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Head movement in disguise

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1. Setting the stage

How does the typology in (1) square with current minimalist considerations (e.g., locality and anti-locality)?

(1)   a. Phrasal movement (i.e., specifier to specifier) ➔ sensitive to Relativized Minimality (Rizzi 1990).
        b. Head Movement (successive adjunction) ➔ sensitive to Head Movement Constraint (Travis 1984).
   c. Snowballing/Roll-up (successive pied-piping).

In the context of (1c) and this workshop:

1. How does feature checking take place in snowballing movement? Are the features or the checking mechanisms different from those involved in ordinary phrasal movement through specifiers?
2. What is the empirical evidence that snowballing movement is unavoidable?

☝ Let us reconsider the typology in (1) in order to find out whether it derives from some core properties of the computational system or whether it is an artefact of our characterization of the operation Move-α (and its more recent version "Internal Merge").

Since Chomsky (1977), (2a) can be represented as in (2b) involving two types of movements: wh-movement and head movement.

(2)   a. Who did John invite to the party?
        b.
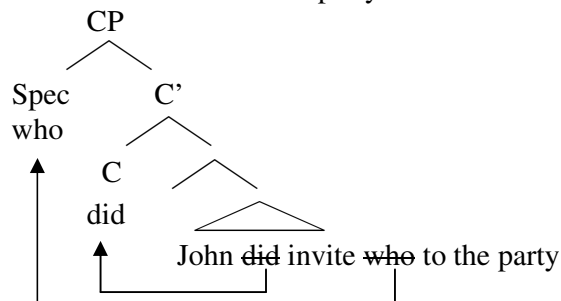
☞ Wh-movement to [spec CP] is triggered by feature checking responsible for clause-typing (Cheng 1991), but see Aboh & Pfau (forthcoming) for an alternative.

☞ I-to-C movement on the other hand, does not seem to be motivated by the need to check a formal feature but rather appears to license some morphological requirement on C.

The typology of movement suggests that:

(3)   a. Movement of a maximal category is triggered by feature checking.
        b. Movement of heads seems to meet morphological requirements.

Informally: XP-movement proceeds by 'substitution' while X-movement proceeds by adjunction.

Observe: The two movements in (2b) relate to two different procedures each sensitive to a different constraint (e.g., Travis 1984, Rizzi 1990).

Conclusion: The typology in (1a-b) implies that movement is sensitive to categorial distinction: a problem in minimalism.

Chomsky (1995) addresses the problem by proposing that the operation Attract/Move (4a) may trigger generalized pied-piping (GPP) for convergence (4b).

(4)   a. K *attracts* F if F is the closest feature that can enter into a checking relation with a sublabel of K (Chomsky 1995:297).
       b. The operation seeks to raise just F, whatever "extra baggage" is required for convergence involves a king of "generalized pied-piping." In an optimal theory, […] bare output conditions should determine just what is carried along, if anything, when F is raised (Chomsky 1995: 262).

Observe: Under (4), when a formal feature of a head X attracts a matching feature of a category Y, other formal features of Y are automatically moved as 'free-riders' together with categorical features that are required for PF convergence.

Movement leads to the formation of three chains: (4a) is required by the operation itself, while the derivative chains (5b) and (5c) could be seen as side effects of GPP.

(5)   a. $CH_F = (F, t_F)$: consists of the feature F and its trace.
       b. $CH_{FF} = (FF[F], t_{FF[F]})$: consists of formal feature FF[F] and its trace,
       c. $CH_{CAT} = (\alpha, t_\alpha)$: consists of a category α carried along by GPP and including the lexical item containing the feature F (Chomsky 1995: 265).

It is reasonable to assume that (5a-b) are part of narrow syntax, while (5c) appears a property of the PF component.

Observe: Given the formulation in (5), GPP must apply for convergence, which in turn suggests that the moving category must carry extra material.

☞ Snowballing movement could be seen as a case of (5c) (Aboh 2004a, b).

Question: Does movement always result in generalized pied-piping of some sort?

Chomsky (2001: 38) addresses this question arguing that head movement (extraction of the head) within INFL/C displays the properties in (6) and may therefore relate to "phonological properties determined by the phonetically affixal character of inflectional categories".

(6)   Head movement:
    -   does not correlate with semantic effect (Chomsky 2001: 37 "the interpretive burden is reduced if, say, verbs are interpreted the same way whether they remain in situ or raise to T or C")
    -   does not introduce new c-command relations (Chomsky 2001: 38)
    -   involves an adjunction rule (Chomsky 2001: 38)

(We will come back to these remarks later).
Chomsky's distinction between phrasal movement and head movement does not seem to easily carry over to snowballing movement or roll-up depicted in (7).
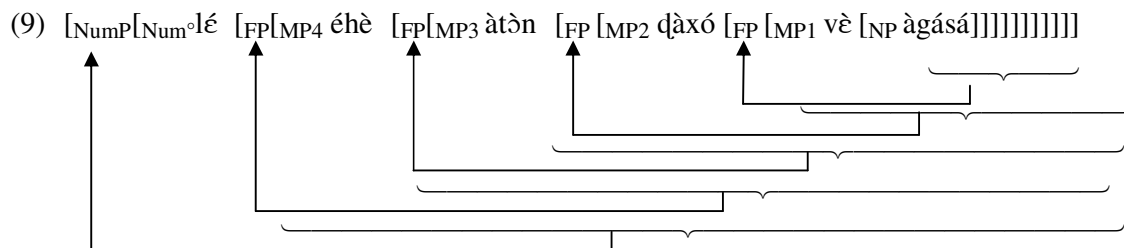
(7)
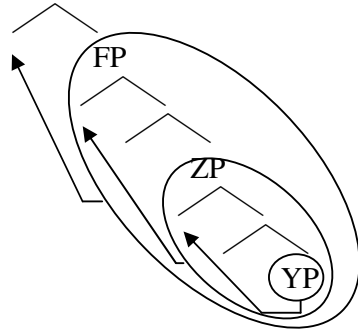
Like head movement, the status of snowballing movement is not clear. It has mixed properties of head movement and phrasal movement. It pied-pipes maximal categories and should therefore have semantic effect, but this is not always the case.

For instance, the order of modifiers in English (8a) as opposed to their mirror image in Gungbe (8b) does not result in different scope readings in the two languages.

(8) a.　These two big red crabs
　　　b.　àgásá vɛ̀[red] ɖàxó[big] àwè[two]　éhè[this] lɛ́[plural]

Aboh (2004) derives (8b) as in (9)

(9)　[NumP[Num°lɛ́ [FP[MP4 éhè　[FP[MP3 àtɔ̀n　[FP [MP2 ɖàxó [FP [MP1 vɛ̀ [NP àgásá]]]]]]]]]]]

(8a) and (8b) have varying order, but movement in (8b) does not introduce new c-command relations or new scope readings (Nevins 2010).

☞ We reach a paradox. Under the current minimalist typology of movement, snowballing movement displays similar properties to head movement and should therefore be part of the phonological component. Yet, the process involves generalised pied-piping similarly to phrasal movement and seems to obey the extension condition in that it extends the structure.

Conclusion: Current typology of movement does not seem viable.

This discussion revisits the typology of movement from both empirical and conceptual angles. 1. I will first show that the apparent three types of movements all exhibit similar properties when it comes to semantic effect and relativized minimality.

2. I will argue for a unitary approach to movement where internal merge is the consequence of a probe-goal relation between bundles of features that are properties of heads, not phrases. The same checking mechanism is at the heart of all three types of movements: phrasal movement, head movement and snowballing movement.

2. The typology of movement revisited
2.1. Phrasal movement and its relation to LF
The typology in (1) assumes that movement sometimes targets maximal categories.

(10) a. Which book did John buy?
      b. [CP [DP which book] [C did [IP John ~~did~~ buy [DP ~~which book~~]]]]

D has a wh-feature that is checked against C leading to clause typing (i.e., Interrogative force).

Conclusion: A-bar movement correlates with semantic effect.

☝ However, things are not so straightforward with A-movement. Consider (11).

(11) a. There arrived three men in the garden
      b. Three men arrived in the garden

Movement of DP-subject from [spec VP] to [spec TP] does not seem to correlate with any obvious semantic effect.

A similar observation arises in the context of passives as in (12a), partially sketched in (12b).

(12) a. The mouse was eaten (by the cat)
      b. [IP [DP the mouse] [I was [VPaux ~~was~~ [VP eaten [DP ~~the mouse~~]]]]]

Observe: Passive voice is often associated with some change in information structure, but under (12b) it is not clear whether the special information structure of passive comes from moving the internal argument to the subject position.

Finally, much simpler cases relate to unaccusatives.

(13) a. The tomato froze
      b. [IP [DP the tomato] [I [VP froze [DP ~~the tomato~~]]]]

Conclusion: A-movement does not always relate to noticeable semantic effect even though it targets a maximal category, expands the structure and respects all other properties of internal merge.

Consequence: Only movement of the A-bar type seems to have clear semantic impact. Put differently, movement to the discourse-related field (the C-domain) triggers semantic effect.

Rizzi's (2006): only movement triggered by criterial positions appears to have obvious semantic impact.

Conclusion: the idea that phrasal movement is always semantically determined is misleading.

2.2. Head movement and its relation to LF

Going back to Chomsky's (2001) description of head movement, the latter is assumed to be a PF property partly because it does not correlate with semantic effect, which seems true (14).

(14) a. Dóná nɔ̀ dù àgásá [Gungbe]
Dona Hab eat crab
b. Dóná dù-nà àglán [Gengbe]
Dona eat-Hab crab
'Dona (habitually) eats crab'

Yet, Chomsky's emphasis on "movement within the inflectional domain" relates to the fact that head movement for discourse-related purposes does have semantic effect. (15) illustrates verb focus in Gungbe.

(15) [Xɔ̀] Sɛ́ná ná nɔ̀ [xɔ̀] wémà ná Kòfí
buy Sena Fut Hab buy book for Kofi
'Sena will habitually BUY a book for Kofi'
b. [FocP [Foc **xɔ̀**[F]] [TP Sɛ́ná [T ná [AspP1 [Asp1 nɔ̀ [AspP2 [Asp2 **xɔ̀** [Asp]][vP [VP ~~xɔ̀~~ wémà ná Kòfí]]]]]]]]]]

Aboh & Dyakonova (2009) analyses verb focus with doubling as instances of parallel chains, where two higher probes attract the same copy, as shown in (16).

(16)
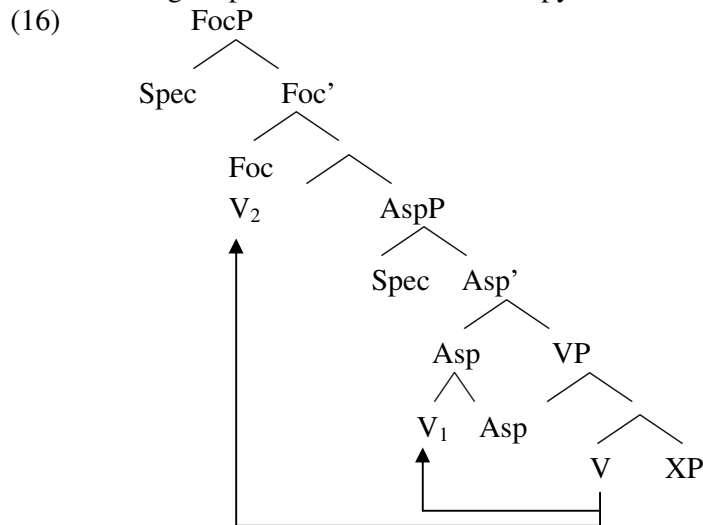
The chain (V$_2$, V) represents movement to a criterial position, while the chain (V$_1$, V) represents V-to-Asp movement (i.e., movement within the INFL domain).

The first chain has clear semantic impact and must be a product of the computational system.

The second chain is within the INFL domain and is said not to have clear semantic effect, though it correlates with aspect distinction. Accordingly, there is no principled way to account for why the first chain is a product of syntax while the second would not be.
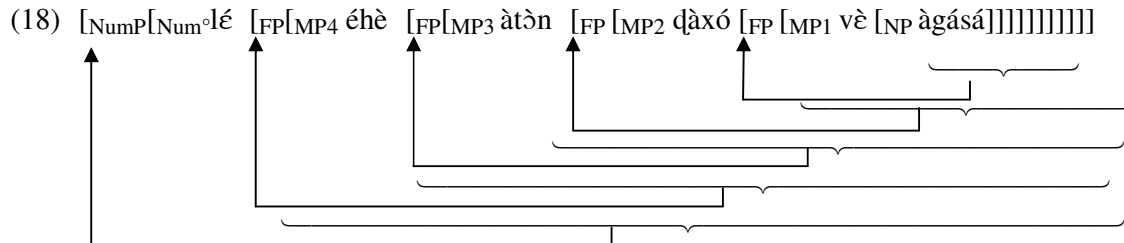
Conclusion: the emerging picture is that movement to a criterial position often triggers semantic effect, while movement within the INFL domain, whether relating to a head or a maximal projection shows less of such effect.

2.3. Snowballing movement and its relation to LF

A similar observation is made with regard to snowballing movement. Consider again (8), repeated here as (17). There is no semantic distinction between English and Gungbe though the latter involves snowballing movement as repeated in (18).

(17) a. These two big red crabs
b. àgásá vɛ̀[red] ɖàxó[big] àwὲ[two] éhὲ[this]   lέ[plural]

(18) [NumP[Num°lέ [FP[MP4 éhὲ [FP[MP3 àtɔ̀n [FP [MP2 ɖàxó [FP [MP1 vɛ̀ [NP àgásá]]]]]]]]]]]

Aboh (2004a, b): snowballing movement in (18) is triggered by the same principles which trigger N-to-D movement under Longobardi (1994). In the context of this discussion, snowballing movement targets the INFL domain of the noun.

A comparable situation is found in Malagassy. Cinque (1999) argues that adverbs fall into distinct classes representing discrete functional projections in the universal hierarchy in (19).

(19)

C1	>	C2	>	C3	>	C4	>	C5	>	C6
generally		already		anymore		always		completely		well

According to Pearson (2000), Malagasy (a VO language lacking verb movement) displays preverbal and postverbal adverbs. Preverbal adverbs match the corresponding order in (19), while postverbal ones display the mirror image of that hierarchy, (20).
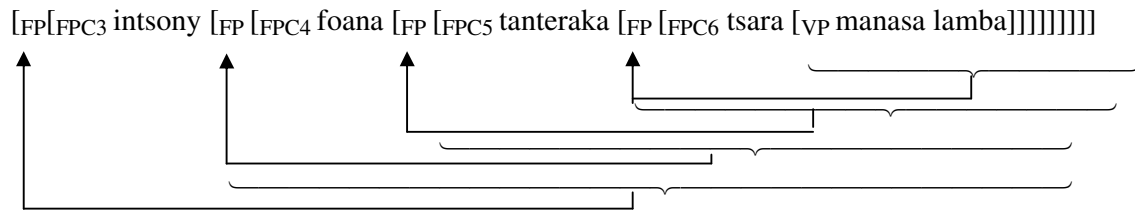
(20)

C1	>	C2	Verb	<	C6	<	C5	<	C4	<	C3
matetika		efa	Verb		tsara		tanteraka		foana		intsony
generally		already			well		completely		always		anymore

The relevant examples are given in (21).

(21) a. Manasa   lamba [tsara tanteraka]   Rakoto
        wash   clothes well   completely   Rakoto
        'Rakoto completely washes clothes well'
b. Manasa   lamba [tanteraka   foana] Rakoto
        wash   clothes completely   always Rakoto
        'Rakoto always washes clothes completely'
c. Tsy manasa lamba   [foana intsony]   Rakoto
        Neg wash   clothes   always anymore   Rakoto
        'Rakoto doesn't always wash clothes anymore'

Following Pearson (2000), Aboh (2004a, b) argues that, unlike Romance, overt V-movement is impossible in Malagasy. As a result, snowballing movement applies: VP left-adjoins to adverb of class C6. Then the phrase verb-adverb[class 6] moves to the left of the adverb of C5. The phrase verb-adverb[class 6]-adverb[class 5] further moves to the left of the adverb C4 and the phrase verb-adverb[class 6]-adverb[class 5] -adverb[class 4] subsequently moves to the left of the adverb of C3 forming the phrase verb-adverb[class 6] -adverb[class 5] -adverb[class 4] -adverb[class 3].

(22)

[$_{FP}$[$_{FPC3}$ intsony [$_{FP}$ [$_{FPC4}$ foana [$_{FP}$ [$_{FPC5}$ tanteraka [$_{FP}$ [$_{FPC6}$ tsara [$_{VP}$ manasa lamba]]]]]]]]]]

Observe: Snowballing movement here does not derive new scope relations. Accordingly, when movement is triggered by formal properties of the INFL domain, new c-command relations are not established, and semantic effect is hard to detect.

Semantic effect arises, however, when movement is triggered by some left peripheral specification to reach a criterial position (e.g., in Gungbe).

Aboh (2004a, b) show that Gungbe has a series of discourse markers that can occur to the left periphery or to the right edge.

(23) a. Ùn sè ɖɔ̀ [àgásá lɔ́]$_i$ **yà** Kòfí xɔ̀ ὲ$_i$
1sg hear that crab Det Top Kofi buy 3sg
'I heard that, as for the crab, Kofi bought it'

b. Ùn sè ɖɔ̀ [àgásá lɔ́]$_i$ **wὲ** Kòfí xɔ̀ t$_i$
1sg hear that crab Det Foc Kofi buy
'I heard that Kofi bought THE CRAB'

c. Ùn sè ɖɔ̀ [àgásá lɔ́]$_i$ **yà** [Kòfí]$_j$ **wὲ** t$_j$ xɔ̀ ὲ$_i$
1sg hear that crab Det Top Kofi Foc buy 3sg
'I heard that, as for the crab, KOFI bought it'

Sentence (24) illustrates Gungbe yes-no questions: these are encoded by a sentence-final low tone as indicated by the additional stroke [`] glossed as Int.

(24) Ùn kànbíɔ́ ɖɔ̀ Kófí xɔ̀ àgásá lɔ́ `
1sg ask that Kofi buy crab Det Int
'I asked whether Kofi bought the crab?'

In yes-no questions involving the topic and focus markers, these occur sentence-finally in the mirror image of the hierarchy in (23c): focus > topic > Int.

(25) Ùn kànbíɔ́ ɖɔ̀ Kófí xɔ̀ àgásá lɔ́ **wὲ** **yà** `
1sg ask that Kofi buy crab Det Foc Top Int
'I asked whether KOFI BOUGHT THE CRAB (as expected)?'

The structure is derived as in (26): FinP moves to [spec FocP], then FocP moves to [spec TopP] followed by TopP-movement to [spec InterP] (Aboh 2004a, b).

(26)　[$_{ForceP}$ [$_{Force°}$ **ɖɔ̀** [$_{InterP}$ [$_{Inter°}$ ` [$_{TopP}$ [$_{Top°}$ **yà** [$_{FocP}$ [$_{Foc°}$ **wὲ** [$_{FinP}$ Kófí xɔ̀ àgásá lɔ́]]]]]]]]]]

Observe: Word order alternation in the examples (23) - (26) provides strong empirical support for snowballing movement as a syntactic phenomenon.

Interim conclusion: The discussion on the semantic effect of movement shows that: movement within INFL exhibits little or no effect, unlike movement to a criterial position. Phrasal movement, head movement and snowballing movement all show this partition.

Consequence: Semantic effect does not distinguish between movement types and cannot indicate which is visible to syntax and which is not. To the contrary, looking at semantic effects suggests that all movement types (i.e., phrasal, head, and snowballing) are part of syntax though their contribution to semantics varies depending on whether the movement is INFL-related or Criterion-related.

3. Head movement in disguise

Move: There does not seem to be any principled way for deciding which chain form belongs to the syntactic component and which does not. The observation is not surprising given current minimalist considerations (e.g., "Attract" as defined in (5)). Movement results from a probe-goal relation between bundles of features that are properties of heads.

➔ Whether the operation pied-pipes the head (minimally) or other features of the target that are required for PF convergence, is irrelevant to the computational system, which only calculates the relation between the probe and the goal (Aboh 2004a, b, Donati 2006).

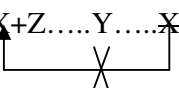**Conclusion**: Syntactic movement is by necessity head movement, sometimes in disguise.

✠ Two questions: (i) Generalized Pied-piping and its relation to relativized minimality; (ii) Snowballing movement.

3.1. Head movement and relativized minimality

Travis (1984: 131) formulated the Head Movement Constraint as follows:

(27)   An X° may only move into the Y° which properly governs it.

This constraint, adopted from Baker's work on incorporation excludes (28a), where Z attracts X, leaving (28b) as the only option for head movement.

(28) a. X+Z…..Y…..X

b. [X+Y]+Z…..Y̶….X̶

☞ **Consequence**: Long head movement is excluded

Problem: (27) derives directly from morphological rearrangement rules and could turn out to be an artefact of such rules, which might not necessarily express structural dependencies.

Most studies assume head movement to proceed as in (28b), but Donati (2006) suggests another possibility. Suppose X, with an uninterpretable feature, probes over a matching head Y. The latter may merge with the root of the structure as in (29).

(29)

```
            ?
          /  \
        Y     XP
             /  \
            X    /\
                /__\
                 Y̶
```
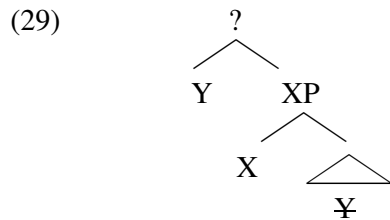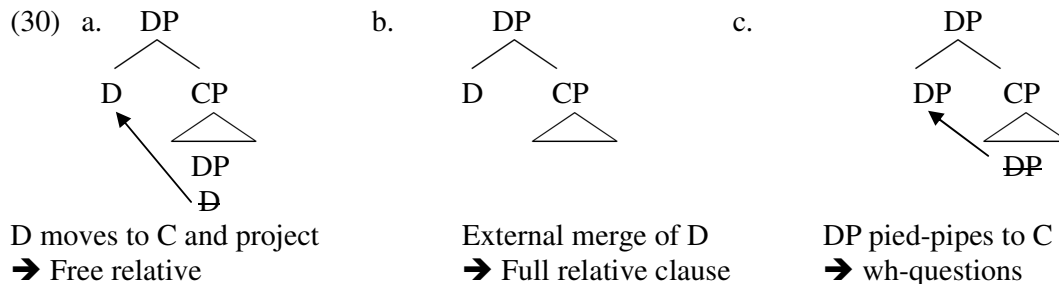
Donati (2006: 33): representation (29) allows us to distinguish between free relatives, D moves to C and projects (30a), full relatives, D is externally merged to C (30b), and wh-questions, DP is pied-piped to C and does not project (30c).

(30) a.   DP   b.   DP   c.   DP
          /   \   /   \   /   \
        D   CP   D   CP   DP   CP
              /\   /\   /\
             /__\   /__\   /__\
             DP   DP̶
             D̶

D moves to C and project   External merge of D   DP pied-pipes to C
➔ Free relative   ➔ Full relative clause   ➔ wh-questions

Given Donati's (2006) analysis, it might turn out that (27) i.e., Head Movement Constraint, is more relevant for word building processes than structure building.

A question that merits exploration: Could classical head movement (e.g., V-to-I) be a result of (29)?

Setting aside the proper answer to this question, it appears that (27) does not belong to the same class of locality constraints that limit the range of movement: Relativized Minimality.

Suppose Relativized Minimality arises within class of features not across them (Rizzi 1998, Starke 2001).

(31) X-relating two occurrences of α is legal only if $\alpha \in X$ and there is no γ, $\gamma \in X$ and γ intervenes between the two occurrences of α.

   (where relating two occurrences of α can be interpreted either as moving from the position of one to the position of the other, or as creating a chain between the two) Starke (2001: 7).

Under this view, head movement can be short or long depending on whether it crosses the relevant intervener or not.

In terms of Aboh & Dyakonova (2009), (16) representing verb focus movement is an instance of long head movement: the verb can skip intervening tense and aspect markers (32).

(32) [Hɔ̀n]   Sɛ́ná   ná   nɔ̀   [hɔ̀n]   sɔ́n   xwégbè
     buy   Sena   Fut   Hab   buy   from   house
     'Sena will habitually FLEE from the house'

Consider, however, the following contrast between wh-questions involving focus in Gungbe and verb focus in the context of negation.

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(33) a. Ménù   wè   Séná má   ná   yrɔ́?
         Who   Foc   Sena Neg Fut   call
         'Who will Sena not invite?'

     b. Kpà   Séná má   kpà mí,   é   ná   mí   kwé tàùn
         praise   Sena Neg praise us he   give us   money a.lot
         '*Sena will not PRAISE us, he gave us a lot of money'
         'Sena did not only PRAISE us, he also gave us a lot of money'

(33a): wh-phrases (and focus phrases for that matter) are not sensitive to the intervening negative head *má* encoding sentential negation. *má* does not introduce a negative operator (Haegeman 1995) and might belong to a different class of quantifiers that do not interfere with wh/focus movement (see Starke 2001 for discussion).

(33b): sentential negation is blocked. *má* interferes with movement of the verb to Foc. Negation here can only be interpreted narrowly, where the expressed event is contrasted with some other envisaged event.

☞ Neg is sensitive to the properties of a moving verbal head.

That the example in (33b) displays Relativized Minimality violation is further illustrated by the fact Neg-intervention persists in OV constructions. Here, verb focus requires generalized pied-piping of the verb and its dependents (Aboh 2004a, b, Aboh & Dyakonova 2009).

Gungbe exhibits OV constructions of the type in (34).

(34) Séná má   wá   àyí   zà   gbé
     Sena Neg   come floor sweep Purpose
     'Sena did not come (in order) to sweep the floor'

When verb focus applies, Gungbe allows (35a) but excludes (35b).

(35) a. [àyí   zà   gbé]   Séná wá
         Floor   sweep Purpose   Sena come
         'Sena came (in order) TO SWEEP the floor'

     b. *zà   Séná wá   àyí   zà   gbé
         sweep   Sena come floor sweep Purpose
         'Sena came (in order) TO SWEEP the floor'

In the context of negation *má*, sentential negation is lost as indicated in (36a). This effect is absent in wh-extraction as shown in (36b-c).

(36) a. *[àyí   zà   gbé]   Séná má   wá….
         Floor   sweep Purpose   Sena Neg   come
         'Sena did not come (in order) TO SWEEP the floor'

     b. Ménù   wè   má   wá   àyí   zà   gbé?
         Who   Foc   Neg   come floor sweep Purpose
         'Who did not come (in order) to sweep the floor?'

     c. Été   wè   Séná má   wá   zìzà   gbé?
         What   Foc   Sena Neg   come RED.sweep   Purpose
         'What did Sena did not come (in order) to sweep?'

⚗ **Observe**: Why negation exhibits strong island effect in the case of OV extraction but weak island effect in the case of V extraction remains to be explained.

☞ For the purpose of this talk: the contrast in (33b) and (36a) shows that whether head movement extracts the head or pied-pipes the head together with its dependents, movement must obey Relativized Minimality: a relevant intervener blocks movement of the verb but not that of a wh-phrase.

Together, these facts indicate that attraction of the Event head (i.e, V) to the focus domain can take different forms (V-extraction vs. generalized pied-piping).

Conclusion: Internal merge is by necessity head movement, sometimes in disguise.

Movement for the purpose of feature checking is a property of heads, even though the physical shape of movement can vary from head extraction, phrasal pied-piping to snowballing movement.

3.2. How far can a moving head travel?
Under this unitary view of movement, some questions arise:
1. Why is movement of a phrase necessarily cyclic and possibly long-distance?
2. Why is movement of a head apparently counter-cyclic and local?
3. What conditions generalized pied-piping?

⚗ If true that movement is by definition head movement and movement only obeys Relativized Minimality as in (31), there should be no upper limit to movement except for a relevant intervening element.

☞ This would mean that various formulations of locality in the field which seem to calculate structural distance (or barriers) cannot be the right formulation (Starke 2001).

⚗ Notions of Anti-Locality become puzzling. Suppose a configuration where D c-selects NP, and has an Edge feature that requires [spec DP] to be realized. How to exclude (37) on principled ground?

(37)
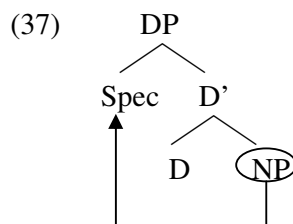
Question 1: cyclicity seems to derive from a conjunction of movement to a criterial position and Relativized Minimality: there is nothing intrinsic to movement (i.e., internal merge) such that it must be cyclic.

(38) a. What do you wonder whether John will cook <what>? (Starke 2001: 7)
      b. C'est quoi que tu crois que Jean a cuisiné <quoi>? (Starke 2001: 15)

Question 2 is misleading because it builds on traditional 'head movement' as defined in Travis (1984).

Assuming Donati's (1996, 2006) unitary approach to movement and the view in (29), a possible advantage is that 'traditional head movement' is actually phase extension through remerge (see also Giusti 2010). This view goes back to Grimshaw's (1991) extended projection.

This would mean that in a sequence like (38), all additional (or extending) projections represent each a subclass of features pertaining to verbal predicates.

(39)

$V_{[Tense]}$

$V_{[Mood]}$

$V_{[Asp]}$

V
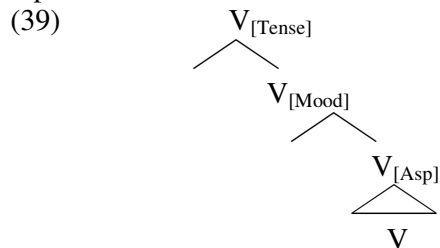
In the context of (31) as discussed in Starke (2001), any such extending head is a super intervener as it belongs at the same time to the class of special verbal elements encoding inflection (e.g., Tense, Aspect, Mood) as well as the larger class of verbal lexical items.

Conclusion: That movement within INFL cannot skip any such extending head results from Relativized Minimality, not from the HMC.

Under this view, snowballing movement seems to derive from head movement with massive pied-piping (Aboh 2004a, b).

Question 3 is the most difficult one and awaits further research.

4. Conclusion
This discussion shows that the different types of movements presented in the literature (phrasal, head, snowballing movement) can all determine specific semantic effects depending on whether they target the INFL domain or a criterial position. As such, there does not seem to be any principled way for deciding which movement type belongs to the syntactic component and which does not. In current minimalism, movement is a probe-goal relationship between bundles of features that are properties of heads. Under this view, whether the operation pied-pipes the head (minimally) or other features of the target that are required for PF convergence, is irrelevant to the computational system. The latter only calculates the relation between the probe and the goal (Aboh 2004a, b, Donati 2006). This would mean that, aside the form of the moving category, there is no fundamental difference between the syntactic operations triggering head movement, phrasal movement or snowballing movement. Syntactic movement is by necessity head movement, sometimes in disguise. Building on Rizzi (1990, 1998) and Starke (2001), the paper concludes that the only trigger for movement is 'feature checking' and the only constraint regulating movement is Relativized Minimality.

References
Aboh, E. O. 2004a. *The morphosyntax of complement-head sequences*: *Clause structure and word order patterns in Kwa*. Oxford University Press. New York.
Aboh, E. O. 2004b. Snowballing movement and Generalized Pied-Piping. In Anne Breitbath and Henk van Riemsdijk (eds.), *Trigger*, Mouton, Berlin. Pp. 15–47.

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Aboh, E. O. and M. Dyakonova. 2009. Predicate doubling and parallel chains. *Lingua*. 119: 1035–1065.

Aboh, E. O. and R. Pfau (forthcoming) What's a wh-word got to do with it? [Joint paper with Roland Pfau]. In *The Cartography of CP*. Benincà, P. & N. Munaro eds., New York: Oxford University Press.

Chomsky, N. 1977. On Wh-movement. In P. Culicover, T. Wasow and A. Akmajian eds., *Formal Syntax*. Academic Press. New York.

Chomsky, N. 1995. The minimalist program. MIT Press. Cambridge, Massachusetts.

Chomsky, N. 2001. Derivation by phase. In M. Kenstowicz ed., *Ken Hale*: *A life in language*, 1–52. MIT Press. Cambridge, Massachusetts.

Donati, C. 1996. A case study of head movement comparative clauses. *CatWPL* 5: 169-181.

Donati, C. 2006. On Wh-head movement. In L. Cheng and Norbert Corver eds., *Wh-movement. Moving on*. MIT Press. Cambridge, Massachusetts.

Giusti, G. 2010. On concord and projection. Talk given at the Syntax Circle, University of

Grimshaw, J. 1991. Extended Projections. Ms. Rutgers University.

Haegeman, L. 1995. The syntax of negation. Cambridge University Press: Cambridge.

Kayne, R. 1994. *The Antisymmetry of syntax*. MIT Press. Cambridge, Massachusetts.

Nevins, A. 2010. Convergent Evidence for Rolling Up Catalan Adjectives. Ms. UCL.

Rizzi, L. 1990. Relativized minimality. MIT Press. Cambridge, Massachusetts.

Rizzi, L. 1998. Relativized minimality effects. Ms. University of Siena.

Rizzi, L. 2006. On the form of chains: Criterial positions and ECP. In L. Cheng and Norbert Corver eds., *Wh-movement. Moving on*. MIT Press. Cambridge, Massachusetts.

Starke, M. 2001. Move dissolves into Merge: A theory of locality. Ph.D. dissertation, University of Geneva.

Travis, L.M. 1984. Parameters and effects of word order variation. Ph.D. dissertation, MIT, Cambridge Massachusetts.