feature is an illegitimate PF object, which would make the derivation to crash if it is left unchecked. The moved element usually lands in the Spec CP position in the language.<sup>18</sup> In such a situation, the moved element ( $\alpha$ ) can

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<sup>17</sup> But see Awobuluyi (1978, 1987), Owolabi (1987), Oyelaran (1988), Adewole (1991) and Yusuf (1991) for some different approaches to the Yoruba focus and wh-movement constructions.

<sup>18</sup> It has been argued in the literature that Spec CP and Spec FocP are distinct in Yoruba (Awoyale 1997). Our position in this chapter is that Yoruba focus is not licensed in the left periphery in Yoruba. If this is correct, then there might be no need to posit a (special) FocP for Yoruba language as first proposed in Awoyale (1995) and developed in Awoyale (1997), Rizzi (1997), and Aboh (1998)

only be moved upward. An object can be moved as in (4) or a subject as in (5) and (6).  
The apparent exception is when a Wh-phrase occurs in-situ as in (7).<sup>19</sup>

(4) Olú bèèrè pé kí<sub>i</sub> ni Adé rà t<sub>i</sub> (object movement)

Olu ask C what be Ade buy

‘Olu asked what Ade bought’

(5) Ta<sub>i</sub> ni ó t<sub>i</sub> sọ pé kí Adé wá ní ọla (subject movement)<sup>20</sup>

who be he say C C Adé come at tomorrow

‘Who said that Ade should come tomorrow?’

(6) Ta<sub>i</sub> ni ó t<sub>i</sub> wá ní aná (subject movement)

who be he come at yesterday

‘Who came yesterday?’

---

<sup>19</sup> Perhaps the occurrence of “ni” with these question nouns also has something to do with their monosyllabic form. Nouns in Yoruba are canonically two or more syllables. It is not possible to have “ni” after ordinary nouns when they are not moved.

(i) \*Olú ni ra àpò  
Olu ? buy bag  
‘Olu bought a bag’

Another evidence that this might have something to do with the structure of “ki” and “ta” is seen in the fact that “ni” does not occur after the question noun *ibo* “where”. This other question noun is disyllabic therefore it does not need to be augmented.

(ii) \*Wọ̀n rí tani níbo ni (instead of: Wọ̀n rí tani níbo)  
they see who where be  
‘they saw who where?’

(iii) ?? Mo ń ẹ̀ báwo ni (instead of Mo ń ẹ̀ bóo (báwo = bóo))  
I PROG. do how be

<sup>20</sup> The fact that a phrase has been moved from the subject position might not be obvious because of the occurrences of resumptive pronouns in the language. See chapter 3 for extensive discussion.

(7) O rí ta ni ní ibẹ̀

You see who at there

‘Who did you see there?’ (You saw who there?)

Only one wh-phrase is present wherever we have a wh-phrase in each of the examples that we have cited so far in this section. In such a situation, the attractor attracts the wh-phrase to its specifier position.<sup>21</sup> The choice of which wh-phrase to attract is not clear when there is more than one wh-phrase in a sentence, both of which are potential goals for the probe.

(8) Ta<sub>i</sub> ni NO<sub>i</sub> ∅ ó t<sub>i</sub> ra kí ni

who be he buy what

‘who bought what’

(9) Kí<sub>k</sub> ni NO<sub>k</sub> ∅ ta ní rà t<sub>k</sub>

what be who buy

‘what did who buy’ (*bad in English*)

b. \*What<sub>k</sub> did who<sub>i</sub> buy t<sub>k</sub>

---

<sup>21</sup> A “wh-phrase” in this sense is a null operator with wh-feature.



The unacceptability of examples such as (9b) in English has been traced to a violation of the so-called superiority condition (Chomsky 1973, 1995). Researchers have made several proposals to explain why languages display superiority effects. These include:

- (10) analyzing superiority effects as ECP violations ( e.g. Huang 1995:153),
- (11) assuming that focus movement is different from wh-movement and that only the latter displays superiority effects because the feature to be checked is in C (Boskovic (1999)),
- (12) accounting for superiority effects as a consequence of the Minimal Link Condition (Chomsky 1995)
- (13) analyzing superiority effects as weak crossover effects (e.g. Hornstein 2001).

What we are going to do in this chapter is to explore the possibility of accounting for the absence of superiority effects in Yoruba in term of these theories that have been used to show why languages display superiority effects.<sup>22</sup> We consider the fourth possibility (13) first before we consider the other possibilities. Our conclusion would be that the absence of superiority effects in Yoruba is closely related to and in fact subsumed under the fact that the weak crossover effect is nearly absent in Yoruba.

In the next section, we discuss how to reduce superiority effects to WCO effects.

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<sup>22</sup> We will consider only three of such theories in the rest of this chapter. However, we could assume in principle that none of the other theories that are not discuss here could give a better account of the phenomenon that we are examining in Yoruba. For example it is hard to imagine that all wh-phrases in Yoruba would be D-linked (Pesetsky 1987) thus we cannot use the D-linking approach to Superiority to account for the absence of Superiority effects in Yoruba. There is no evidence that all wh-phrases in Yoruba are d-linked.

## 2.2. Superiority Effects as WCO Effects

Hornstein (1995, 2001 among others) argues that the superiority effect could be explained as an instance of the WCO effects. His analysis involves decomposing each in-situ wh-phrase into a bound pronominal and a nominal restrictor. For example *pro* + *thing* = *what*, while *pro* + *person* = *who*. Let us illustrate this with some concrete examples.<sup>23</sup>

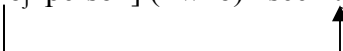
(14) *who* saw *what*?

(15) [<sub>CP</sub> *who*<sub>j</sub> [<sub>IP</sub> *t*<sub>j</sub> saw [<sub>pro</sub><sub>j</sub> *thing* ](= *what*)]



(16) \* *what* did *who* see?

(17) \*[<sub>CP</sub> *what*<sub>j</sub> [<sub>IP</sub> [ <sub>pro</sub><sub>j</sub> *person* ] (= *who*) see *t*<sub>j</sub> ]]




According to Hornstein's (2001) analysis, the reason why the representation in (15) is acceptable is because the pronoun is linked to a variable (that is, wh-trace) on its left whereas (17) is unacceptable because the pronoun is linked to a variable (that is, wh-trace) on its right. The latter is said to be a violation of the weak crossover condition. Under this analysis, (17) is analogous to the standard weak crossover effects as displayed in (19). We return to this shortly.

(18) *who*<sub>j</sub> *t*<sub>j</sub> saw *his*<sub>j</sub> *mother*



<sup>23</sup> I follow Hornstein (2001) in the assignment of the indices used in the structures of the following examples. For example, he assumes that the decomposed **pro** part of the in-situ wh-phrase must have the same index with the moved wh-phrase in order to be fully interpreted at LF. This facilitates a pair-list reading, which matches things to the person that sees them.. The reader should note that the index on **pro** in each of the following examples concerning superiority is not as a result of movement.

(19) \* who<sub>j</sub> did his<sub>j</sub> mother see t<sub>j</sub>



Thus, if the above is correct, superiority effect reduces to illicit pronoun binding.


The analysis that we adopt for (14) and (16) above can be used to account for the other cases of superiority effects that have been observed in the literature. Consider the following examples.

(20) Who<sub>i</sub> did you give t<sub>i</sub> what<sub>k</sub>


(21) \* What<sub>k</sub> did you give who<sub>i</sub> t<sub>k</sub>

The example in (20) is good while the one in (21) is unacceptable (see Barss and Lasnik 1986). This follows from the fact that there is an illicit pronominal binding in (21) causing the derivation to crash. For example, the structure for (20) is as given in (22), and (21) is represented in (23). Here again, the in-situ wh-phrase is decomposed into a dependent pronoun plus a nominal restrictor.

(22) [CP who<sub>j</sub> [IP you give t<sub>j</sub> [pro<sub>j</sub> thing ](= what)]]



(23) \* [CP what<sub>j</sub> [IP you give [pro<sub>j</sub> person ](= who)] t<sub>j</sub> ]



The pronoun is linked to a variable to its left (as seen in structure (21)) and the sentence is acceptable. The unacceptable structure in (23) is another instance of the weak crossover effect. A pronoun is linked to a variable to its right. Thus the superiority effect

in (20) also reduces to a weak crossover violation. We assume in this work - following Hornstein (2001) - that every instance/occurrence of superiority effects can be explained in terms of weak crossover violations.

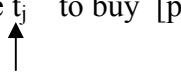
The foregoing assumption accounts straightforwardly for cases of the so-called pure superiority effect in which the moving wh-phrase is an object of a verb. Consider (24) and (25).

(24) Who<sub>i</sub> did you persuade t<sub>i</sub> to buy what<sub>k</sub>


(25) \*What<sub>k</sub> did you persuade who<sub>i</sub> to buy t<sub>k</sub>

The example in (25) is also ruled out as an instance of the superiority effect. In the present system, we would say that (25) is unacceptable because it is a weak crossover violation. We illustrate the paradigm in (24) and (25) with the structures in (27) and (28); (28) represents the unacceptable form in (25).

(27) [CP who<sub>j</sub> [IP you persuade t<sub>j</sub> to buy [pro<sub>j</sub> thing ](= what)]



(28) \* [CP what<sub>j</sub> [IP you persuade [pro<sub>j</sub> person ](= who)] to buy t<sub>j</sub> ]



The foregoing discussion suggests that what has been referred to as superiority effect is indeed compatible with weak crossover violations (cf. Hornstein 2001 among others).

Everything taken together, the above assumption seems to account for the English data quite nicely. Now, we will outline how this works for Yoruba. On the surface it


seems that it does not account for the absence of superiority in Yoruba. Consider the following.

(29) Ta ni ó ra kí ni

who be he buy what

‘who bought what’


(30) [<sub>PredP</sub> ta<sub>j</sub> ni [<sub>CP</sub> [<sub>IP</sub> ó t<sub>j</sub> rà [<sub>pro<sub>j</sub></sub> thing ](= what)]]]



(31) Kí ni ta ní rà  
what be who buy

‘What did who buy?’ (*bad in English*)

(32) [<sub>PredP</sub> kí<sub>j</sub> ni [<sub>CP</sub> [<sub>IP</sub> [ pro<sub>j</sub> person ] (= ta) rà t<sub>j</sub> ]]



The structure in (30) represents (29) while (32) represents (31). With the representations in (30) and (32) we expect the example in (31) to be unacceptable. This is because - if we adopt the directional account (i.e. the leftness version of the WCO condition) given in Hornstein (1995, 2001)- structure (32) includes a pronoun that is linked to a variable to its right in (31). This is a typical weak crossover violation. However, that is not what is attested in the language. The example in (31) is clearly acceptable in Yoruba. This suggests that Hornstein’s directional account for the WCO effects cannot explain the Yoruba facts. It also suggests that we need to revise the representation in (32). First, we

will lay out some facts about the Yoruba focus constructions in order to provide a basis for revising the representation. Then, we will adopt an alternative WCO theory for Yoruba.

As we will argue in detail for Yoruba wh-questions in section (2.4) below, Yoruba also moves only a null operator in focus constructions:<sup>24</sup>

- (33) Ǫwé<sub>j</sub> ni NO<sub>j</sub> Ø Olú rà t<sub>j</sub>  
 book be C Olu buy  
 ‘It was a book that Olu bought’

Here, there is a gap at the extraction site after verb *rà*. However, what is moved is not overt at the landing site in the Spec CP of the embedded clause. Thus both the head and the tail of the chain of the A-bar movement are null, as in the structure given in (35b) below.<sup>25</sup> The subject NP of the Predicate Clause headed by *ni* is in an argument position. If we consider both subject movement and object movement together then the emerging structures would look like (35a) and (35b) for (29) and (31) respectively. (In each of them, the *ni*-headed Predicate Phrase has an embedded clause.)

(34) **Null Operator Movement Chain**

The head and tail of null operator movement chain are null

<sup>24</sup> The status of the so-called focus marker *ni* is discussed in detail in section (2.4.1) below.

<sup>25</sup> It is not immediately obvious that the head and tail of the chain of null operator subject movement are null in Yoruba. This is clouded by the occurrences of “resumptive pronouns” and the EPP requirement that subject positions must be filled.

- (35) a.        [PredP Ta<sub>i</sub> ni [CP NO<sub>i</sub> ∅ [IP ó t<sub>i</sub> ra kí ni]]]  
                   who be                    NO    C    he    buy what  
                   ‘who bought what?’
- b.        [PredP Kí<sub>k</sub> ni [CP NO<sub>k</sub> ∅ [IP ta ní rà t<sub>k</sub> ]]]  
                   what be                    NO    C    who    buy  
                   ‘What did who buy’ (‘or what was the thing that who bought’)

These structures contrast with the structures that have been proposed for the Yoruba focus constructions and wh-questions in the literature where the base generated NPs in the Spec of *ni* are said to be derived by movement rather than base generation (see Awoyale 1995, 1997, Rizzi 1997, and Aboh 1998). (Also, see section 2.4.1 below for the rationale for the base generation account.) The advantage of the present structures is that they can account for the near absence of the weak crossover effects in Yoruba unlike the traditional structures. In the present system, the correct LF structure for (32/ 35a) above is (36).

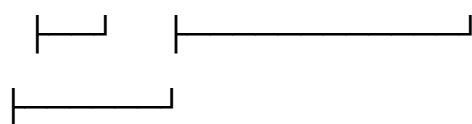
- (36) [PredP kí<sub>j</sub> ni [CP NO<sub>j</sub> ∅ [IP [ pro<sub>j</sub> person] (= ta ní) rà t<sub>j</sub> ]]]

Here, the pronoun has an external antecedent (*Kí* in (36)) that is outside the scope of the null operator that locally A-bar binds it.

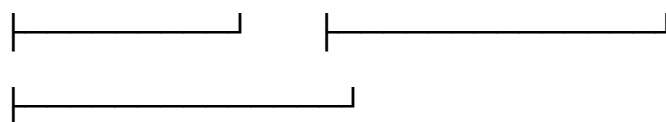
It has been argued in the literature that the availability of an external antecedent for a variable can neutralize WCO effects. Safir (2004b) provides an analysis for why weak crossover effects are not induced in null operator constructions. He claims that the

'his' in non-restrictive relatives such as (37) could depend directly on *Rex* instead of depending on the operator *who* or the q-variable of that operator. In the same way, the 'his' in a null operator construction such as (38) could depend on *Terry* instead of the null operator. In these cases *Rex* and *Terry* are external antecedents to the operators that are co-valued with them.

(37) *Rex, who his accountant loves t, is a Republican.*



(38) *Terry is tough [NO [for his mother to love t]]*



He concludes that -all that matters for the WCO effect to be overcome in operator constructions such as these is that the antecedent should be external to, and independent of, the operator - (Safir 2004b:141).

If we apply this to Yoruba, we can say that the presence of *Kí* as an external binder of the variable neutralizes WCO effects in (36). This explains why the so-called superiority effect is not seen in (32) compared to what is attested in English language. It is because such structures do not violate weak crossover - since no illicit pronominal binding is incurred.

This analysis extends naturally without any modification to other contexts where superiority has been reported to be attested in English and for which Yoruba does not



display such effects. For instance, consider the following examples derived from double complement constructions.

- (39) a. Ta<sub>i</sub> ni o fún t<sub>i</sub> ní kíní<sub>k</sub>  
 who be you give PRT what  
 ‘Who did you give what?’
- b. Kí<sub>k</sub> ni o fún tani t<sub>k</sub>  
 what be you give who  
 ‘what did you give who?’ (*bad in English*)
- (40) a. Ta<sub>i</sub> ni o yá t<sub>i</sub> ní kíní<sub>k</sub>  
 who be you lend PRT what  
 ‘who did you lend what?’
- b. Kí<sub>k</sub> ni o yá tani t<sub>k</sub>  
 what be you lend who  
 ‘what did you lend who?’ (*bad in English*)

We can posit (41) and (42) as the structures for (39a), (40a) and (39b), (40b) respectively.

- (41) [<sub>PredP</sub> Ta<sub>j</sub> ni [<sub>CP</sub> NO<sub>j</sub> ∅ [<sub>IP</sub> o fún/ yá t<sub>j</sub> ní [pro<sub>j</sub> thing] (= kíní) ]]]
- (42) [<sub>PredP</sub> Kí<sub>j</sub> ni [<sub>CP</sub> NO<sub>j</sub> ∅ [<sub>IP</sub> o fún/ yá [pro<sub>j</sub> person] (= ta) t<sub>j</sub> ]]]

These structures show that each variable has an external antecedent (*Ta* in (41) and *Kí* in (42)) which is outside the scope of the null operator that locally A-bar binds it; thus no weak crossover violation is expected. This in effect explains why the so-called superiority effect is not attested in either (39b) or (40b) (cf. example 42), in contrast with their English equivalents.

The analysis that we propose for the Yoruba examples in the above paradigms can also be used to explain the absence of superiority effect in the structurally more complex examples such as the pairs in (43) and (44). This could also be used to illustrate the so-called pure superiority effect in which the moving null wh-phrase is in the object position of a verb.

- (43) a.  $Ta_i$  ni o rọ́  $t_i$  láti ra kíni  
 who be you persuade to buy what  
 ‘Who did you persuade to buy what?’
- b.  $Kí_k$  ni o rọ́  $tani_i$  láti rà  $t_k$   
 what be you persuade who to buy  
 ‘What did you persuade who to buy?’ (*bad in English*)
- (44) a.  $Ta_i$  ni o yàn  $t_i$  láti ra kíni  
 who be you select to buy what  
 ‘Who did you select to buy what?’















































































































































































































































































































































































































































































































