

## Generalized Head Movement

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### 1. Introduction

**Two types of head-to-head movements** (Emonds 1970, 1978, Pollock 1989, Halle & Marantz 1993, Bobaljik 1995, Embick & Noyer 2001):

(1) **Head Movement is raising: V to T in French**

Jean {\*souvent embrasse / embrasse souvent} Marie.  
Jean often kisses / kisses often Marie  
'Jean often kisses Marie.'

Pollock 1989:367

(2) **Lowering: T to lexical V in English**

Sue {often eats / \*eats often} fish.

**Proposal: Head raising and lowering are the same operation (Section 2)**

- **Generalized Head Movement** creates complex head copies in the two positions.
- **Copy pronunciation** determines whether the effect is raising or lowering.

Similar to: Adger, Harbour & Watkins 2009, Svenonius 2016, Harizanov & Gribanova 2017.

**Overarching argument: Head raising and lowering have the same properties**

Both are cyclic and feed further head movement.

**Argument 1: Successive cyclic lowering in Ndebele relative clauses (Section 3)**

- Lnk, C & T form a complex head **pronounced in T, the lowest position.**
  - Internal structure obeys **Mirror Principle**: [Lnk [C T]].
- ⇒ **Cyclic head raising and lowering generate the same types of structures.**

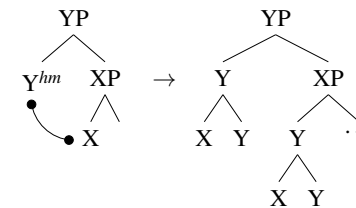
**Argument 2: Lowering feeds raising in Mainland Scandinavian V2 (Section 4)**

- **V to C appears to skip T**: no independent evidence for V to T.
  - V to C is **T to C raising fed by T to V lowering**, made possible by GenHM.
- ⇒ **No look-ahead or long head movement required.**

## 2. Generalized Head Movement (GenHM)

Definition, abstracting away from linear order (left/rightmost heads; left/right head adjunction):

(3) **Generalized Head Movement**



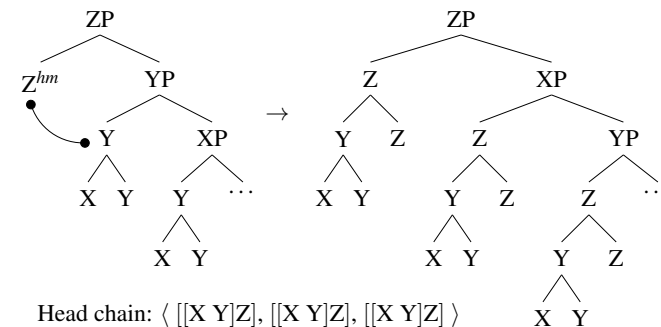
- **Neutral between raising or lowering.**

- **Identical copies in both positions.**

- Triggered by feature on higher head.

- **Head chain:** < [X Y], [X Y] >

(4) **Further application of GenHM generates identical copies in all positions:**



Derives Mirror Principle by incorporating Head Movement Constraint and No Excorporation. (Travis 1984, Baker 1985, 1988)

**Raising vs. lowering effect is due to postsyntactic rules of pronunciation**

- (5) A head position can be strong (X\*) or weak. (Cf. Svenonius 2016)
- (6) a. Pronounce the highest strong position, if any;  
b. otherwise, pronounce the highest position.

Some classical case studies:

- (7) *Raising of V to T in French*  
Weak V and T: Pronunciation in T (highest position).
- (8) *Lowering with lexical Vs vs. raising with auxiliary Vs in English*  
Strong V<sub>lex</sub>\*, weak V<sub>aux</sub>, T: Pronunciation in T by default, but in V if lexical.

**V and T related by the same GenHM operation in all cases**, triggered by T<sup>hm</sup>.

See later for chains with more than one strong position.

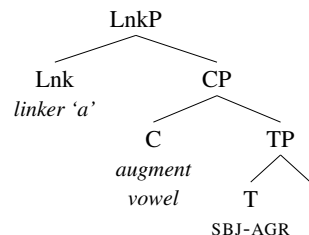
### 3. Successive cyclic lowering in Ndebele

Relative clauses in Ndebele (Bantu, S44): special subject AGR prefix on the RC-internal verb:

- (9) **Regular subject prefix (SBJ-AGR)** (10) **Relative subject prefix (REL-AGR)**  
 Isi-lwane **si**-za-gijjima. isi-lwane [<sub>RC</sub> **esi**-za-gijjima. ]  
 7-lion 7SBJ-FUT-run 7-lion [<sub>RC</sub> 7REL-FUT-run ]  
 'The lion will run' 'the lion that will run'

#### REL-AGR prefix is trimorphicic (Pietraszko 2017)

- (11) *Relative agreement: Lnk, C & T* • The associative linker 'a' (Taraldsen 2010, Cheng 2006)



- The relative C hosts an augment vowel covarying with the RC-internal subject (Cheng 2006, Diercks 2010)

- Regular SUBJ-AGR prefix in T

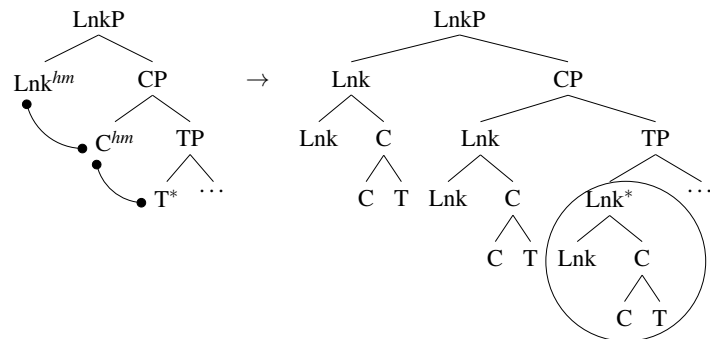
REL-AGR derived by regular phonology; additional syntactic evidence in Pietraszko 2017.

#### The components of class 7 REL-AGR (10)

- (12) [<sub>NP</sub> 7lion [<sub>LnkP</sub> Lnk [<sub>CP</sub> Op<sub>i</sub> C<sub>ϕ:7</sub> [<sub>TP</sub> t<sub>i</sub> T<sub>ϕ:7</sub> [<sub>vP</sub> run ]]]]]] → *esi*  
**by regular phonology**

#### REL-AGRS are formed by applying GenHM cyclically to T, C and Lnk

- (13) *Weak Lnk, weak C, and strong T\**

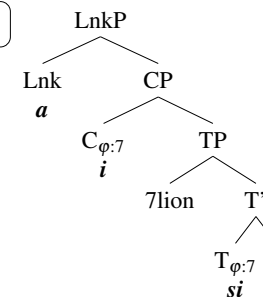


**T-C-Lnk pronounced in highest strong position, in TP.**

Evidence for low spellout position

All three components of REL-AGR follow RC-internal subject:

- (14) i-nyama [<sub>RC</sub> *isi-lwane esi-* yi- dlileyo. ]  
 9-meat [<sub>RC</sub> 7-lion 7REL- 9OBJ- ate.DSJ ]  
 'the meat that the lion ate'



Henderson (2007) on similar facts in Zulu:  
 Subjects precede REL-AGR because they're left dislocated topics.

**Unlike matrix subjects, RC-internal subjects are not topical:**

- (15) **Matrix subject: \*focus** \*Abafana kuphela ba-dla isuphu. 2boys only 2S-eat 7soup 'Only boys eat soup.'  
 (16) **RC-internal subject: ✓focus** isuphu [<sub>RC</sub> abafana kuphela aba-si-dlayo ] 7soup [<sub>RC</sub> 2boys only 2REL-7o-eat ] 'the soup that only boys eat'

Evidence for cyclicity

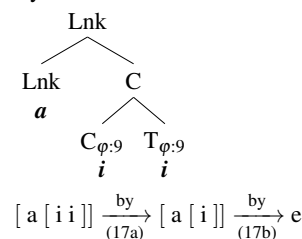
REL-AGRS are formed by bottom-up application of regular coalescence rules (Sibanda 2004):

- (17) Vowel coalescence rules: a. V<sub>α</sub> + V<sub>α</sub> → V<sub>α</sub>  
 b. a + i → e  
 c. a + u → o  
 d. e + V<sub>α</sub> → V<sub>α</sub>
- (18) 

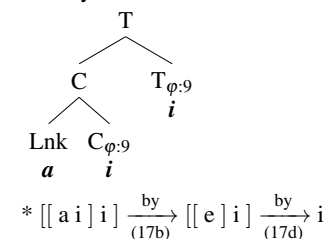
class	[ Lnk [ C <sub>ϕ</sub> T <sub>ϕ</sub> ]]	→ REL
1	a u u	→ [a [u]] → o
9	a i i	→ [a [i]] → e
7	a i si	→ [a [isi]] → esi
11	a u lu	→ [a [ulu]] → ulu

**This phonological derivation reveals a mirror-principle obeying structure of REL-AGR:**

- (19) Cyclic derivation of class 9



- (20) Non-cyclic derivation of class 9



Cyclic head raising and lowering create complex heads with the same internal structure

**4. Lowering feeds raising in Mainland Scandinavian V2 (MSc)**

**V in C in V2 contexts, but no independent evidence for intermediate step in T.**

(i.a. Den Besten 1983, Taraldsen 1985, Holmberg & Platzack 1995 1986, Vikner 1995)

- (21) *V in C in V2 contexts, diagnosed by position to the left of subject*  
 Om morgenen **drikker** [TP Peter [VP ofte kaffe ]]  
 in the.morning **drinks** [TP Peter [VP often coffee ]]  
 ‘Peter often drinks coffee in the morning.’ Danish (Vikner 1995:47)
- (22) *V in situ in non-V2 contexts, diagnosed by position to the right of VP adverbs*  
 Vi ved at [TP Peter [VP ofte **drikker** kaffe om morgenen ]]  
 we know that [TP Peter [VP often **drinks** coffee in the.morning ]]  
 ‘We know that Peter often drinks coffee in the morning’ Danish (Vikner 1995:47)

Previous analyses sacrifice cyclicity or locality:

- (23) *Look-ahead derivation: V moves to T only on its way to C.*  
 (Holmberg & Platzack 1995, Vikner 1995)  
 a. T-to-V Lowering in non-V2 (or related operation, e.g. covert V-to-T).  
 b. V-to-C Head Movement in V2, with intermediate local step in T.
- (24) *Long head movement derivation: V moves to C directly* (Harizanov & Gribanova 2017)  
 a. T-to-V Lowering (Amalgamation) in all contexts.  
 b. In V2, V moves directly to CP domain; no intermediate step in T.

**GenHM analysis is cyclic and local**

- T triggers lowering GenHM, which feeds raising triggered by C.
- Strong C\* and V\*, weak T ⇒ V is in C in V2 contexts, in situ otherwise.  
 (V=v, Voice, Asp, Aux, ...)  
 (Cf. Svenonius’s (2016) Mirror Theoretic analysis.)

**Derivation in non-V2 contexts**

(25) *Weak T and strong V\**

**V-T pronounced in highest strong position, in VP**

**Derivation in V2 contexts: T-V lowering (25) feeds T-C raising**

(26) *Strong C\*, weak T, and strong V\**

**V-T-C pronounced in highest strong position, in CP.**

**GenHM analysis is cyclic and local**

- T always lowers to V, but leaves a V-T copy in T position.
- C attracts V-T copy in T position.
- **Apparent nonlocality/noncyclicity is because strong positions are not adjacent.**

**Addressing previous challenges to locality/cyclicity in MSc V2:**

- Other cases of long head movement: Slavic participle fronting (Harizanov&Gribanova 2017)
- VP ellipsis blocks V-to-C (Sailor 2009, 2017).

- (27) *Participle fronting skips intervening auxiliaries* (Bulgarian, Harizanov & Gribanova 2017:20)  
 a. *Šte sām pročel knigata.*  
*will have read.PRT the.book*  
 ‘I will have read the book.’  
 b. *Pročel šte sām knigata.*  
*read.PRT will have the.book*  
 ‘I will have read the book.’
- (28) *Participle fronting skips even intervening participles* (Czech, Embick & Izvorski 1997:(6))  
 a. *Byl bych koupil knihy.*  
*be.PRT would.1SG buy.PRT books*  
 ‘I would have bought books.’  
 b. *Koupil bych byl knihy.*  
*buy.PRT would.1SG be.PRT books*  
 ‘I would have bought books.’

**Unlike true long head movement, V2 in MSc is strictly local, as predicted by HMC.**

- (29) *C attracts the V with finite T* (Danish, Vikner 1995:31)  
 a. Her **har** Peter ikke sovet.  
 here **has** Peter not slept.  
 ‘Peter has not slept here.’  
 b. \*Her sovet Peter ikke **har**.  
 here slept Peter not **has**.  
 ‘Peter has not slept here.’

## Sailor's (2009, 2017) argument for nonlocal/countercyclic V-movement to C in MSc:

- (30) **In VPE+V2 contexts, lexical Vs don't move to C**  
 \*Mona og Jasper vaskede bilen, eller rettere Mona vaskede [ *tp* bilen ]  
 Mona and Jasper washed the.car or rather Mona washed [ *tp* the.ear ]  
 Mona and Jasper washed the car, or rather Monda did.' Danish (Sailor 2017:5)
- (31) **Instead, V2 requirement is satisfied by auxiliary V do**  
 Mona og Jasper vaskede bilen, eller rettere Mona **gjorde** [ *vaske bilen* ]  
 Mona and Jasper washed the.car or rather Mona **did** [ *wash the.ear* ]  
 Mona and Jasper washed the car, or rather Monda did.' Danish (Houser et al. 2011:249)

Sailor: elided material is inaccessible to movement out of ellipsis site (Aelbrecht 2010), and **V moves to C directly** (or through T countercyclically):

- (32) **Blocked derivation of VPE+V2 in (30) in Sailor 2017**
- a. *T triggers VP ellipsis; no V-movement*      b. *C can't attract V from elided VP*
- $$\begin{array}{ccc}
 \left[ \text{TP T } \left[ \text{VP-V } \text{DP} \right] \right] & & \left[ \text{CP C } \left[ \text{TP T } \left[ \text{VP-V } \text{DP} \right] \right] \right] \\
 & & \underbrace{\hspace{2.5cm}}_{\times}
 \end{array}$$

If T attracted V cyclically, it would escape ellipsis, as in V-stranding VPE languages.

### VPE in MSc is compatible with a cyclic & local analysis of V2, as predicted by GenHM.

**Our counterargument: In VPE+V2 contexts, a verb does move to C** (Houser et al. 2011):  
 V2 requirement is satisfied by auxiliary *do* (31), and ...

- (33) **VPE requires do-support even in non-V2 contexts**  
 Der er en forventning om, at vi skal gå videre, selv om det snarere vil være en stor  
 there is an expectation about that we shall go further even if it rather will be a big  
 skuffelse end katastrofalt, [ hvis vi ikke **gør** [ gå videre ] ]  
 disappointment than catastrophic [ if we not **do** [ go further ] ]  
 'We are expected to go further (in the competition). That said, it would be a great disap-  
 pointment, not a catastrophe, if we don't.' Danish (Houser et al. 2011:251–252)

⇒ **Do is inserted lower than C, and moves to C in V2 contexts.**

**Movement of V to C in VPE+V2 is out not because it's in the elided VP, but because do is closer:**

- (34) **VPE+V2 derivation: ellipsis & do-support followed by cyclic & local do-movement to C**
- $$\left[ \text{TP T } \left[ \text{VP V(do) } \left[ \text{VP-V } \text{DP} \right] \right] \right] \rightarrow \left[ \text{CP V(do)+T+C } \left[ \text{TP } \left[ \text{VP } \left[ \text{VP-V } \text{DP} \right] \right] \right] \right]$$

## 5. Conclusion

Head raising and lowering are epiphenomenal: high and low spellouts of GenHM.

- Argument 1: Lowering generates Mirror-Principle-obeying complex heads.
- Argument 2: Lowering can feed raising, resulting in apparent long head movement.

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