Derivational architecture and the syntax of verb clusters

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1. The problem

Continental West-Germanic (CWG) verb clusters show lots of variation (intra/inter dialectal)

(1)	a.	…	dat	Tasman	het Zuidland	**heeft**	**ge-vond-en**	(1-2)
			COMP		the South.Land	AUX.TEMP:3SG	GE-find-PART	
		'… that Tasman found the South Land.'						
	or b.					**ge-vond-en**	**heeft**	(2-1)

(2)	a.	…	dat	Tasman	het **moet**	**heb-ben**	**ge-vond-en**	(1-2-3)
			COMP		it AUX.MOD:SG	AUX.TEMP-INF	GE-find-PART	
		'… that Tasman must have found it.'						
	or b.				**ge-vond-en**	**heb-ben**	**moet**	(3-2-1)
	or c.				**ge-vond-en**	**moet**	**heb-ben**	(3-1-2)
	or d.				**moet**	**ge-vond-en**	**heb-ben**	(1-3-2)
but	e.	*			**heb-ben**	**moet**	**ge-vonden**	(2-1-3)
and	f.	*			**hebben**	**ge-vond-en**	**moet**	(2-3-1)

Relevant languages/dialects

(3) High German, Low Saxon, Dutch, Frisian, West-Flemish, Luxemburgish, Swiss German

Types of clusters (defined by nr 1 element)

(4)
- temporal auxiliary (Dutch *hebben* 'have', *zijn* 'be')
- voice auxiliary (Dutch *worden* 'become')
- modal auxiliary (Dutch *moeten* 'must', *kunnen* 'can', *willen* 'want', *zullen* 'shall')
- aspectual/postural auxiliary (Dutch *gaan* 'go', *lopen* 'walk', *zitten* 'sit')
- ECM verb (Dutch *zien* 'see', *horen* 'hear', *laten* 'let')
- raising verb (Dutch *schijnen* 'seem', *lijken* 'seem')
- control verb (Dutch *proberen* 'try', *vergeten* 'forget')

Problems

(5)
a. why variation?
b. how to derive it
c. what are the limits

Standard approach

(6)
a. syntactic derivation (verb movement and adjunction, XP-movement)
b. variation: *type of movement*, *headedness/direction of movement*, *category (VP/vP/IP)*

Challenge

(7)
a. how can this be a function of Merge (i.e. avoid *ad hoc* operations)
b. resorting to head movement in Narrow Syntax is questionable
c. what is the status of a 'cluster' in minimalism?

Solution

(8)
a. clusters are never generated in Narrow Syntax
b. layered derivations and postsyntactic morphology

2. Syntactic elements

Narrow syntax

(9) Numeration > Merge > hierarchical structure > spell-out (incl. morphology)
unordered 'ordered' linear string

Syntactic analysis

(10) string > > > set of elements
typically the *words* in the string

But we know these elements can be multi-word elements

(11) [the captain] found [the south land] 7 words, 3 elements

Arguments for grouping elements

(12) - syntactic constituency (behavior as a unit)
- simpler derivation (avoiding parallel lines of derivation)

What I conclude from this

(13) a. the numeration is not homogeneous (morphemes, words, phrases, clauses)
b. derivations are networks of derivations (layered derivations)

Relevance for verb cluster research

(14) a. standard approaches assume cluster formation in narrow syntax
(tacitly assuming the elements in the numeration to be words)
b. leads to ad hoc operations like verb raising (V-to-V adjunction)
c. as well as to unproductive questions (headedness OV/VO, direction of movement)

3. The Dutch relative past ('perfect')

(15) heeft gevonden / gevonden heeft 'found' (cf. (1))

Assumptions about morphology

(16) a. morphology after syntax (realizational morphology)
b. syntactic elements are (i) lexemes (ii) features/operators
c. features end up on lexemes (feature sharing, Agree, details irrelevant)
d. syntactic terminal (lexeme + features) replaced by a form from the paradigms
e. paradigms are structured (crosstables with cells where features intersect)

Cells in a paradigm can be filled by periphrastic expressions (Robins 1959:124, Benveniste 1965)

TENSE / VOICE	ACTIVE	PASSIVE
PRESENT	laudat	laudātur
IMPERFECT	laudābat	laudābātur
PERFECT	laudāvit	laudātus est

(17) Latin tense/voice paradigm

PERSON / NUMBER	SINGULAR	PLURAL
1.	ɛča ba	ɛča ba:n
2.	ɛča	ɛča:n
3. human masc.	ɛčaii	ɛča:n
3. human fem.	ɛču bo	ɛča:n
3. animate	ɛči bi	ɛčiɛ(n)
3. inanimate	ɛči bi:la / ɛči:la	ɛčitsʌn

(18) Burushaski present tense paradigm (Lorimer 1935:245)

What are the features in the 'perfect' ?

(17) opposition **heeft gevonden ~ vond** [find:PAST.SG]

Choice not determined by aspect

(18) a. ik **heb** i. *urenlang* soep **ge-get-en** (periphrastic, atelic)
I AUX.TEMP:1SG for.hours soup GE-eat-PART
'I ate soup for hours.'

ii. *in 1 minuut* de soep op **ge-get-en** (periphrastic, telic)
in 1 minute the soup PRT GE-eat-PART
'I ate the soup in 1 minute.'

b. ik **at** i. *urenlang* soep (simple past, atelic)
I eat:PAST.SG for.hours soup
'I ate soup for hours.'

ii. *in 1 minuut* de soep op (simple past, telic)
in 1 minute the soup PRT
'I ate the soup in 1 minute.'

Only factor: cotemporaneity/anteriority w.r.t. reference point

(19) a. Kijk! Ik **heb** het **ge-vond-en**
look:IMP I AUX.TEMP:1SG it GE-find-PART
'Look! I found it.'

b. * Kijk! Ik **vond** het
look:IMP I find:PAST.SG it

(20) Toen ik thuis kwam ...
when I home come:PAST.SG

a. * ... **heeft** hij **ge-slap-en**
AUX.TEMP:3SG he GE-sleep-PART

b. ... **sliep** hij
sleep:PAST.SG he

'When I came home, he was sleeping.'

		relation to ref. point	
		anterior	cotemp
form	periphr	(19a)	(20a)
	simple	(19b)	(20b)

Anteriority w.r.t. reference point in the past: chance clausal tense features

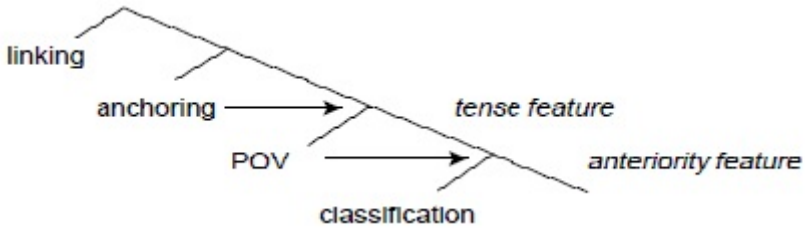
(21) Toen ik thuis kwam **had** hij **ge-slap-en**
when I home come:PAST.SG AUX.TEMP:PAST.SG he GE-sleep-PART
'When I came home, he had [already] slept.'

NB English and German are different

(22) English: (19b) fine > simple past includes anteriority (perfect includes the here-and-now)
German: (20a) fine > opposition simple past/perfect lost (periphrastic tense generalized)

Features involved: TENSE and ANTERIORITY (Wiltschko 2014: ANCHORING and POINT OF VIEW)

(23)



Paradigm

(24)

TENSE POV	UNMARKED	ANTERIOR
PRESENT	vindt	heeft gevonden
PAST	vond	had gevonden

Interim conclusion

(25) a. the parts of the periphrastic past have no intrinsic meaning (noncompositional)
b. it is a periphrastic expression of a particular feature combination
c. syntactically relevant elements are (i) the lexeme, (ii) the features (anchoring/POV)
d. periphrasis is morphological, not syntactic
e. neither the auxiliary, nor the participle is an element in the numeration (just the lexeme)

NB the nonfinite paradigm is different

(26) Hij beweer-t [toen ik thuis kwam **ge-slap-en te heb-ben**]
he claim-3SG when I home come:PAST.SG GE-sleep-PART INF AUX.TEMP-INF
'He claims to have been sleeping when I came home.'

This, too, is a morphological fact: no past tense infinitive form in Dutch

(27) *sliep-en [sleep:PAST-INF]

4. The passive in Dutch

Uses the same participle

(28) ... dat het Zuidland { **ge-vond-en werd** / **werd ge-vond-en** } (2-1/1-2)
COMP the South.Land GE-find-PART AUX.PASS:PAST.SG
'... that the South Land was found.'

Underscores the noncompositional character of the periphrastic forms

(29) anteriority/voice is not a feature of the participle, but of the periphrastic complex

Anterior (relative past) passive: auxiliary zijn *'be'*

(30) Kijk! Het Zuidland is / *werd ge-vond-en
look:IMP the South.Land AUX.TEMP:SG / AUX.PASS:PAST.SG GE-find-PART

Features involved

(30) anchoring, point of view, voice

Passive paradigm (cf. active paradigm (24))

(31)

TENSE POV	UNMARKED	ANTERIOR
PRESENT	wordt gevonden	is gevonden
PAST	werd gevonden	was gevonden

Conclusion

(32) periphrastic tense and voice clusters are single lexemes in Narrow Syntax

What do we need to explain the variation?

(33) some flexibility in the linearization of multi-word morphological items

5. Other clusters in Dutch (cf. (4))

These are different

(34) a. more clearly compositional
b. other word order properties
c. easily combined with temporal/voice clusters and with each other

Word order
(35) predominantly ascending (1-2), especially with longer clusters

Combinability
(36) a. *temp+temp
b. *pass+pass
c. *temp+pass (order irr.)

(37) a. mod+mod
b. mod+temp
c. mod+pass (this order)
d. mod+asp/ECM/rais/control

(38) asp/ECM/rais/contr +
a. temp (some order)
b. pass (this order)
c. asp etc. (some order)

So these must be
(37) a. presyntactic (output of separate derivation feeding the Numeration)
b. or pseudo-clusters (i.e. constituent elements are elements in the Numeration)

6. The IPP-effect

Infinitive replacing expected participle
(38) a. … dat Tasman het heeft { ge-wil-d / *wil-len }
COMP Tasman it AUX.TEMP:3SG GE-want-PART / want-INF
'… that Tasman wanted it.'
b. … dat Tasman het heeft { *ge-wil-d / wil-len } vind-en
COMP Tasman it AUX.TEMP:3SG GE-want-PART / want-INF find-INF
'… that Tasman wanted to find it.'

Now recall
(39) a. the temporal auxiliary does not exist in Narrow Syntax
b. *willen vinden* 'want find' is either a presyntactic cluster or no cluster (cf. (37))

No separation possible > suggests single item status (presyntactic cluster)
(40) a. * Vind-en heeft Tasman het niet wil-len
find-INF AUX.TEMP:3SG Tasman it NEG want-INF
(intended: 'Tasman did not want to FIND it.')
b. * Wil-len heeft Tasman het niet vind-en
c. * … dat Tasman het vind-en heeft wil-len (3-1-2)
COMP Tasman it find-INF AUX.TEMP:3SG want-INF
(intended: same as (38b))
d. * … dat Tasman het wil-len heeft vind-en (2-1-3)

IPP-effect (cf. also anonymous under review)
(41) No *ge*-marking with verb clusters

Explains absence of IPP in
(42) a. dialects without *ge*-participles (Hoeksema 1980, Lange 1981, VandenWyngaerd 1989)
b. clausal embedding (extraposition)

Control verb cluster ('verb raising' vs. 'extraposition')
(43) a. … dat Tasman het Zuidland **probeer-t te vind-en** ('VR')
COMP Tasman the South.Land try-3SG INF find-INF
b. … dat Tasman **probeer-t** [het Zuidland **te vind-en**] ('EXTR')
COMP Tasman try-3SG the South.Land INF find-INF
'… that Tasman is trying to find the South Land.'
(44) a. … het Zuidland **heeft prober-en te vind-en** (IPP)
the South.Land AUX.TEMP:3SG try-INF INF find-INF
b. … **heeft ge-probeer-d / *prober-en** het Zuidland **te vind-en**
AUX.TEMP:3SG GE-try-PART / try-INF the South.Land INF find-INF
'… [that Tasman] tried to find the South Land.' (*IPP)

Derivation

(45) a. 'verb raising'
presyntactic cluster > single element in Numeration > acquires features
anteriority feature > periphrastic morphological realization > no *ge-* by (41)
b. 'extraposition'
no presyntactic cluster > control verb is separate element in Numeration > (41) d.n.a.

Theoretical option: no presyntactic cluster formation (37b)

(46) a. this predicts: no IPP = 'third construction' (mix of 'verb raising' and 'extraposition')

b. …	het	Zuidland	**heeft**	**ge-probeer-d**	**te**	**vind-en**	(third constr)
	the	South.Land	AUX.TEMP:3SG	GE-try-PART	INF	find-INF	

'… [that Tasman] tried to find the South Land.'

This presupposes (not crucially)

(47) base generation of arguments in grammatical function positions

7. Deriving possible word orders

Two-verb clusters

(48) a. morphological realization of a **single lexeme**
b. no fixed order (33): variation 1-2 / 2-1

Three-verb clusters, 1 = temporal auxiliary

(49) a. presyntactic cluster: morphological realization of a **single syntactic element** (VC)
b. order in VC may be 2-3 or 3-2
c. IPP-effect applies
d. this predicts realization as 1-[2-3], 1-[3-2], [2-3]-1, [3-2]-1, but not 2-1-3 / 3-1-2

1-2-3 common in Dutch	2-1-3 not attested with IPP
1-3-2 common in German	3-1-2 not attested with IPP
2-3-1 common in East Flemish/Antwerp area	
3-2-1 attested with IPP in Achterhoeks	

(50) a. pseudocluster: **two separate lexemes in Narrow Syntax**
b. anteriority feature realized on higher lexeme: no IPP-effect
c. predicts [1-2]-3, *[2-1]-3*, 3-[1-2], 3-[2-1], but not 1-3-2 / 2-3-1

1-2-3 Dutch third construction (46)	
2-1-3 common in Bavarian/Swiss German/Luxemburgish/Plautdietsch (51)	
3-1-2 attested in East Netherlandic dialects	1-3-2 not attested without IPP
3-2-1 common in German/Low Saxon	2-3-1 not attested without IPP

Salzmann (2016) facts Luxemburgish

(51)

… ob-s	de	hollänesch	**ge-leier-t**	**hues**	**schwätz-en**	(2-1-3)	
COMP:INT-2SG	you	Dutch	GE-learn-PART	AUX.TEMP:2SG	speak-INF		

'… whether you learned to speak Dutch.'
(Salzmann 2016 shows that 3 is not a clausal complement, as it participates in *zu*-shift.)

Three-verb clusters, 2 = temporal auxiliary (and 1, say, a modal auxiliary)

(52) a. pseudocluster: **two separate lexemes in Narrow Syntax**
b. anteriority feature realized on the lower lexeme
c. predicts 1-[2-3], [3-2]-1, 1-[3-2], [2-3]-1, but not 2-1-3 / 3-1-2

1-2-3 common in Dutch	
3-2-1 common in German/Frisian	2-1-3 not attested (Schallert 2014)
1-3-2 common in Dutch/German	3-1-2 common in Dutch
2-3-1 not attested? (**FOFC**)	

Unexpected 3-1-2 order

(53) ... dat Tasman het Zuidland **ge-vond-en** **moet** **heb-ben** (3-1-2)
COMP Tasman the South.Land GE-find-PART AUX.MOD:SG AUX.TEMP-INF
'... that Tasman must have found the South Land.'

This forces an additional ordering statement

(54) PF-linearization (Dutch): the participle may shift to the left

Three-verb clusters, no temporal/voice auxiliaries

(55) a. many options (single lexeme [presyntactic cluster], three lexemes [pseudocluster], or mix)
b. few options predict the possibility of 2-1-3 / 3-1-2
2-1-3 not attested
3-1-2 marginal in Dutch (but there should be signs of pseudocluster status)

Bech's generalization (Bech 1955)

(56) mixed clusters are ascending-descending (e.g. 1-2-|-4-3, 1-|-4-3-2) German

a. ... die den Infinitiv **würd-en** **hab-en** **regier-en** **kön-nen** (1-2-4-3)
REL:PL DET:ACC infinitive MOD-PL AUX.TEMP-PL govern-INF MOD-INF

b. ... die den Infinitiv **würd-en** **regier-en** **kön-nen** **hab-en** (1-4-3-2)
REL:PL DET:ACC infinitive MOD-PL govern-INF MOD-INF AUX.TEMP-PL
'... [verbs] that would have been able to govern the infinitive.'
1-[3-2] + ANTERIOR realized as 1-(**2**)-[4-3]-(**2**)

8. Restructuring restructuring

Restructuring/pruning

(57) construction of infinitival complementation functioning like a single clause with a single verbal core

Standard approaches

(58) restructuring is a function of a. verb-to-verb adjunction ('verb raising', Evers 1975)
b. subcategorization (Wurmbrand 2001)
restructuring: verb selects VP
nonrestructuring: verb selects vP/TP/CP

But here: it follows trivially from derivation layering (presyntactic cluster formation)

(59) presyntactic cluster is a single element in the Numeration (hence also in Narrow Syntax)
> no connection with verb raising or syntactic category

Diagnostics for restructuring

(60) a. long passive (cluster acts as passivized verb)
✓German, ✗Dutch
b. matrix scope of embedded clause material
should correlate with a., but ✓German, ✓Dutch

Long passive

(61) ... dass die traktor-en zu reparier-en versuch-t wurd-en
COMP DET:NOM.PL tractor-PL INF repair-INF try-PART AUX.PASS:PAST-**PL**
'... that they tried to repair the tractors.' (German, Wurmbrand 2001:19)

(62) * ... dat de tractor-en ge-probeer-d werd-en te reparer-en
COMP DET:PL tractor-PL GE-try-PART AUX.PASS:PAST-PL INF repair-INF
(intended) '... that they tried to repair the tractors.' (Dutch)

Postsyntactic morphology approach
(63) success/failure to realize passive morphology on a verb cluster

No cluster: passivization of the higher verb
(64) intraposition/extraposition of the complement clause (Dutch lacks intraposition)
a. … dass [die traktor-en zu reparier-en] versuch-t wurd-e
COMP DET:ACC.PL tractor-PL INF repair-INF try-PART AUX.PASS:PAST-**SG**
'… that they tried to repair the tractors.' (German, intraposition)
b. … dass versuch-t wurd-e [die traktor-en zu reparier-en]
COMP try-PART AUX.PASS:PAST-**SG** DET:ACC.PL tractor-PL INF repair-INF
'… that they tried to repair the tractors.' (German, extraposition)
c. … dat ge-probeer-d werd [de tractor-en te reparer-en]
COMP GE-try-PART AUX.PASS:PAST DET tractor-PL INF repair-INF
'… that they tried to repair the tractors.' (Dutch, extraposition)

Scope facts: basic ambiguity
(64) … dass er nur einen traktor zu reparier-en vergessen hat
COMP he just INDEF.ACC tractor INF repair-INF forget:PART AUX.TEMP:3SG
'… that he forgot to repair only one tractor.' (*only* ≫ *forget* ; *forget* ≫ *only*)

Long passive disambiguates (Bobaljik & Wurmbrand 2005)
(65) … das nur ein traktor zu reparier-en vergessen wurde
COMP just INDEF.NOM tractor INF repair-INF forget:PART AUX.PASS:PAST.SG
'… that they forgot to repair only one tractor.' (*only* ≫ *forget*)

But you get the same effect in Dutch, which has clustering but no long passive
(66) … dat hij maar één tractor was vergeten te reparer-en
COMP he just one tractor AUX.TEMP:PAST.SG forget:PART INF repair-INF
'… that he forgot to repair only one tractor.' (*only* ≫ *forget*)

Generalization (cf. Bhatt & Keine 2014)
(67) clustering > matrix scope; intraposition/extraposition > embedded scope

Hypothesis on distribution of long passive
(68) Passive marking only with head-final verb clusters
a. German [zu reparieren <u>versuchen</u>] > [zu reparieren <u>versucht</u>] wurde
b. Dutch [<u>proberen</u> te repareren] ⊁ [<u>geprobeerd</u> te repareren] werd

Topicalization: long passive re-emerges (for some speakers)
(69) % [Vergeten te repareren] (dat) werden alleen de tractor-en
forget:PART INF repair:INF DEM.N AUX.PL only DEF tractor-PL
'They forgot to repair only the tractors.'
> the fronted demonstrative is a place holder for the passivized verb
> the fronted cluster realizes just ANTERIOR, not VOICE

9. Conclusion

(70) Verb clusters in CWG are consistent with a minimalist syntax (only Merge) provided we
a. extend realizational morphology to periphrastic tenses, and
b. define clustering (and restructuring) as derivation layering

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