The FOFC asymmetry: a layered derivation perspective

Jan-Wouter Zwart
University of Groningen

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KEYNOTES
- elements merged may be output of a separate derivation (layered derivations)
- order is an interface effect, emerging after each derivation layer
- merge *yields* head-initial structure (LCA), but may *merge* head-final structures (FOFC)
- head-finality in a head-initial language is **'lexical'** (» Dutch)

1. Merge

(1) *Minimally needed*
a. a set of elements N (Numeration)
b. a procedure yielding relations among the members of N = structure (Merge)

(2) *Simplest merge* (Zwart 2003, 2008, 2009; Fortuny 2008)

a. Top-down: split

N = { a, b, c }

	N
>	⟨ a, { b, c } ⟩
	⟨ a, ⟨ b, { c } ⟩⟩
	⟨ a, ⟨ b, ⟨ c, { } ⟩⟩⟩
>	⟨ a, b, c ⟩

b. Bottom-up: transfer

N = { a, b, c }

	N	workspace
>	{ a, b, c }	∅
	{ b, c }	⟨ a, ∅ ⟩
	{ c }	⟨ b, ⟨ a, ∅ ⟩⟩
	{ }	⟨ c, ⟨ b, ⟨ a, ∅ ⟩⟩⟩
>	⟨ c, b, a ⟩	

(3) *Unary merge*
a. each step creates an ordered pair
b. derivation yields an ordered n-tuple

(4) *Linear Correspondence Axiom (redefined)*
⟨ a, b ⟩ = / a b / (where slashes indicate a string)

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

2. Layered derivations

(6) *Starting point*
Members of N may be of any type (features, morphemes, words, phrases, clauses)
e.g. Dutch *vader en moeder-tje* [father and mother-DIM] 'playing house'

(7) N_1 = { vader, en, moeder }

yielding 〈 vader, en, moeder 〉

spelled out as **vader en moeder**

N_2 = { [vader en moeder], -tje }

yielding 〈 vader en moeder, tje 〉

spelled out as **vader en moeder-tje**

(8) *(complex) specifiers/adjuncts must stem from a separate derivation layer*

a. N = { the, man, hit, the, ball } > 〈 the, { man, hit, the, ball } 〉 *not a constituent
*

b. N = { [the man], hit, the, ball } > 〈 [the man], hit, the, ball } 〉

(9) *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.

3. What happens between derivation layers

(10) derivation → interfaces → derivation → interfaces

(11) *Interface effects between derivation layers*
a. atomization: given a derivation D_i with numeration N_i, parts of members of N_i are not merged in D_i (Generalized Integrity)
b. linearization: conversion of structure (ordered N-tuple) to linear order (string)
c. conventionalization: idiosyncratic sound/meaning pairing (e.g. idioms)
d. grammaticalization/recategorization/reanalysis
e. morphological realization of dependency

(12) *Generalization*
The interfaces turn the output of a derivation into a single item ('lexical item'), which
a. potentially has idiosyncratic properties, and
b. may be used as an atom in another derivation.

(13) *'Lexical'*
a. α is a **lexical item** iff α is a member of a numeration
b. P is a **lexical property** iff P is a property of a lexical item
c. a construction is a lexical item

4. Dependency and linear order

(14) 〈 SUBJECT, PREDICATE 〉

a. predicate typically follows the subject
b. predicate is typically marked for dependency w.r.t. the subject

(15) Merge yields a. order, b. dependency

(16) In the unmarked case, dependency and order match

(17) 〈 HEAD, COMPLEMENT 〉
a. complement is typically a dependent of the head
b. complement should follow the head > VO
(cf. Kayne 1994)

(18) *Origins of unexpected (OV) orders:*
a. movement (Kayne 1994)
b. **now (also)**: interface effect between derivation layers

5. Typological generalizations

(19) *Two generalizations*
a. Compounds are head-final (Righthand Head Rule; Williams 1981)
b. Coordinations are head-initial (Zwart 2005, to appear)

(20) *It follows that*
a. Head-initial languages have head-final compounds
b. Head-final languages have head-initial coordinations

(22) *head-final compounds in a head-initial language*
English: [truck [**driver**]] cf. to drive a truck

(23) *head-initial coordination in a head-final language*
Kinnauri: **əṅ** **rəṅ** doː chaṅ due (Sharma 1988:91)
1SG:GEN with 3SG:GEN son be:3PAST
'His son was with me.'

gə **rəṅ** **ki** bi-tič (Sharma 1988:182)
1SG:DIR and you:HON go-FUT:1DU.INCL.HON
'I and you will go.'

(24) *NB: head-initial conjunction*
[A [& B]] (* [& [A B]])

(25) (Zwart, to appear)

214 LANGUAGE SAMPLE	INITIAL	FINAL
HEADS (V/P)	**96**	**91**
NP-CONJUNCTIONS	**135**	**(at best) 12**

(26) *Hypothetical generalizations*
a. Head-finality in a head-initial language is **lexical** (cf. (13))
b. Head-initiality in a head-final language is **syntactic**

6. The Final Over Final Constraint (FOFC)

(27) *FOFC (essential idea)*
1. A head-initial phrase may contain a head-final phrase.
2. A head-final phrase may not contain a head-initial phrase.

(28) *Dutch Aux-V-Obj*
[heeft [gelezen [het boek]]] > ✓ O-V-AUX het_boek gelezen heeft
(have:3SG read:PART the book)
✗ [V-O]-AUX *gelezen het_boek heeft

(29) *Not absolute*
[heeft [willen [lezen [het boek]]]] > [willen [het_boek lezen]] heeft
(have:3SG want:INF read:INF the book) (West-Flemish)

(30) *Scope not always clear*
a. 'contain' in (27) defined as 'immediate dominance':
» requires knowledge of the landing site of a moved category
» requires knowledge of the size of a projection
b. FOFC-effect may be accidental outcome of independent movement
» object shift in Germanic (cf. (28))

(31) *Address the essential idea*
1. Head-final structure is **low/embedded**
2. Head-initial structure is **high/embedding**

7. Deriving the FOFC

(32) *head-complement*
1. LCA (4): merge of head and complement yields ✻ a head-initial string head-complement
✻ (an ordered pair, realized at the interface as)
2. Recursion (9): the complement may be the output of a separate derivation, hence may be head-initial **or head-final** (= (27.1))

(33) *To derive a FOFC-violation*
1. The LCA would have to be overruled at the interface, yielding the order complement-head
2. The complement itself should not be linearized according to the LCA

(34) [[to the manner] born]

(35) This would never give you a head-initial language with head-final T or C.

(36) Why is there no IOIC (converse of FOFC) ?
» because it cannot be excluded that a complement is the output of a separate derivation
» hence, that an embedded phrase has idiosyncratic head-final word order

(37) *In short*
a. syntax never **yields** 'head-final structure'
b. but syntax may **merge** head-final structures (i.e. separate derivation outputs)

8. Disharmonic word order in Dutch

(38) *head position in Dutch: initial*

a.	CP	**dat**	Jan	een boek	koopt
		that	John	a book	buys
b.	DP	**het**	boek		
		the	book		
c.	NP	**poging**	tot	omkoping	
		attempt	at	bribary	
d.	AP	**dol**	op	bananen	
		crazy	for	bananas	(likes to eat bananas)
e.	PP	**zonder**	bananen		
		without	bananas		
f.	NumP	**drie**	bananen		
		three	bananas		
g.	DegP	**erg**	leuk		
		very	funny		
h.	VP	**beweren**	dat het regent		
		claim:INF	that it's raining		

(39) *head position in Dutch: final*

a.	VP; nonspecific object	iets	**beweren**			
		something	claim:INF	(to claim something)		
b.	VP; verbal particle	op	**bellen**			
		up	call:INF			
c.	VP; predicate	rood	**verven**			
		red	paint:INF			
d.	VP; stranded P	*ergens*	nooit	*over*	**praten**	
		INDEF:LOC	never	about	talk:INF	(never talk about sth.)

(40) *no decision*

a.	VP; verb-second	Jan	**koopt**	een boek	(cf. (38a))		
	> verb moved	John	buys	a book			
b.	VP; specific object	dat	Jan	dat boek	niet	**koopt**	(cf. (39a))
	> object moved	that	John	that book	not	buys	

(41) a. Dutch looks very head-initial, except for the VP (with nonspecific objects etc.)
b. The Dutch VP looks head-final, except for clausal complements

(42) *movement solutions?*
a. Ad (41a): leftward movement of nonspecific objects etc. to "PredP" (Zwart 1993)
b. Ad (41b): rightward movement of clauses (Evers 1975)

(43) *evidence for leftward movement; nonadjacency Pred—V* (Zwart 1993)

de kwast	waar	hij	het hek	rood	**mee**	verft	
the brush	that	he	the fence	red	with	paints	

'the brush that he paints the fence red with'

(44) *alternatively*
stranded preposition is reordered at the interface

9. A layered derivation approach

(45) *hypothesis*
Head-final structures are outputs of separate derivation layers ('lexical')

(46) *expectations* (cf. (11))
1. opacity
2. idiosyncratic interpretation (e.g. idiom formation)
3. grammaticalization/reanalysis

9.1 nonspecific indefinite objects

(47) *opacity: separation from the verb > you lose the nonspecific reading*

a.	Hij	wil	altijd	boeken	lezen	
	he	wants	always	books	read:INF	'He always wants to read books.'
b.	Hij	wil	boeken	altijd	lezen	
	he	wants	books	always	read:INF	
	'What he always wants to do to books is read them.'					
c.	Boeken	wil	hij	altijd	lezen	
	books	wants	he	always	read:INF	(= b)
d.	Boeken	worden		altijd	gelezen	
	books	PASS.AUX		always	GE-read-N	
	'Books are such that they are always read.'					(*not* 'People always read books.')
e.	Lezen	wil	hij	altijd	boeken	
	read:INF	wants	he	always	books	
	'What he always wants to read is books.'					

(48) *semantic idiosyncrasy*
A nonspecific indefinite object "is interpreted as part of the predicate. That is, the predicate is interpreted as a one-place predicate." (De Hoop 1992:132)

(49) *reanalysis*

Hij	is	aan	het	boeken	lezen	(VP > N?)
he	is	on	the	books	read:INF	'He is busy book-reading'

9.2 verbal particle

(50) *opacity*

a.	*	Bellen	kun	je	hem	niet	op
		ring:INF	can	you	him	not	up
b.		Op-bellen	kun	je	hem	niet	
		phone	can	you	him	not	'You can't phone him.'
c.	??	Op	kun	je	hem	niet	bellen
		up	can	you	him	not	ring:INF

(51) *NB: verb-second = linearization at the interface, irrelevant to syntactic opacity*

Ik	bel	hem	op	
I	ring	him	up	'I phone him.'

(52) *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'

(53) *reanalysis*

Hij	is	ze	aan	het	op-bellen	
he	is	them	on	the	phone:INF	'He's busy phoning them.'

9.3 secondary predicates

(54) *constituency tests favor complex predicate analysis over small clause analysis (Neeleman 1994)*

a.

Rood	verven	moet	je	dat hek	niet	
red	paint	must	you	that fence	not	'You should not paint that fence red.'

b. *

Dat hek	rood	moet	je	niet	verven
that fence	red	must	you	not	paint

(55) *opacity: conflicting results*

a. *

Verven	moet	je	dat hek	niet	rood
paint	must	you	that fence	not	red

b. ?

Rood	moet	je	dat hek	niet	verven	'Red is not the color you should
red	must	you	that fence	not	paint	paint that fence.'

(56) *linearization: no PP-extraposition*

a.

... 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.'

b.

... 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.'

(57) *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'		

(58) *reanalysis*

a.

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 & Rapparort-Hovav 1995)

b.

Hij	is	het hek	aan	het	rood	verven
he	is	the fence	on	the	red	paint:INF

'He's busy painting the fence red.'

9.4 verb clusters

(59) *verb clusters interact with indefinites/particles/secondary predicates*

a. ... dat hij **boeken** *wil* **lezen**
that he books wants read:INF '... that he wants to read books.'

b. ... dat hij ze **op** *wil* **bellen**
that he them up wants ring:INF '... that he wants to phone them.'

c. ... dat hij het hek **rood** *wil* **verven**
that he the fence red wants paint:INF '... that he wants to paint the fence red.'

(60) *so clusters must also be the output of a separate derivation*

a. *opacity* » with the IPP effect (infinitive replacing past participle):

(i) Ik heb hem horen lachen
I have him hear:INF laugh:INF 'I heard him laugh.'

(ii) * Lachen heb ik hem niet horen
laugh:INF have I him not hear:INF

» but not across the board

(iii) Gelezen kan hij het niet hebben
read:PART can he it not have:INF
'He cannot have read it.'

b. *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

c. *grammaticalization* » 'perfect'

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

d. *morphology* » IPP-effect (cf. (60a(i)))

10. Conclusion

(61) True head-finality in Dutch (i.e. not the effect of movement) is limited to a few constructions (verbs in combination with nonspecific indefinite objects, verbal particles, secondary predicates) which may well be understood as created in a separate derivation layer.

(62) Head-finality established at the interfaces is a linguistic sign, **signaling atomization** (the creation of a single linguistic item out of a structured whole).

(63) The FOFC expresses an asymmetry between productive syntactic structure, linearized according to the LCA, and the idiosyncratic output of a separate derivation, which may have acquired special sound-meaning properties at the interfaces separating the two derivation layers.

Faculty of Arts, PO Box 716, NL-9700 AS Groningen, The Netherlands
c.j.w.zwart@rug.nl ● http://www.let.rug.nl/zwart/