CLITIC MOVEMENT AND RELATIVIZED MINIMALITY IN WOLOF

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1. Introduction[1]

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).
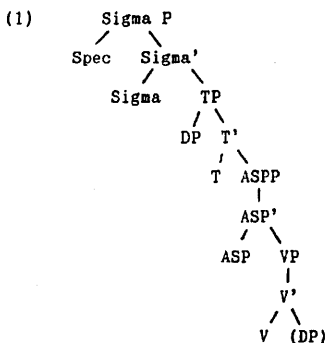
In this paper, I adopt the basic approach which attempts to further relativize the concept of Relativized Minimality for head movement. However, I depart from Roberts and Rivero in proposing an alternative basis on which to distinguish the two types of heads. My argument will focus on the LHM of object 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.

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).
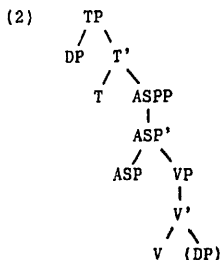
(1)   Sigma P
           /   \
        Spec   Sigma'
              /   \
          Sigma   TP
                  / \
                DP   T'
                     / \
                    T   ASPP
                         |
                        ASP'
                       /   \
                    ASP   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).

(2)   TP
           / \
         DP   T'
             / \
            T   ASPP
                 |
                ASP'
               / \
             ASP   VP
                    |
                    V'
                  / \
                 V   (DP)

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) $[_{\Sigma P}$ Da-fa-ko$_i$ $[_{TP}$ di (>dafkoy) $[_{VP}$ lekka t$_i$]]]]
     PF-3s(nom)[3]-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) $[_{\Sigma P}$ Di$_j$-na-ko$_i$ $[_{TP}$ t$_j$ $[_{VP}$ lekka t$_i$]]]
     [-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

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[2]Where 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:

Acc	Accusative
AFF	Affirmation
DEF	Definite
Imperf	Imperfect
Nom	Nominative
Perf	Perfect
PF	Predicate Focus
[-R]	[- Realized] Tense
S	Singular

[3]The third singular subject clitic is realized as a zero morpheme when it
appears on -na.

of -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 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) $[_{\Sigma P}$ Di$_i$-na-ko$_k$ $[_{TP}$ t_i $[_{ASPP}$ lekka$_j$-oon $[_{VP}$ t_j t_k]]]]
       [-R]-AFF-3s(nom)-3s(acc)   eat-perf
       "He/she will have eaten it"

(6) $[_{\Sigma P}$ Doon$_i$-na-ko$_j$ $[_{TP}$ $[_{ASPP}$ t_i $[_{VP}$ lekka t_j]]]]
       imperf-AFF-3s(nom)-3s(acc)   eat
       "He/she was eating it"

(7) $[_{\Sigma P}$ Lekka$_i$-oon$_j$-na-ko$_k$ $[_{TP}$ $[_{ASPP}$ t_j $[_{VP}$ t_i t_k]]]]
       eat-perf-AFF-3s(nom)-3s(acc)
       "He/she had eaten it"

(8) $[_{\Sigma P}$ Lekka$_i$-na-ko$_j$ $[_{TP}$ $[_{VP}$ t_i t_j]]]
       eat-AFF-3s(nom)-3s(acc)
       "He/she ate it"

In (5), the tense particle has moved to Sigma to support the affix -na, and the main verb has moved to Aspect to support the affix -oon. In (6), as there is no overt tense morpheme, the aspectual particle doon moves to Sigma to support the affix. The sentence in (7) exhibits movement of the main verb to the aspectual suffix -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 preceeding 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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[4]I 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) $[_{\Sigma P}$ Da-fa-ko$_i$ $[_{TP}$ $[_{VP}$ lekka t$_i$]]]
           PF-3s(nom)-3s(acc)   eat
       "He/she <u>ate</u> it"

(14) $[_{\Sigma P}$ Da-fa-ko$_i$ $[_{TP}$ $[_{ASPP}$ lekka$_j$-oon $[_{VP}$ t$_j$ t$_i$]]]]
           PF-3s(nom)-3s(acc)   eat-perf
       "He/she <u>had eaten</u> 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) $[_{\Sigma P}$da-fa$_i$-ko$_j$[$_{TP}$t$_i$[$_{T'}$lekka$_k$-θ[$_{VP}$ t$_k$ t$_j$]]]]

(16) $[_{\Sigma P}$ da-fa$_i$-ko$_j$[$_{TP}$t$_i$[$_{T'}$[$_{ASP}$lekka$_k$-oon]$_m$-θ[$_{ASPP}$t$_m$[$_{VP}$t$_k$ 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,[5] 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) X is the perfect head of y, and y is a perfect
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) the F value of y is the same as the F value
                     of x

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        [5]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].

(18) X is the <u>extended</u> <u>head</u> of y, and y is an <u>extended</u>
<u>projection</u> 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]

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[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^0 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^0 chains as in (20).

(20) Revised Relativized Minimality Condition for X^0 Chains
     W is a typical potential antecedent-governor for $Z=X^0$
     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.

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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).

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        [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.

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