

# Verb movement in layered derivations

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Verb movement: its nature, triggers, and effects  
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## 1. Verb-second vs. verb fronting

(1) a. ... dat hij haar op bel-t  
C 3SG.M.NOM 3SG.F.ACC up call-3SG  
'... that he calls her on the phone'

- b. Hij belt haar op
- c. \*Hij op belt haar

(2) a. Hij moet haar op bellen  
must:SG  
'He has to call her on the phone.'

- b. \*Bellen moet hij naar (niet) op
- c. Op bellen moet hij haar (niet)

(3) head movement vs. XP-movement?

- a. Hij moet haar bellen  
(same as (2a))
- b. Bellen moet hij haar niet  
(same as (2b), but grammatical)

(4) a. ... dat hij z'n haar (rood) verf-t  
C 3SG.M.NOM 3SG.M.POSS hair red dye-3SG  
'... that he is dyeing his hair (red).'

- b. Hij verft z'n haar (rood).
- c. Hij moet z'n haar (rood) verven
- d. Verven moet hij z'n haar (niet) (\*rood)

(5) a. ... dat hij haar hoor-de lop-en  
C 3SG.M.NOM 3SG.F.ACC hear-SG.PAST walk-INF  
'... that he heard her walk'

- b. Hij hoorde haar lopen
- c. Hij moet haar hor-en lop-en  
hear-INF
- d. \*Horen moet hij haar (niet) lopen (\*Lopen moet hij haar niet horen)
- e. Horen lopen moet hij haar (niet)

(6) topological fields of Dutch

initial field	left bracket	middle field	right bracket	final field
<i>subject/ fronted elements</i>	<i>V<sub>fin</sub></i>	<i>clitics/objects/adverbs/ particles/predicates</i>	<i>V<sub>fin</sub>/ V<sub>infin</sub></i>	<i>extraposed material</i>

LEFT BRACKET	LEFT BORDER		MIDDLE FIELD PROPER	RIGHT BORDER	RIGHT BRACKET
finite verb	subject*	clitics / weak pronouns		verbal particles** sec. predicates** stranded P	verb verb cluster

\* only in inversion constructions

\*\* also inside the verb cluster

(7) a. Hij moet daar niet over prat-en  
 3SG.M.NOM must:SG DEM.DIST:LOC NEG about talk-INF  
 'He shouldn't talk about that.'

- b. Praten moet hij daar niet over  
 c. \*Over praten moet hij daar niet

(8) rightward shift of stranded P is perhaps not syntactic

- a. het hek met de kwast rood (\*met de kwast) verven  
 the fence with the brush red paint:INF  
 'paint the fence red with the brush'
- b. daar het hek (mee) rood (mee) verven
- cf. Zwart 1993: argument for predicate movement (to PredP)  
 but not valid if P shift is postsyntactic

(9) clusters of (a) verbs, (b) verbs + predicate, (c) verbs + particle

- » **cannot** be split by verb fronting
- » **can** be split by V2

(10) Let's say that verb fronting (topicalization) is a syntactic operation (Merge)

- » then clusters (etc.) are syntactically opaque
- » then V2 may be "phonological" (or better: morphological)

## 2. Opacity and derivation layering

(11) *Simplest merge*

a. Top-down: split

$N = \{ a, b, c \}$

$N$   
 $> \langle a, \{ b, c \} \rangle$   
 $\langle a, \langle b, \{ c \} \rangle \rangle$   
 $\langle a, \langle b, \langle c, \{ \} \rangle \rangle \rangle$   
 $> \langle a, b, c \rangle$

b. Bottom-up: transfer

$N = \{ a, b, c \}$

$N$		workspace
$> \{ a, b, c \}$		$\emptyset$
$\{ b, c \}$		$\langle a, \emptyset \rangle$
$\{ c \}$		$\langle b, \langle a, \emptyset \rangle \rangle$
$\{ \}$		$\langle c, \langle b, \langle a, \emptyset \rangle \rangle \rangle$
$> \langle c, b, a \rangle$		

(12) *Unary merge*

- a. each step creates an ordered pair
- b. derivation yields an ordered n-tuple

(13) *Linear Correspondence Axiom (redefined)*

$\langle a, b \rangle = / a b /$  (where slashes indicate a string)

(14) *Structure and order*

- a. Structure in any domain (syntax, morphology) is always a function of Merge
- b. Order is always established at the interfaces

(15) Barring movement, linear order **can be** and **must be** determined at the interfaces.

(16) Complex specifiers/adjuncts must be the output of a separate derivation

- a.  $N = \{ \text{the, man, hit, the, ball} \}$   $> \langle \text{the, } \{ \text{man, hit, the, ball} \} \rangle$   
\* \*not a constituent
- b.  $N = \{ [\text{the man}], \text{hit, the, ball} \}$   $> \langle [\text{the man}], \text{hit, the, ball} \rangle$

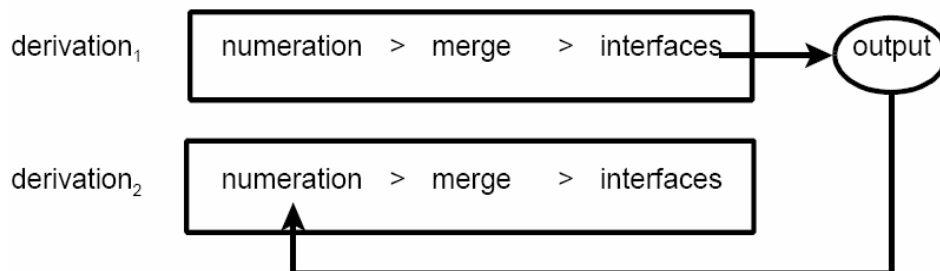
(17) Complex complements need not stem from a separate derivation layer

$> \text{CP is not a local domain (phase) automatically}$

(18) *Recursion*

A derivation  $D$ , containing subderivations  $(D_i, D_k)$  with numerations  $(N_i, N_k)$ , is recursive iff a member of  $N_i$  is the output of  $D_k$ .

(19) Model of grammar



- (20) **Opacity**  
 Given two derivations D1 and D2, building on numerations N1 and N2, respectively, and an output of D1  $X$  which is included in N2, no  $x$  that is a part of  $X$  may be merged in D2.  
 (where Merge = as in (11))
- (21) (20) need not be stipulated, because Merge can only affect elements that are in the Numeration. and if  $X$  is in the Numeration,  $x$  which is a part of  $X$  is not.
- (22) (10) now follows if fronting is Merge, and V2 is not.

### 3. Morphology and derivation layering

- (23) Complex specifiers are not immune to morphological marking from the outside
- (24) [[ Der Mann ] hat [[ den Jungen ] nicht [ gesehen ] ] ]  
 the man has the boy not seen  
 NOM ACC ACC  
 'The man didn't see the boy.' (German)
- » both *der Mann* (subject) and *den Jungen* (scrambled object) are complex specifiers
  - » output of D1, listed in N2
  - » case determined syntactically in D2
  - » case marked morphologically on subparts of subject/object
- (25) met [ hem en haar ]  
 with 3SG.M.ACC and 3SG.F.ACC  
 'with him and her'
- » coordinate structure is output of separate derivation (hence opacity)
  - » morphological marking on subparts of coordinate structure
- (26) he [ walks and talks ]
- (27) also at the meaning interface: bound variable reading of subpart of derivation layer output
- Every student thinks [ that he is a genius and that he deserves a break ] and every professor does too (strict/sloppy)
- (28) also prosody
- (29) **Transparency**  
 Integrity principle (20) applies to Merge, not to interface processes
- (30) if V2 is an interface process, it may violate opacity (as it seems to do)
- (31) Aside: this suggests a less tight syntax/semantics mapping (interface processes, distinct from Merge, might exist that affect meaning but not linear order)
- You can always count on me ( $\forall > \diamond$ )  
 Not all boys can make the team ( $\neg > \diamond > \forall$ )

#### 4. Diagnostics for derivation layering

- (31) a. computational (complex left branches)  
b. interpretational
- (32) *Relativized lexicality*  
An element is lexical if it is included in a numeration as a single item
- » No inherent conflict between 'lexical' and 'phrasal'
- (33) Signs of lexicality (in this sense): interface effects
- idiosyncratic sound-meaning properties (idiom, 'construction')
  - morphological composition (conflation, derivational morphology)
  - reanalysis (restructuring, recategorization)
  - atomicity (lexical integrity)
  - linearization (assigning a linear order, automatically or idiosyncratically)
- (34) Applied to compounds
- idiomaticity (*hand-schoen* [hand-shoe] = glove)
  - linking phonemes
  - wetback* is not a kind of *back*
  - no extraction out of compounds (extraction = merge of a subpart in derivation<sub>2</sub>)
  - linearization: head-final ordering
- (35) verb + particle
- semantic idiosyncrasy: verb-particle combination generally highly idiomatic*  
op-bellen uit-vinden in-dikken aan-vallen voor-stellen  
up-ring out-find in-thick on-fall fore-put  
'phone' 'find out' 'thicken' 'attack' 'propose/introduce'
  - reanalysis: particle + V > N*  
Hij is ze aan het op-bellen  
he is them on the phone:INF 'He's busy phoning them.'
  - opacity: as discussed*
  - linear order: particle mobility*  
Hij heeft ze (op) willen (op) bellen (\*op)  
he has them up want:INF up phone:INF up
- (36) verb + predicate
- semantic idiosyncrasy*  
iemand zwart maken iemand beet/in de maling nemen  
sb. black make:INF sb. bite/in the mill take:INF  
'speak bad of someone' 'fool someone'
  - reanalysis*  
(i) zich rot schrikken > hij is/\*heeft zich rot geschrokken  
REFL rotten startle he is/has REFL rotten startle:PART  
'be very startled'  
(be-selection: unaccusativity, but unaccusatives not compatible with resultatives, cf. Levin & Rappaport-Hovav 1995)

- (ii) Hij is het hek aan het rood verven  
 he is the fence on the red paint:INF  
 'He's busy painting the fence red.'
- c. *opacity: as discussed*  
 (but: %ROOD moet hij z'n haar niet verven)
- d. *linearization: no PP-extraposition*
- (i) ... dat ik de kat (in de tuin) zag (in de tuin)  
 that I the cat in the garden saw in the garden  
 '... that I saw the cat in the garden.'
- (ii) ... dat ik de kat (de tuin in) schopte (\*de tuin in)  
 that I the cat the garden into kicked the garden into  
 '... that I kicked the cat into the garden.'

(37) verb cluster

*verb clusters interact with particles/secondary predicates*

- (i) ... dat hij ze **op wil bellen**  
 that he them up wants ring:INF '... that he wants to phone them.'
- (ii) ... dat hij het hek **rood wil verven**  
 that he the fence red wants paint:INF '... that he wants to paint the fence red.'

» suggests that they, too, form a separate derivation layer output

a. *semantic idiosyncrasy* » idiom formation

- (i) iemand zien zitten 'appreciate someone'  
 sb. see:INF sit:INF
- (ii) iets laten zitten 'stop pursuing something'  
 sth. let:INF sit:INF

b. *morphology* » IPP-effect (participle > infinitive)

c. *grammaticalization* » 'perfect'

heeft ge-lez-en  
 have GE-read-N possessive > aspectual > temporal

d. *atomicity: as discussed*

(but: gelezen heeft hij het niet)

e. *linear order: bewildering variety*

(38) many loose ends, still not implausible that these are all separate derivation layer outputs

» systematic disruption of clusters by V2 ("excorporation") suggests: V2 is not Merge

## 5. What triggers V2?

(39) relevant factor appears to be finiteness, but then: tense or agreement ?

(40) problem with **tense**: infinitives have tense (Hoffman 1966)

(41) *properties of the Dutch past tense as opposed to the perfect*

- a. *cotemporaneity with a reference point in the past*  
 Jan beweert [ dat hij **sliep** / \***ge-slap-en heeft**  
 John claims that he sleep:PAST / GE-sleep-N have:PRES.3SG

*toen de telefoon ging* ]  
 when the phone go:PAST.SG

'John claims that he was asleep when the phone rang.'

- b. *ongoing event in the past*

i. Jan beweert-t [ dat hij het boek las ]  
 John claim-PRES.3SG that he the book read:PAST.SG  
 'John claims that he was reading the book.' (reading = ongoing)

ii. Jan beweert-t [ dat hij het boek ge-lez-en heeft ]  
 John claim-PRES.SG that he the book GE-read-N have:3SG  
 'John claims that he has read the book.' (reading = finished)

- c. *the 'accessibility' reading*

i. Jan speel-de viool *toen de bom ontplof-te*  
 John play-PAST.SG violin when the bomb explode-PAST.SG  
 'John was playing the violin when the bomb exploded.'  
 (events include each other)

ii. # Jan heeft viool ge-speel-d *toen de bom*  
 John has:PRES.3SG violin GE-play-D when the bomb

*ontplof-te*  
 explode-PAST.SG

*not:* 'John was playing the violin when the bomb exploded.'  
 (playing event follows exploding event)

- d. *the lifetime effect*

i. Scriabin was een genie  
 Scriabin be:PAST.SG a genius  
 'Scriabin was a genius.' (Scriabin is no longer alive)

ii. ?? Scriabin is een genie ge-wees-t  
 Scriabin be:PRES.3SG a genius GE-be-D  
 'Scriabin has been a genius.'

- (42) *properties of the infinitival perfect (= past)*

- a. *cotemporaneity with a reference point in the past*

Jan beweert-t [ ge-slap-en te heb-ben  
 John claim-PRES.3SG GE-sleep-N to have-INF

*toen de telefoon ging* ]  
 when the phone go:PAST.SG

'John claims to have been asleep when the phone rang.'

b. *ongoing event in the past*  
 Jan beweer-t [ het boek ge-lez-en te heb-ben ]  
 John claim-PRES.3SG the book GE-read-N to have-INF  
 'John claims that he was reading the book.'  
 'John claims that he has read the book.'

c. *the accessibility reading*  
 Jan beweer-t [ viol ge-speel-d te hebb-en ]  
 John claim-PRES.3SG violin GE-play-D to have-INF  
  
 toen de bom ontplofte ]  
 when the bomb exploded

'John claims to have been playing the violing when the bomb exploded.'

d. *he lifetime effect*  
 Scriabin word-t ge-acht [ een genie ge-wees-t te zijn ]  
 Scriabin become-PRES.3SG GE-consider:D a genius GE-be-D to be:INF  
 'Scriabin is considered to have been a genius.'

(43) problems with **agreement**: » does not single out main clauses  
 » does not carry over to inversion  
 (NB, with tense, one might claim that the complementizer realizes tense, Evers 1982)

(44) **proposal**  
 V2 is a morphological marking of the sister of a (prominent) constituent (in some sense)  
 (cf. Anderson 1993: V2 = phrasal morphology)

## 7. Dependency marking

(45) Everything is a function of merge (Epstein et al 1998)

(46) Merge is asymmetric (cf. (11)), yielding  $\langle \alpha, \delta \rangle$ , where  $\delta$  is the dependent element

(47) Dependency **relation**:  $\alpha > \delta$   
 Dependency **realization**: somewhere on/in  $\delta$

(48) V2 = realization of dependency via **edge marking**

(49) What is  $\alpha$  in V2?  
 » not fixed > room for variation

(50) *Dutch herhalingsconstruction (apokoinou), colloquial Dutch*

a. Dan was je tegenstander was neer  
 then was your opponent was down  
 b.  $\langle$  dan,  $\langle$  [ je tegenstander ],  $\langle$  neer, was  $\rangle\rangle\rangle$   
 c.  $\langle$  dan,  $\langle$  **was** [ je tegenstander ],  $\langle$  **was** neer, **was**  $\rangle\rangle\rangle$



(51) range of possibilities (incomplete)

$\alpha$	language	construction
subject	French	(complex) inversion
subject	Dutch/German	subject initial main clause
quantified/focused XP	English	negative inversion
interrogative XP	English	wh-question
topic	Dutch	topicalization
any XP	future Dutch	discourse adverbs

(52) *Discourse adverbs*

Google count (Dec. 10, 2010)

- |    |                                 |                         |         |
|----|---------------------------------|-------------------------|---------|
| a. | Integendeel,<br>on the contrary | hij heeft ...<br>he has | 121.000 |
| b. | Integendeel<br>on the contrary  | heeft hij ...<br>has he | 4.000   |

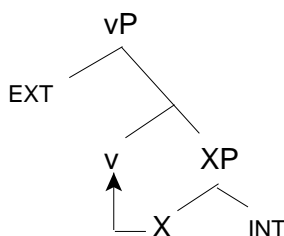
## 7. A note on syntactic theory

(53) The course of development that the analysis of V2 takes here is a move away from the structuralist, analytic, weak-lexicalist practice of Government-Binding theory and early minimalism.

- » no head-movement
- » analysis into constituent morphemes not relevant
- » no separate realization of morphemes as affixes, functional heads, or features in syntax (at odds with the nanosyntactic approach)

## 8. Verb movement in the V-v complex

(54)



v is a causative/agentive element, introducing an external argument and turning the acategorial root X into a verb, after movement of X to v (**conflation**)

*kill* = DO<sub>v</sub> KILL<sub>x</sub>

(55) Hale & Keyser (1993:95-96)

The V-v complex has syntactic structure but at the same time lexical properties (“all verbs are to some extent phrasal idioms”): “we cannot resolve this contradiction here”

(56) Contradiction resolved in a layered derivations approach: V-v complex derived in a separate subderivation, then listed as an atom in the numeration for the next subderivation.

- (57)
  - a. idiosyncratic sound-meaning properties: see (55)
  - b. morphological composition: by definition
  - c. reanalysis: by definition (*shelve* < PUT ON SHELF)
  - d. atomicity: no independent syntax for V or v
  - e. linearization: spell-out as a single nontransparent lexical item
  - » V-v complex = VERB
  
- (58) **Radical consequence**  
 Noun phrases cannot be generated in their argument positions
  - » otherwise they could not be merged separately from the VERB
  
- (60) We must have base-generation in A-positions, and a process of 'binding' of argument roles
  
- (61) Is VERB a phase ?
  - a. Yes, to the extent that phases reduce to derivation layer outputs
  - b. No, in the sense that there is no edge enabling subextraction

## 9. Conclusion

- (62)
  - a. Analyticity remains
  - b. But the derivation is punctuated
  - c. No single derivation (layer) in which all analytical elements feature
  
- (63) Layered derivations account for much of the bottom-up nature of the grammar
  
- (64) In conjunction with base-generation in A-positions, layered derivations go a long way towards making top-down derivation possible
  
- (65) Verb movement is not part of narrow syntax

Anderson, Stephen. 1993. Wackernagel's revenge: clitics, morphology, and the syntax of second position. *Language* 69, 68-89. • Epstein, Samuel David et al. 1998. *The derivational approach to syntactic relations*. New York: Oxford University Press. • Hale, Kenneth and Samuel J. Keyser. 1993. On argument structure and the lexical expression of syntactic relations. In Kenneth Hale and Samuel J. Keyser, eds., *The view from Building 20: essays in linguistics in honor of Sylvain Bromberger*. Cambridge: MIT Press. • Hoffmann, T. Ronald. 1966. Past tense replacement and the modal system. In Anthony G. Oettinger, ed., *Mathematical linguistics and automatic translation*, VII-1-21. Cambridge: Harvard Computational Laboratory. • Levin, Beth and Malka Rappaport Hovav. 1995. *Unaccusativity at the syntax-lexical semantics interface*. Cambridge: MIT Press. • Zwart, Jan-Wouter. 1993. *Dutch syntax: a minimalist approach*. University of Groningen dissertation.