Head Movement in Moro DPs: Evidence for a Unified Theory of Movement

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1. Introduction

In Moro, a Kordofanian language spoken in the Nuba Mountains of Sudan, noun phrases are characterized by the order *noun-demonstrative-numeral-adjective* (Black & Black, 1971):[1]

(1) ***náḍ́ám*** *n-ʌtín:ə n-əgətʃan n-ór-é*
PL.books SCL-those CL-two CL-red-ADJ
'those two red books'

This Moro pattern is one of the three noun phrase orders recorded by Greenberg (1963), though he noted that it is somewhat uncommon. Subsequent research has demonstrated that it is mostly found in Bantu languages: Greenberg's example came from Kikuku, and Carstens (1991) derives this word order in Kiswahili. Many other cases exist.

There is general agreement among formal syntacticians that this word order is due to movement of the noun (Carstens, 1991; Cinque, 2005). This paper provides evidence for this conclusion from the ability of nouns in Moro to move further to the left, before prepositions:

(2) *é-g-a-daŋ-ó* [PP ***tərəbésá*** *ék-árə -ð:-ʌtíð:ə*]
1SG-CL-RTC-sit-PFV SG.table LOC-under SCL-that
'I sat under that table.'

In (2), the noun *tərəbésá* is separated from the demonstrative *íð:ʌtíð:ə* by the preposition *ékáré*. A related fact is that the noun can also undergo A-movement, here passivization, stranding the entire DP or PP with which it is associated:

(3) a. *kúku k-a-ndr-ó* [PP ***n-tərəbésá*** *éðápə́ ð:-ʌtíð:ə ðəgətʃîn*]
Kuku CL-RTC-sleep-PFV on-table on.top -SCL-that CL-three
'Kuku slept on top of those three tables.'

b. ***tərəbésá***$_i$ *ð-ʌ-ndr-n-ó-u* [PP t_i *éðápə́ ð:-ʌtíð:ə ðəgətʃîn*]
table CL-RTC-sleep-PAS-PFV-LOC on.top -SCL-that CL-three
'Those three tables were slept on top of.'

In (3b), the noun *tərəbésá* is serving as the subject of the sentence, triggering agreement on the verb, while its associated modifiers and the preposition remain after the verb.

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[1] *Abbreviations*: ADJ – adjectival final vowel; CL –weak noun class concord; CMP – complementizer; FOC – focus; IPFV – imperfective; NSRC – non-subject relative clause PAS – passive; PFV – perfective; POS – possessive; PST – past tense; PL – plural; RTC – root clause; SCL – strong concord; SG – singular; SRC – subject relative clause.

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This paper presents arguments that the instances of noun movement above are instances of head movement, N-to-D within DP in (1), as proposed for Kiswahili by Carstens (1991), and then head movement of the noun around the preposition in (2), and finally long head movement to subject position in (3b) (cf. Lema & Rivero, 1990). I present several arguments for head movement, the simplest of which is that no syntactic material besides the noun can occur in this initial position. However, the latter two instances of movement clearly violate the Head Movement Constraint (Travis, 1984). I argue that the way through this paradox is to adopt a theory of head movement as movement to a specifier position (Matushansky, 2006). The general tendency for languages to obey the Head Movement Constraint can be derived independently from Matushansky's Transparence Condition and the general correlation between head movement and morphological fusion, factors which do not constrain the Moro pattern above.

The outline of this paper is as follows. Section 2 provides some basic background on the the Moro DP. Section 3 provides arguments for analyzing the position of the noun in the Moro DP as arising due to head movement. Section 4 briefly introduces the theory of head movement of Matushansky (2006). Section 5 discusses examples similar to (2) and (3) and argues against extraposition-based analyses. The conclusion discusses larger theoretical issues.

2. Noun movement in the Moro DP

2.1. Background

Moro clauses have rigid SVO word order (4):

(4) *ɟrwí* *ð-ʌ-dər-í* *ɟrʌmbílí*
SG.policeman CL-RTC-stop-CAU.PFV SG.car
'The police stopped the car.'

As the examples show, both nouns and verbs in Moro contain complex agglutinating morphology. Verbs mark tense and aspect on the verb, and feature person, number, and noun class agreement with the subject.

Moro noun classes are often identifiable based on the noun's initial consonant (Gibbard et al., 2009):

(5)

CLASS	SINGULAR	PLURAL	GLOSS
g/l	*evaja*	*ləvaja*	'pauper'
l/ŋ	*ləvəra*	*ŋəvəra*	'stick'
j/j	*ajén*	*ején*	'mountain'
l/ɲ	*laŋwata*	*ɲaŋwata*	'water cup'
ð/r	*ðaba*	*raba*	'cloud'
ð/j	*ðamala*	*jamala*	'camel'
g/n	*otʃːa*	*nətʃːa*	'milk pot'
ŋ/ɲ	*ŋerá*	*ɲerá*	'child'

Yet noun classes, particularly the *g-* class, are often vowel initial, and so must be identified based on noun class agreement on verbs and nominal modifiers:

(6) a. ***ð**amala* ***ð**-a-ŋer-á*
SG.camel CL-RTC-good-ADJ
'The camel is good.'

b. ***j**amala* ***j**-a-ŋer-á*
PL.camel CL-RTC-good-ADJ
'The camels are good.'

Thus, the letters in the left column in (5) correspond to the initial segment of an agreeing verb.

2.2. Two kinds of concord in Moro noun phrases

In addition to subject agreement on verbs, Moro exhibits two kinds of concord internal to the DP (Gibbard et al., 2009; Jenks, to appear). *Weak concord* (CL) consists of the same gender and number prefixes as subject agreement on verbs. *Strong concord* (SCL) consists of an initial í- prefixed to a geminated version of this agreement marker. The examples below use nouns which trigger *j-* concord, which unpredictably geminates to *s-* in strong concord, making the strong/weak distinction particularly

easy to identify in these cases.

While Moro nouns themselves are not marked for definiteness, Strong concord is a kind of 'second position' definiteness marking, unique to the leftmost adnominal modifier. Thus, demonstratives always occur with strong concord, as they are always the leftmost modifier. While possessors and relative clauses typically occur with strong concord, both occur with weak concord when they occur with demonstratives, which they typically follow:

(7) N + SCL-demonstrative + CL-possessor/relative

a. *é-g-a-b^{w}áɲ-á* *jamalʎ* ***-sː-i*** ***j-ə-***$^{\downarrow}$*kúkːu*
1SG-CL-RTC-like-IPFV PL.camel -SCL-this CL-POS-Kuku
'I like these camels of Kuku's.'

b. *jamalʎ*$_i$ ***-sː-***ʌ*tísːə* [$_{CP}$ ___$_i$ ***j-é-bəg-á***] *j-a-j-ó*
PL.camel SCL-that CL-SRC-big-ADJ CL-RTC-die-PFV
'Those camels that are big died.'

Note that the initial *í-* prefix on strong-concord fuses with a final vowel of the preceding noun, which also receives its H tone, *cf.* (8a).

Clear evidence that the strong concord is related to definiteness comes from relative clauses, which only occur with strong concord on definite noun phrases:

(8) a. *é-g-a-bwáɲ-á* *jamala* ***j-é-bəgá***
1SG-CL-RTC-like-IPFV PL.camel CL-SRC-strong-ADJ
'I like camels that are strong.'

b. *é-g-a-bwáɲ-á* *jamalʎ* ***-sː-***$^{\downarrow}$*é-bəgá*
1SG-CL-RTC-like-IPVF PL.camel -SCL-SRC-strong-ADJ
'I like the camels that are strong.'

In addition, numerals occur with weak concord, presumably because they are inherently indefinite modifiers:

(9) a. *ðamala ð-ənto* b. *jamala e-gətʃan* (< [j-əgətʃan])
SG.camel CL-one PL.camel CL-two
'one camel' 'two camels'

The distribution of weak and strong concord is summarized below:

(10)

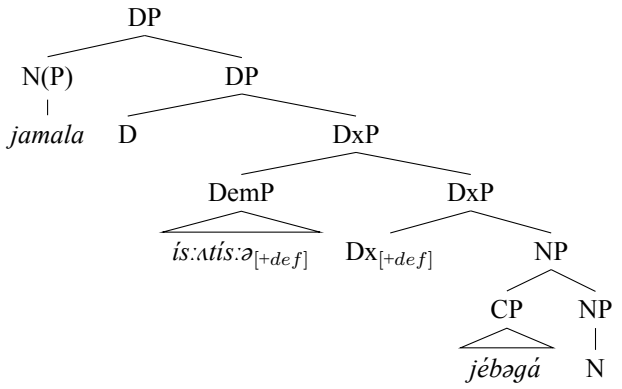
	DEMONSTRATIVES	POSSESSIVES	RELATIVES	NUMERALS
STRONG	•	•	•	
WEAK			•	•

I adopt an analysis of strong concord as *definiteness agreement* within the DP fused with gender/number (Alexiadou, 2003; Kramer, 2010; Leu, 2009), i.e., the expression of a morphological [+def] feature on the modifier. I assume that adnominal modifiers in Moro require agreement (bear a [uϕ] feature) (Carstens, 2000), and that the definiteness agreement of strong concord originates in a Deixis head (Dx), analogous to T(ense) (Ioannidou & den Dikken, 2009; Lyons, 1999; Pesetsky & Torrego, 2001). A definite Dx copies its [+definite] feature to its specifier (agreement). Lastly, I assume that Moro nouns are located in DP, analogous to CP (Szábolcsi, 1990, 1994), a position I argue below they occur in due to head movement:[2]

(11) a. *jamalʎ* ***-sː-***ʌ*tísːə* ***j-é-bəg-á***
PL.camel SCL-that CL-SRC-big-ADJ
'those camels that are big'

[2] 'NP' here is a cover term for a single projection which could be decomposed into separate projections for the root, gender, and number — see below for evidence for these projections.

b.



This analysis captures the basic properties of strong concord: its uniqueness, its restriction to the leftmost modifier of the DP, and its association with definiteness. The basic mechanisms of this analysis are identical to, e.g., nominative case assignment. This analysis is predicated on the idea that the Moro DP includes multiple functional projections, and that the noun is in the highest of these.

3. Evidence for head movement

Two movement analyses have been offered for *N-Dem-Num-Adj* noun phrases like those in Moro. The first approach, represented by Carstens (1991, 2008), analyzes Bantu DPs with head movement. The second, represented by Cinque (2005), analyzes these word orders by phrasal movement of a minimal NP. To the extent that these analyses are distinguishable, I present three arguments for a head-movement analysis of Moro DPs: one from word order, one from agreement on inalienable plurals, and a third based on associative plurals.

3.1. Word order

One prediction of the NP-movement analysis is that an NP constituent can identified, consisting of the noun and its complement, specifiers, or adjuncts, and that this constituent should move as a unit. However, putative nominal modifiers such as adjectives (e.g. (1)) and complements (12) never occur at the left edge of the DP with nouns in Moro.

(12) *égabʷáɲá súrʎ* ***-s:-ə-***$^{\downarrow}$*kúk:u* ***j-é-ðamala***
I.like SG.picture -SCL-POS-Kuku CL-POS-camel
'I like Kuku's picture of the camel.'

Likewise, internal arguments do not follow nouns in nominalizations; VSO order is preferred:

(13) a. ðə́-drúá-ŋ *ʇrwí* *ʇrʌmbílí* *ð-ʌ-c-ʎ*
CL-stop-NOM SG.police SG.car CL-RTC-bad-ADJ
'The police's stopping the car was bad.'
b. ðá-pa-ŋ ***ð-ə́-***$^{\downarrow}$*kúk:u* *idiʌ* *ð-ʌ-c-ʎ*
CL-steal-NOM SCL-POS-Kuku SG.cow CL-RTC-bad-ADJ
'Kuku's stealing the cow was bad.'

If we assume that the putative internal arguments of *picture* in (12) and the nominalizations in (13) are merged as complements of their selecting head, they are predicted to move with the head noun under an NP-movement analysis. On the other hand, these facts are unsurprising under a head-movement analysis, which predicts that the head noun moves independently from its complements.

3.2. Inalienable possession

The second argument for head movement comes from a small class of Moro kinship terms, which bear a suffix marking the person and number of their possessor:

(14)

	1.EX	1DU.IN	1PL.IN	2	3
'mother'	*ləŋg-áɲ*	*ləŋg-ʌláŋ*	*ləŋg-ʌláŋ-ə́ńdr*	*ləŋg-aló*	*ləŋg-én*
'father'	*ɐ̨táɲ*	*i̧tʌláŋ*	*i̧tʌláŋəńdr*	*ɐ̨taló*	*ɐ̨tén*
'wife'	*wasáɲ*	*wʌsʌ́ləŋ*	*wʌsʌ́ləŋə́ńdr*	*wasálo*	*wasén*
'husband'	*eváŋgáɲ*	*ivʌ́ŋgʌ́láŋ*	*ivʌ́ŋgʌ́láŋə́ńdr*	*eváŋgáló*	*eváŋgén*

Whether the possessor is singular or plural is underspecified in 1.EX, 2, and 3 person forms. However, the number can be disambiguated by adding pronouns (15a) or an overt possessor (15b):

(15) a. *ləŋg-áɲ k-əŋkəŋ*
mother-1EX SCL-1SG.POS
'my mother'

b. *was-én k-↓ə-↓tútu*
wife-3 SCL-POS-Tutu
'Tutu's wife'

The ability for possessive pronouns and noun phrases to co-occur with inalienable possession indicates that the latter is *agreement*, not incorporation.[3] Agreement is typically associated with functional projections, say a special transitive n in these cases, whose specifier is occupied by the internal argument of these nouns. The presence of agreement on the noun indicates that it has undergone head-movement through this projection. These facts could be accommodated by the NP-movement analysis, although agreement on lexical heads is typically associated with head-movement.

3.3. Associative plurals

The final argument for a head movement analysis comes from associative plurals, collective nouns formed by the addition of a plural morpheme to a proper noun (den Besten, 1996). In Moro, associative plurals are formed with the suffix *-andá* (Black & Black, 1971; Kertz, 2006):

(16) *jasər-andá*
Elyasir-APL
'Elyasir and associated individuals'

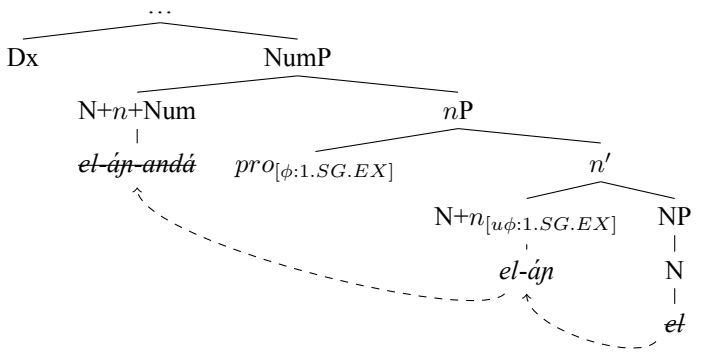
Associative plural morphology occurs on plural inalienably possessed nouns, shown for 1st person forms:

(17) *Inalienable possession: Plural forms*

	1.EX	1.IN.DU	1.IN.PL
'mothers'	*el-áɲ(-andá)*	*il-ʌláŋ-andá*	*il-ʌláŋ-ə́ńdr*
'fathers'	*eráɲ(andá)*	*irʌláŋandá*	*irʌláŋə́ńdr*
'wives'	*lwaséɲ(andá)*	*lwʌsʌ́láŋandá*	*lwʌsʌ́láŋə́ndr*
'husbands'	*laváláɲ(andá)*	*lʌvʌ́ngʌ́láŋandá*	*lʌvʌ́ngʌ́láŋə́ndr*

We can derive the *N-agr-pl* order of suffixes with head movement if agreement is on n and associative *-andá* is a head located in Num^0 (cf. Li (1999) on Mandarin *-men*):

(18) Structure for *el-áɲ-andá* 'my/our mothers'



[3] Cf. similar conclusions for object marking in Bantu (e.g. Bergvall, 1986; Bresnan & Mchombo, 1987).

Thus, a head-movement analysis provides a natural account of the suffixes which occur on Moro nouns, and directly connects with the head-movement-based analysis of strong concord in section 2. Under a phrasal 'NP' movement analysis, a constituent at least the size of NumP would be required to move, making the absence of any modifiers or complements with this moved constituent all the more surprising. I conclude that head movement provides a better analysis of Moro DPs than NP movement.

4. Unifying head and phrasal movement

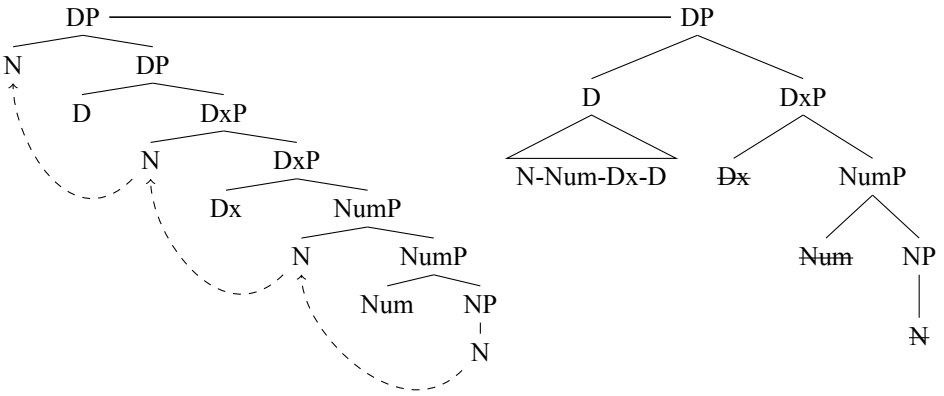
This section details Matushansky (2006)'s theory of head-movement, which consists of four basic claims. Matushansky's first and most radical claim is that head movement is movement to a specifier position (20a), like phrasal movement, a claim which obviates the otherwise troubling fact that moved heads do not c-command their traces. This assumption presupposes the possibility for multiple specifiers. Second, head movement is triggered by c(ategorical)-selection features paired with an EPP feature. Third, Matushansky posits the Transparence Condition (19) to capture the complementarity between the strict locality constraints of head-movement and the anti-local requirements of phrasal movement.

(19) *Transparence Condition*: A head is inaccessible once the higher head begins to project.

The Transparence Condition derives much of the Head-movement Constraint (HMC), but seems to predict that once moved, a head is no longer subject to the HMC. This is because the moved head is no longer the projecting head, but located in a specifier where it is presumably accessible to further movement.

To avoid massive violations of the HMC, Matushanksy proposes that its effects follow from the application of *m*(orphological)-merger (e.g. Embick & Noyer, 2001; Bobaljik, 2002), which incorporates the moved head in a specifier position into the head which served as the probe.

(20) a. Head movement b. M-merger



Matushansky proposes that m-merger occurs at every XP if the head to which it moves bears a relevant feature, say [+affix]. We have seen that at least two heads in Moro show up as overt affixes, in the agreement suffixes on inalienably possessed nouns and the associative plural. For now I assume that *m*-merger applies automatically if the head is otherwise covert. Thus, when a Moro noun is in [Spec, DP], it is a complex head realizing all of the projections of DP.

This analysis predicts that Moro nouns are complete DPs. Evidence that this prediction is correct comes from the ability of Moro bare nouns to occur in definite contexts (Jenks, to appear). Additionally, while D^0 is covert in Moro, argumental nouns in many Bantu languages exhibit an initial augment prefix ("pre-prefix") which has been linked to case (hence $D^0 = K^0$) (Halpert, 2012).

Under Matushansky's theory of head movement, head movement and m-merger are divorced, so head movement will not necessarily have phonological effects, viz. some Romance clitics (Kayne, 1991; Poletto & Pollock, 2004). In these cases, the HMC is not predicted to hold. In the following section I show that Moro nouns can move out of Moro DPs. This is possible in part because DP is a phase (Heck et al., 2008; Kramer, 2010; Svenonius, 2004), and thus the complex D head is at the left edge of the DP phase, hence accessible to syntactic operations at later steps in the derivation.

5. Movement out of the Moro DP

5.1. Head movement around P

Moro nouns not only occur at the left edge of DP, they also occur at the left edge of PP. Consider the examples below, where lexical adpositions in Moro intervene between the noun and its modifiers:

(21) a. *é-g-a-daŋ-ó tərəbésá ék-árə -ðː-ʌtíðːə*
1SG-CL-RTC-sit-PFV SG.table LOC-under SCL-that
'I sat under that table.'

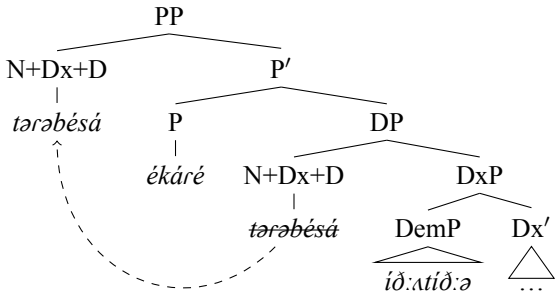
b. **é-ga-daŋ-ó ékáré trbésʌ́ -ðː-ʌtíðːə*
1SG-CL-RTC-sit-PFV LOC-under SG.table -SCL-that

c. **é-ga-daŋ-ó trbésʌ́ -ðː-ʌtíðːə ék-áré*
1SG-CL-RTC-sit-PFV SG.table SCL-that LOC-under

(21a-b) demonstrate that a noun must precede a lexical adposition. (21c) shows that only the noun can precede the adposition; modifiers such as demonstratives must follow this element. The class of appositions that behave this way are in most cases transparently related to nouns, e.g., *kare* 'bottom.' The prefix *é-* marks locative nouns.

Adopting a (possibly over-simplistic) analysis of these Ps as heads which select DP, these examples are *prima facie* violations of the HMC, providing an apparent argument for NP-movement. Yet Matushansky's theory of head-movement also allows N-to-[Spec, PP] movement:

(22)



No m-merger applies between P and N in these cases. As was discussed in the previous section, this straightforwardly predicts that N should be able to strand P in these cases.

5.2. Long head movement of N

As N is located at the left edge of DP and PP, we expect it to be able to move farther. As predicted, A-movement can target just the noun in Moro, stranding all nominal modifiers and adpositions:

(23) Radical stranding in Moro passives (see Appendix A for more on passives)

a. *kúku k-a-ndr-ó* [$_{PP}$ *n-tərəbésá éðápə́ ðː-ʌtíðːə ðəgətʃín*]
Kuku CL-RTC-sleep-PFV on-table LOC-top -SCL-that CL-three
'Kuku slept on top of those three tables.'

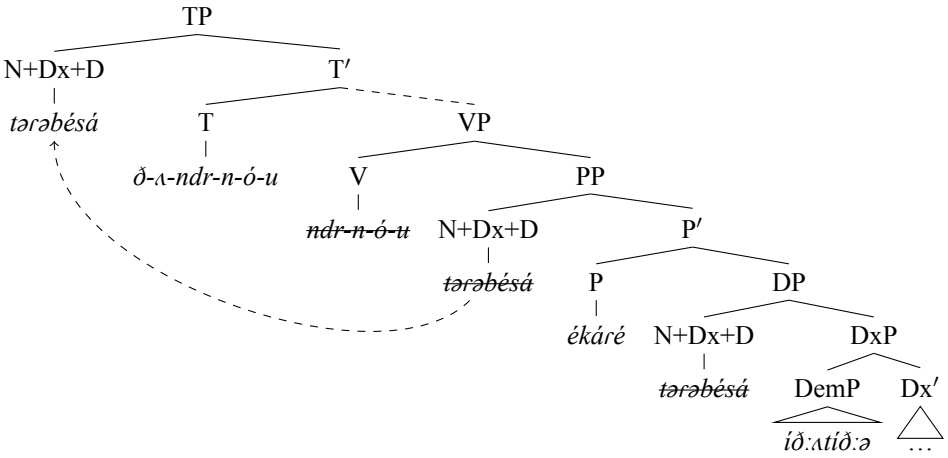
b. *tərəbésá$_i$ ð-ʌ-ndr-n-ó-u* [$_{PP}$ t_i *éðápə́ ðː-ʌtíðːə ðəgətʃín*]
table CL-RTC-sleep-PAS-PFV-LOC on.top -SCL-that CL-three
'Those three tables were slept on top of.'

c. [$_{DP}$ *trbesʌ́ -ðː-ʌtíðːə ð-ʌgʌtʃín*]$_i$ *ðʌ-ndr-n-ó-u* [$_{PP}$ *éðápé* t_i]
table -SCL-that CL-three CL-slept-PAS-PFV-LOC on.top
'Those three tables were slept on top of.'

(23a) is the sentence which is to undergo passivization, (23b) represents stranding. The entire DP can be passivized as well as the noun (23c), in apparent free-variation. The ability of the entire DP to passivize out of the PP is surprising, as this DP is usually split by the intervening preposition (see below). Our speaker has given contradictory judgments on whether PP itself can be passivized, an issue I put aside.

The case of stranding in (23b) is illustrated below:

(24) Tree for (23b)



The following examples illustrate that nouns can strand their modifiers from object DPs as well:

(25) Stranding in DP passivization

a. *é-g-a-bʷáŋ-á* [$_{DP}$ *jamalé -s-i i-gitʃin*]
1SG-CL-RTC-like-IPFV camels -SCL-this three
'I like these three camels'

b. *jamala$_i$ j-a-bʷáŋ-ʌ́n-iə* [$_{DP}$ t_i *ís-i i-gitʃin*]
camels CL-RTC-like-PAS-IPFV SCL-this three
'I like these three camels'

c. [$_{DP}$ *jamalé -s-i i-gitʃin*]$_i$ *j-a-bʷáŋ-ʌ́n-iə* t_i
camels SCL-this three CL-RTC-like-PAS-IPFV
'I like these three camels'

The derivation of (25b) is basically the same as in (24). As with passivization out of PP, both DP passivization and N passivization are available.

This optionality indicates that the complete DP and the complex N head are treated equivalently by the syntax in some sense, regardless of whether DP is embedded in a preposition. This may be related to the fact that N has fused with D. One possible explanations is that head movement of D-to-[Spec,PP] extends the DP phase, leading to a situation where the [Spec,PP] and DP are *equidistant* for a probing head (Chomsky 1995:356-7, den Dikken 2006:114-115); a detailed implementation awaits future work.

5.3. Arguments Against Remnant Movement

Suppose we reject a stranding analysis DP for the cases above, what options remain? The clearest alternative is to analyze the modifiers as extraposed from a fronted DP. In fact, *prima facie* extraposition is possible in Moro:

(26) a. [$_{DP}$ *jamalé -s-i i-gitʃin*] *j-a-ŋo-bʷaŋ-a*
camels SCL-this CL-three CL-RTC-3SG.O-like-IPFV
'These three camels like him.'

b. [$_{DP}$ *jamala*] *j-a-ŋo-bʷaŋ-a ís-i i-gitʃin*
camels CL-RTC-3SG.O-like-IPFV SCL-this CL-three
'These three camels like him.'

Yet there are at least three reasons to think that the stranding cases above are not instances of DP-movement followed by extraposition. First, partial fronting in these cases is impossible:

(27) a. *[$_{DP}$ *tərəbésá íði*] *ðʌ-ndr-n-ó-u* [$_{PP}$ *éðápé ð-ʌgʌtʃìn*]
table SCL-this …slept-PAS… on.top CL-three
b. *[$_{DP}$ *tərəbésá ð-ʌgʌtʃìn*] *ðʌ-ndr-n-ó-u* [$_{PP}$ *éðápé íði*]
table CL-three …slept-PAS… on.top SCL-this

These facts favor the stranding approach; extraposition should be able to target a single modifier.

The second argument against extraposition comes from the fact that stranded material preserves its DP-internal order P-Dem-Num-Adj:

(28) a. **tərəbésá ðʌ-ndr-n-ó-u éðápé ð-ʌgʌtʃìn íði*
table …slept-PAS… on.top CL-three SCL-this
b. **tərəbésá ðʌ-ndr-n-ó-u éðápé ð-^{w}alano ð-ʌgʌtʃìn*
table …slept-PAS… on.top CL-wide CL-three

The modifiers on the right would presumably be VP-adjuncts if they were extraposed, and might be expected to order freely.

The third argument against extraposition is that the stranded material is VP-internal.[4] For example, this material must precede a resultative secondary predicate:

(29) a. *é-ga-fó* [$_{DP}$ *jamalé -ss-i i-gitʃìn*] *pr*
1SG…shot camels SCL-this CL-three dead
'I shot these three camels dead.'
b. [$_{DP}$ *jamalé -ss-i i-gitʃìn*]$_i$ *j-ʌ-f-ən-ú* t_i *naŋaj*
camels SCL-this CL-three …shot-PAS… dead
'These three camels were shot dead.'
c. *jamala$_i$ j-ʌ-f-ən-á* [$_{DP}$ t_i *-ss-i i-gitʃìn*] *naŋaj*
camels …shot-PAS… SCL-this CL-three dead
'These three camels were shot dead.'
d. ??*jamala$_i$ j-ʌ-f-ən-ú naŋaj íss-i i-gitʃìn*
camels …shot-PAS… dead SCL-this CL-three

Manner adverbs show a similar effect; they must follow the stranded material. Again, these facts are unexpected under an extraposition account, as extraposed elements have been argued to attach to the same height as their hosts, here the subject noun phrase (Williams, 1974).

We can conclude that head movement to [Spec, DP] and [Spec, PP] feeds further A-movement of N. In light of these arguments, it would be worth revisiting the putative example of 'extraposition' in (26) which may also be stranding via A-movement to subject position.

6. Discussion

This paper has presented extended arguments for three basic conclusions. First, that the Moro noun is located high in the noun phrase, above even reflexes of definiteness. Second, that it reaches this position by head-movement. Third, that this process of head-movement is able to feel further instances of head movement over much longer distances. None of these facts are unexpected under Matushansky's theory of head-movement. Thus, a fact that might previously has been seen as a weakness, the potential for the theory to overgenerate, now seems like a strength in light of the Moro data.

As the Transparence Condition predicts that head-movement can precede XP-movement, but never vice versa ($\gg$ = precedes), we can formulate a unified ordering for different kinds of movement:

(30) Head movement $\gg$ A-movement $\gg$ $\bar{A}$-movement

Improper movement occurs whenever this ordering is violated.

Some skeptical readers might see the stranding facts above as evidence that the DP-internal movement in Moro is NP-movement, as in (Cinque, 2005). It is not clear to me that such a claim

[4] A problem with this claim is that one double object construction translating as 'I took from these three men cows stealing' only allowed the stranded modifiers to follow the VP internal material in the passive, for unclear reasons.

is falsifiable, and seems preferable purely on theory internal grounds. However, the NP-movement theory would have to be more complex, involving, e.g., remnant movement, in order to account for the observation that nominal complements never front with the noun. In contrast, the theory presented here avoids remnant movement, adopting a simple head-movement analysis of DP-internal movement, and provides evidence that the Head Movement Constraint is not monolithic, but violable, and should be derived from other, more general, principles.

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