CLITIC MOVEMENT AND RELATIVIZED MINIMALITY IN WOLOF

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1. Introduction

In recent work by Roberts (1994) and Rivero (1994), it has been argued that the languages of the Balkans and certain dialects of Old Romance display a type of non-local head movement of non-finite verbs designated "long head movement" (LHM). It has likewise been argued by Ouhalla (1989) with respect to Berber that clitic movement involves LHM.

The existence of LHM seems to contradict the assumption that head movement is constrained by a condition of strict locality (formulated as the "Head Movement Constraint" (HMC)) which is presumed to be derived from the Empty Category Principle (ECP). The ECP rules out movement over a locally c-commanding (but L-marking) head under the definition of government in terms of minimality. As the intervening head functions as a closer governor, the moved head is unable to antecedent-govern its trace.

One approach to the problem of accounting for how LHM satisfies the ECP adopts the "Relativized Minimality" framework of Rizzi (1990), claiming that what counts as a minimality barrier differs for different varieties of head movement. This requires a revision of Rizzi's definition of a "typical potential antecedent governor" so as to refer to two types of intervening heads.

Such an approach is adopted in accounts of LHM by Roberts (1994) and Rivero (1994). What these proposals have in common is that they attempt to define the difference between the two types of heads on the basis of an A/A-bar distinction, where LHM is viewed as a type of A-bar head movement. Roberts reduces this distinction between A and A-bar heads to the notion of "L-relatedness" proposed in Chomsky and Lasnik (1992).

In this paper, I adopt the basic approach which attempts to further relativize the concept of Relativized Minimality for head movement. However, I depart from Roberts and Rivero in proposing an alternative basis on which to distinguish the two types of heads. My argument will focus on the LHM of object clitics in Wolof, a language in which the independent movement of clitics past V, T and ASP heads is clearly visible from the verbal morphology. I argue that object clitics undergo LHM not to a fixed head position, but to whatever head functions as the highest head in the extended projection (in the sense of Grimshaw (1991)) of [+V]. Secondly, I show that the position that clitics move to in Wolof varies in its status as an A or an A-bar (or [± L-related]) head, casting doubt on the claim that Relativized Minimality for head movement is sensitive to an A/A-bar distinction.

1I would like to thank Randall Hendrick for advice and helpful discussion regarding the analysis of the Wolof data. I also thank Gert Webelhuth and Michael Hegarty for their comments and suggestions. Of course, any errors this paper may contain are my own.
2. Basic Properties of Wolof Clause Structure

Before addressing the issue of head movement in Wolof, I will first outline my assumptions concerning the basic properties of Wolof clause structure. Wolof is an SVO language with a rich verbal morphology. One of its salient characteristics is the existence of a number of pre-auxiliary modality particles appearing in complementary distribution. The presence of one of these particles is obligatory in every tensed clause. I have argued in Dunigan (1994) that these particles belong to a single syntactic category, which following Laka (1990), I refer to as Sigma. I propose that finite clauses in Wolof are Sigma Phrases, where Sigma embeds TP, ASPP and VP in that order, as shown in (1).

(1) Sigma P
     / \ Spec Sigma'
     / \ Sigma TP
     / \ DP T'
     / \ T ASPP
     / \ ASP' ASP VP
     / \ V' V (DP)

I make the additional assumptions that the canonical position for subjects in Wolof is [Spec, TP]; that Wh-movement involves movement to [Spec, ΣP]; and that CP is present only in subordinate clauses.

In addition to clauses instantiating the structure shown in (1), Wolof possesses a second type of clause which lacks a Sigma Phrase projection. There are two types of Sigma-less clauses in Wolof--infinitives and "zero modality" (ZM) clauses. ZM clauses are non-infinitival. They contain lexical subjects and can express present, past or future tense, but they differ in their tense interpretations from clauses containing Sigma.

The tense node in Wolof is filled either by a null morpheme or by the tense particle di. I assume that the null tense morpheme selected by Sigma indicates [+ Realized] tense, a category that is interpreted as past for non-stative verbs and present for stative verbs. [- Realized] tense is indicated by the particle di. It indicates future tense for stative verbs and present progressive or future tense for non-stative verbs.

In contrast to this situation, the tense of a ZM clause derives its interpretation from the tense of the discourse context, from a temporal adverb within the clause, or from the tense of a higher verb. I assume that the difference in the interpretation of ZM clauses follows from the fact that they contain a tense node which is not selected by Sigma. The structure of infinitives and ZM clauses is therefore as shown in (2).
3. Clitic Movement in Clauses Containing Sigma

Let us now consider the operation of clitic movement within structures such as (1). Consider the sentence in (3).²

(3) [TP Da-fa-ko
\[TP di (dafkoy) [VP lekka t₁]]]
\[PF-3s(nom)3s(acc) [-R] eat]
"He/she is eating it"

This sentence contains the independent Sigma particle da and the tense particle di. There is no movement of the main verb to Tense or Sigma, yet the subject and object clitics are realized on the Sigma position.

That the clitics in (3) are attached to the right of Sigma (and not to the left of Tense) is shown by the example in (4).

(4) [XP Di-na-ko
\[XP t_j [VP lekka t₁]]]
\[-R]-AFF-3s(nom)3s(acc) eat
"He/she will eat it"

In this example, the tense particle has moved to Sigma to host the affirmative affix -na. Notice that the object clitic ko is attached to the right

²Where not otherwise indicated, the Wolof examples derive from the author's fieldwork with native speakers of Gambian Wolof. The following abbreviations are used in the glosses to the examples:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
</tr>
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<tbody>
<tr>
<td>Acc</td>
<td>Accusative</td>
</tr>
<tr>
<td>AFF</td>
<td>Affirmation</td>
</tr>
<tr>
<td>DEF</td>
<td>Definite</td>
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<td>Imperfect</td>
</tr>
<tr>
<td>Nom</td>
<td>Nominative</td>
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<td>Perf</td>
<td>Perfect</td>
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<tr>
<td>PF</td>
<td>Predicate Focus</td>
</tr>
<tr>
<td>[-R]</td>
<td>[- Realized] Tense</td>
</tr>
<tr>
<td>S</td>
<td>Singular</td>
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</tbody>
</table>

³The third singular subject clitic is realized as a zero morpheme when it appears on -na.
of -\(\text{na}\). If clitic movement were movement to the left of the element in Tense, we would expect the clitic in (4) to undergo subsequent movement with the tense particle to Sigma, and hence to appear to the left of \(\text{di}\) in (4). As this is not the case, we can conclude that clitics right-attach to the element in the Sigma position.

The contrast between (3) and (4) demonstrates that the appearance of a clitic on Sigma is independent of the movement of any other head to this position. The examples in (5)-(8) provide further evidence for this conclusion, and additionally demonstrate the strictly local character of the movement of V, T and ASP in Wolof.

\[(5) \quad [\text{TF} \text{Dii-na-ko}_{k} \quad [\text{TF} \quad t_{i} \quad \text{ASP} \quad \text{kek}_{a}-\text{oon} \quad [\text{vp} \quad t_{j} \quad t_{k}])]\]

"He/she will have eaten it"

\[(6) \quad [\text{TF} \quad \text{Doo}_{n} \quad \text{na-ko}_{j} \quad [\text{TF} \quad \text{ASP} \quad t_{i} \quad \text{vp} \quad \text{kek}_{a} \quad t_{j}]][\text{TP}]\]

"He/she was eating it"

\[(7) \quad [\text{TF} \quad \text{Lekka}_{i}-\text{oon}_{n} \quad \text{na-ko}_{k} \quad [\text{TF} \quad \text{ASP} \quad t_{j} \quad \text{vp} \quad t_{i} \quad t_{k}]][\text{TP}]\]

"He/she had eaten it"

\[(8) \quad [\text{TF} \quad \text{Lekka}_{i}-\text{na-ko}_{j} \quad [\text{TF} \quad \text{vp} \quad t_{i} \quad t_{j}]]\]

"He/she ate it"

In (5), the tense particle has moved to Sigma to support the affix -\(\text{na}\), and the main verb has moved to Aspect to support the affix -\(\text{oon}\). In (6), as there is no overt tense morpheme, the aspectual particle \(\text{coon}\) moves to Sigma to support the affix. The sentence in (7) exhibits movement of the main verb to the aspectual suffix -\(\text{oon}\) and as there is no overt tense morpheme, the element in Aspect undergoes subsequent movement to host the affix in Sigma. The sentence in (8) lacks an overt tense as well as an aspect morpheme. As a consequence, the main verb moves to Sigma.

We can see that head movement of V, T and ASP in Wolof is motivated by the need to satisfy the morphological requirements of affixes. In addition, it is clear that these heads always move through intermediate head positions rather than directly to their S-structure positions. In the examples we have considered, movement through intermediate heads is motivated by the ECP, as it allows the moving head to void the barrierhood of the maximal projections between its trace and its derived position.

The movement of V, T and ASP in (3)-(8) contrasts sharply with the movement of clitics. In each of the examples, we see that the clitic is attached to the element that is in Sigma. The appearance of the clitic in this position is independent of the appearance of any other element there: in (7)-(8), Sigma contains the main verb, while in (4)-(6), it contains an auxiliary, and in (3), it contains an independent Sigma particle.

It is clear from these examples that the movement of accusative clitics, if it is head movement from the verbal complement position, does not satisfy
the HMC. For this to be the case, the clitic would have to move to V, since the phrase headed by the clitic is a complement of V. Thus, we would expect the clitic to be attached to the head(s), if any, V is attached to. 4

This account would predict the sentences in (7) and (8) to be grammatical, since the accusative clitic and V both appear in Sigma, but it incorrectly predicts the sentences in (3)-(6) to be ruled out, because the clitic is attached to a head that does not dominate V. We thus conclude that clitic movement does not involve movement through intervening heads, as required by the HMC, but instead involves direct movement to the derived position.

4. Clitic Movement in Zero Modality Clauses

The preceding examination of verbal head movement and clitic movement in Wolof has revealed a fundamental difference between them: while verbal head movement is motivated by properties of a higher head (its affixal status), the head movement of clitics appears to be motivated by properties of the clitic itself (its need to appear on a particular head position).

This property of clitic movement is placed more sharply into focus by the case of clitic movement in ZM clauses. As we have seen, clitics target Sigma, regardless of the movement of V, T and ASP, in sentences that contain a Sigma node. However, ZM clauses lack a Sigma position, and thus, if clitics move, they must target another head position within the clause.

The sentences in (9)-(12) illustrate the placement of clitics in ZM clauses in Wolof.

(9) Xale bi mu lekka-oon ko (Njie, 1982, 155)
child DEF 3s(nom) eat-perf 3s(acc)
"The child had eaten it"
("L'enfant l'avait mangé")

(10) Xale bi mu doon ko lekka (Njie, 1982, 155)
child DEF 3s(nom) imperf 3s(acc) eat
"The child was eating it"
("L'enfant le mangeait")

(11) Gis na-a xale bi [mu di (>muy) ko lekka]
see AFF-1s(nom) child DEF 3s(nom) [-R] 3s(acc) eat
"I saw the child eating it"

(12) Bugga-na-a [mu lekka ko]
want-AFF-1s(nom) 3s(nom) eat 3s(acc)
"I want him/her to eat it"

The examples indicate that subject and object clitics are not clustered together in ZM clauses, as they are in clauses containing Sigma. For example, the subject clitic in (9) appears before the verb, while the object clitic

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4I follow Chomsky (1991) in assuming that excorporation of a head from a head it has adjoined to is ruled out by the ECP.
appears after it. By contrast, both subject and object clitics attach to a single position, Sigma, in tensed clauses.

Moreover, the object clitics show evidence of movement in these examples. In (10) and (11), they occur to the right of the aspectual and temporal auxiliaries, but before the main verb. On the other hand, the position of subject clitics appears to be invariant.

A likely explanation for the lack of movement of subject clitics in ZM clauses is that the target of movement for clitics is below [Spec, TP], the position in which subjects are generated. The lowering of a nominative clitic to this position would therefore result in the inability of the clitic to antecedent-govern its trace, violating the ECP. Consequently, I assume that nominative clitics appear internal to the DP occupying [Spec, TP] in ZM constructions.

Turning to the placement of the accusative clitics in (9)-(12), it is plausible that they have undergone movement to T. This movement is apparent in the case of (11), since the sentence contains an overt tense marker. The sentences in (9), (10) and (12), however, contain a null T. I will assume in these cases that V and ASP have moved vacuously to the null T.

This assumption is independently necessary to account for the ability of a clitic to move to Sigma in cases where the verb does not also move there. Consider the sentences in (13) and (14).

(13) \[T_P \text{Da-fa-ko}_i \] \[T_P \{V_P \text{lekkk}_1 \text{t}_1 \} \]
"He/she ate it"

(14) \[T_P \text{Da-fa-ko}_i \] \[T_P \{\text{ASPP lekkk}_1 \text{oon } [V_P \text{t}_j \text{t}_1 ] \} \]
"He/she had eaten it"

For movement of the accusative clitic in these sentences to satisfy the ECP, the barrierhood of VP in (13) and ASPP in (14) must be voided by the movement of a lexical head into T. For this reason, we must assume that either V (in sentences like (13)) or ASP (in sentences like (14)) moves vacuously into the position headed by the null tense morpheme, as illustrated in (15)-(16).

(15) \[T_P \text{da-fa}_1 \text{-ko}_j \{T_T \text{t}_1 \{T_T \text{lekkk}_k \text{oo} \} \{V_P \text{t}_k \text{t}_j \} \} \]

(16) \[T_P \text{da-fa}_1 \text{-ko}_j \{T_T \text{t}_1 \{T_T \{T_T \text{lekkk}_k \text{oon} \} \{\text{ASPP }t \text{oon} \text{t}_k \text{t}_j \} \} \]

If this analysis is correct, we can conclude that clitic movement in ZM clauses occurs independently of the movement of V or of the inflectional heads. Clitics appear on the head that occupies T. This head may be an independent auxiliary in T, as in (11), or it may be ASP or V (as in (9), (10) and (12)) in clauses containing a null tense morpheme.

We can therefore conclude that clitic movement in ZM clauses exhibits properties that are similar to those of clitics in clauses containing Sigma: clitics single out the highest head position in the clause as the target of movement.
5. An Alternative Analysis of LHM

I propose to account for the differences between verbal head movement and clitic movement in Wolof by appealing to the phrase structure theory of Grimshaw (1991). Grimshaw defines a structure called an "extended projection" which precisely defines both the target of clitic movement as well as the domain within which strictly local head movement applies. Adapting Grimshaw's approach slightly, I propose that clitics move to the highest head in the extended projection of V (subject to satisfaction of the ECP), while heads within the extended projection are restricted to movement that obeys the HMC.

5.1. Extended Projections

Grimshaw attempts to derive the properties of clause structure by extending X-Bar theory to include structures called "extended projections". An extended projection is composed of a lexical head and its projection plus all of the functional heads (and their projections) that represent features of the lexical head.

All of the projections within an extended projection have the same categorial features, but they may differ in level (zero level, single bar or double bar) and in "F value" (i.e., whether the element is lexical or functional). In Grimshaw's account, the F value of a category is not a binary feature. Lexical heads have an F value of zero, and functional heads can be F-1 (if they take lexical heads as complements) or F-2 or higher (if they take functional heads as complements).

Grimshaw (pp. 3-4) defines a "perfect" projection, composed only of F-0 elements of the same category, as in (17), and defines an extended projection as in (18).

(17) \textit{X} is the perfect head of \textit{y}, and \textit{y} is a perfect projection of \textit{x} iff:
(a) \textit{y} dominates \textit{x}
(b) \textit{y} and \textit{x} share all categorial features
(c) all nodes intervening between \textit{x} and \textit{y} share all categorial features
(d) the F value of \textit{y} is the same as the F value of \textit{x}

Grimshaw proposes a simplification of categorial features such that V, T, and C all possess the features [+V, -N] and N, D, and P possess the features [-V, +N].
X is the \text{extended head} of y, and y is an \text{extended projection} of x iff:

(a) y dominates x
(b) y and x share all categorial features
(c) all nodes intervening between x and y share all categorial features
(d) If x and y are not in the same perfect projection, the F value of y is higher than the F value of x

Grimshaw makes use of the notion of extended projection to severely restrict the operation of head movement, proposing that a head may move only within the extended projection of which it is a part. This hypothesis is incompatible with the view that clitics are Ds which undergo movement to Sigma or Tense.\(^6\) Since D possesses the categorial features [+N, -V], it is a functional head in the extended projection of N. Head movement to Sigma or Tense would place the clitic within the extended projection of V,\(^7\) contrary to Grimshaw's predictions. For this reason, Grimshaw concludes that clitics must be base-generated on their hosts.

5.2. A Revision of Grimshaw's Approach

I propose to modify Grimshaw's restriction on head movement in a manner that preserves the assumption that clitics are determiners that undergo head movement to their hosts. Thus, I do not restrict head movement to within an extended projection. Rather, I assume that there are two types of head movement, long head movement to the highest head of the extended projection and "short" head movement to a locally c-commanding head position.\(^8\)

6 As Grimshaw points out, her hypothesis is also incompatible with treatments of noun and preposition incorporation that posit movement of N and P to V.

7 I assume that Sigma is [+V, -N], because it encodes a verbal feature (modality). Furthermore, the existence of verb movement to Sigma (e.g., in affirmative and negative constructions) would require Sigma to be within the extended projection of V, within Grimshaw's approach.

8 This account of head movement must assume that C does not constitute a head in the extended projection of V in Wolof. If this were the case, we would expect the clitic to move to C in embedded clauses, where both a CP and a Sigma Phrase are present. The sentences in (i)-(ii) demonstrate that this prediction is incorrect.

(i) Faatu wax-na ne di-na-ko lekka
Fatou say-AFF-3s(nom) that [-R]-AFF-3s(nom)-3s(acc) eat
"Fatou said that he/she will eat it"

(ii) *Faatu wax-na ne-ko di-na lekka
Fatou say-AFF-3s(nom) that-3s(acc) [-R]-AFF eat
"Fatou said that he/she will eat it"

As we can see, clitics are attached to the Sigma element in embedded tensed clauses, just as they are in matrix clauses.

While Grimshaw assumes that C is [+V, -N] and thus, part of the extended projection of V, I will assume that C has a variable status: C is [+V] when it
This informal account of head movement locality can be technically implemented in the following way. Making use of the notion of "F-selection" proposed in Abney (1987, 56), I assume that all of the functional heads in an extended projection "F-select" their complements. Consequently, the only head in an extended projection that is not F-selected is the highest head. I define F-selection as in (19).

(19) F-Selection
X F-selects Y if and only if X selects the maximal projection of Y as its complement and X has an F value greater than zero.

Following Roberts (1994, 210), I assume that strictly local head movement is a consequence of morphological selection (M-selection). A subset of F-selectors function as M-selectors, triggering movement to their positions by the heads they M-select. Since M-selection is strictly local, M-selected head movement is local as well.

The two types of head movement can thus be categorized as follows. F-selected movement is movement of an F-selected head to its F-selector. This movement is strictly local. Non-F-selected movement is movement of a non-F-selected head to another non-F-selected head position. Such movement is not a consequence of M-selection. It is structure preserving, and it is limited to the closest c-commanding non-F-selected head position.

If we assume that heads in an extended projection are marked for the feature [± F-selected], we can define two different types of X° chains created by head movement. An F-selected chain consists of a set of positions (X_a...X_n) where X_a is [a F-selected] and all other positions are [± F-selected]. In a non-F-selected chain, all positions are [- F-selected]. This characterization allows us to revise the Relativized Minimality Condition for X° chains as in (20).

(20) Revised Relativized Minimality Condition for X° Chains
W is a typical potential antecedent-governor for Z=X°

i. in a non-F-selected chain if and only if W is a non-F-selected head c-commanding Z

ii. in an F-selected chain if and only if W is an F-selected head c-commanding Z

The formulation in (20) correctly accounts for the LHM of the object clitic in (3), since all heads intervening between Sigma, the derived position of the clitic, and the clitic's trace are F-selected heads, and the chain produced by clitic movement is a non-F-selected chain. I assume that Ds participate in non-F-selected chains because Ds themselves are non-F-selected heads. Moreover, long movement of V to T over an intervening ASP head is ruled out by the formulation in (20), because, as this would be an F-selected chain, the intervening ASP head would qualify as a potential antecedent governor for the trace.

functions as a Wh-complementizer, but is is [-V] when it functions as a subordinator. Since the C in Wolof never functions as a Wh-complementizer, we derive the fact that clitics do not move to C in this language.
6. Conclusion

I have argued that object clitics in Wolof undergo LHM to Sigma in clauses containing Sigma and to Tense in ZM clauses. I have further shown that this distribution can be generalized as movement to the highest head position in the extended projection of V. The fact that such movement can proceed no further than the closest c-commanding head that meets these requirements is accounted for by revising the Relativized Minimality Condition for head movement in such a way that the highest head in an extended projection serves as a typical potential antecedent governor for chains created by LHM.

It is noteworthy that accounts which treat LHM as a type of A-bar head movement will not extend to the Wolof data, because clitics undergo LHM to heads that would have to be analyzed as L-related heads. I have argued that object clitics move to Tense, a position which is necessarily L-Related, in ZM clauses. Moreover, clitics move to a Sigma node containing an affix, as we have seen. According to Roberts (1994, 218), affixal heads are always L-Related, because they are M-selectors. Consequently, clitic movement to T or an affix in Sigma would be L-related LHM, movement which is presumably ruled out by the presence of intervening L-related head governors.

It is thus worth pursuing whether the treatment of LHM as the movement of a non-F-selected head to a non-F-selected head position can be maintained for the cases of LHM discussed by Roberts (1994) and Rivero (1994). Although it is beyond the scope of this paper to explore this matter in depth, a preliminary investigation into this question has yielded promising results.

The cases cited by Roberts and Rivero are those in which the second of two verbs undergoes LHM to an IP-external position within the clause. Notably, this is the same position that pronominal clitics appear in at S-structure. Such data suggest that as in Wolof, the target of LHM in these cases is the highest head in the extended projection of V, which is consequently a [-F-selected] position. We can likewise identify the verb that undergoes LHM in these cases as [-F-selected], since it appears as the complement of a higher verb, which is a lexical category with an F-value of zero.\(^9\)

I therefore conclude that it is the position occupied by a head (rather than any inherent properties of the head) that is responsible for triggering LHM. This position can best be described by appealing to the concept of "extended projection" proposed in Grimshaw (1991).

\(^9\)Since clitics move to the position occupied by the moved non-finite verb in these constructions, it is reasonable to conclude that they cliticize to the verb before the verb undergoes movement to the IP-external position. If this were not the case, then the LHM of the clitic would involve movement over a [-F-selected] head position, the D-structure position of the non-finite verb.
REFERENCES


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