

# Tense in infinitives: a non-cartographic approach

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## 1. Nonfinite tense

Dutch tenses - simple past: cotemporaneity with a reference point in the past  
- periphrastic past: anteriority wrt reference point (relative tense)

(1) *past reference point, cotemporaneous*

Toen ik binnen kwam  
when I in come:PST.SG

- a. \* slaap-t hij b. **sliep** hij c. \* heeft hij ge-slap-en  
sleep-3SG he sleep:PST.SG he AUX:3SG he GE-sleep-PRT  
'When I came in, he was sleeping.' (exx Dutch unless noted otherwise)

(2) *present reference point, anterior*

a. **Heb** je lekker **ge-slap-en** ?  
AUX:2SG.INV 2SG well GE-sleep-PRT  
'Did you sleep well?'

b. # Sliep je lekker ? (requires cotemporaneity with  
sleep:2SG.INV 2SG well reference point in the past)

(3) *past reference point, cotemporaneous, finite*

Hij beweert dat hij toen ik binnen kwam  
he claim-3SG COMP he when I in come:PST.SG  
{ **sliep** / \*slaap-t }  
sleep:PST.SG / sleep-3SG

(4) *past reference point, cotemporaneous, non-finite*

Hij beweert toen ik binnen kwam  
he claim-3SG when I in come:PST.SG  
{ **ge-slap-en te heb-ben** / \* te slap-en }  
GE-sleep-PRT INF AUX-INF INF sleep-INF  
'He claims that he was asleep when I came in.'

(5) *present reference point, anterior, non-finite*

Hij beweert lekker **ge-slap-en te heb-ben**  
he claim-3SG well GE-sleep-PRT INF AUX-INF  
'He claims that he slept well.'

(6) finite paradigm

3SG	UNMARKED	ANTERIOR
UNMARKED	slaapt	geslapen heeft
PAST	sliep	geslapen had

(7) nonfinite paradigm

UNMARKED	ANTERIOR
te slapen	geslapen te hebben
geslapen te hebben	geslapen te hebben

## 2. Tenselessness

- not in nominalizations

(8) [ Dat ik **sliep** toen hij binnen kwam ]  
COMP I sleep:PST.SG when he in come:PST.SG  
maak-te een slecht-e indruk  
make-PAST.SG INDEF bad-AGR impression  
'That I was sleeping when he came in created a poor impression.'

(9) [ Dat { **slap-en** / \*ge-slap-en heb-ben } toen hij binnen kwam ]  
DEM.N sleep-INF GE-sleep-PRT AUX-INF when he in come:PST.SG  
maak-te een slecht-e indruk  
make-PST.SG INDEF bad-AGR impression  
'Sleeping when he came in created a poor impression.'

- anteriority OK

(10) [ Dat **ge-slap-en heb-ben** voor hij binnen kwam ]  
DEM.N GE-sleep-PRT AUX-INF before he in come:PST.SG  
was geen slecht idee  
be-PST.SG INDEF:NEG bad idea  
'To have slept before he came in was not a bad idea.'

## 3. Postsyntactic morphology

- Entities manipulated in syntax are just (bundles of) features, which receive a morphological realization after completion of the syntactic derivation ('postsyntactic morphology').
- V is just a bundle of features (e.g. PAST, ANTERIOR)
- periphrastic form spells out these features (cf. (6)/(7))
- auxiliary is not an independent syntactic element (not merged, but produced by Morphology)

*auxiliary* ≠ HAVE (or BE + WITH)

(11) a. Ek wil dit hê Afrikaans  
I want DEM have:INF  
'I want to have this.'  
b. Hy moet die bok ge-skiet { het / \*hê }  
he must DEF buck PRT-shoot AUX / AUX:INF  
'He must have shot the buck.'

## 4. Simplification of verb clusters

*periphrastic past is the morphological realization of V with the feature ANTERIOR*

(12) ... dat hij lekker ge-slap-en heeft  
COMP he well GE-sleep-PRT AUX:3SG  
'... that he slept well.'

- auxiliary not merged in V or a functional head
- no 'verb raising' of V to auxiliary

(13) ... dat hij lekker moet heb-ben ge-slap-en (modal + V<sub>PAST</sub>)  
COMP he well must:SG AUX-PL GE-sleep-PRT  
toen ik binnen kwam  
when I in come:PST.SG  
'... that he must have been sleeping well when I came in.' (epistemic)

(14) ... dat hij hard heeft moet-en werk-en ([modal + V]<sub>PAST</sub>)  
 COMP he hard AUX:SG must-INF work-INF  
 ‘... that he had to work hard.’ (deontic/\*epistemic)

- Wurmbbrand (2001): juggling the relative position of temporal and modal auxiliaries in the functional domain
- now: cartographic explanation no longer possible  
 or needed: deontic incompatible with temporal dissociation > (13)  
 epistemic incompatible with PAST > (14)

## 5. Finiteness and tense

- must be sharply distinguished
- infinitive often *seems* tenseless because of a) unmarked value for tense > simple infinitive  
 b) dependent tense > simple infinitive (cf. (16))

*dependent tense: sequence of tense*

(15) Hij beweert-de dat hij ziek **was** (< “I am/\*was ill”)  
 he claim-PST.SG COMP he sick be:PAST.SG (no PAST marking but dependent)  
 ‘He claimed that he was ill.’

(16) Hij beweert-de ziek te zijn (\*ge-wees-t)  
 he claim-PST.SG sick INF be:INF GE-be-PRT  
 ‘He claimed to be ill.’

- nonfinite V: unmarked/dependent > simple infinitive  
 marked PAST/ANTERIOR > periphrastic past infinitive
- finiteness: to be defined in terms of subject-predicate nexus (*not* in terms of tense)

## 6. Restructuring

(17) *two types of nonfinite complementation:*

a. *integrated* (‘verb raising’ / restructuring)

... dat Cook het Zuidland weer probeer-t te vind-en  
 COMP Cook DEF:N South Land again try-3SG INF find-INF  
 ‘... that Cook is trying to find the South Land again.’

b. *non-integrated* (‘extraposition’)

... dat Cook weer probeer-t [ (om) het Zuidland te vind-en ]  
 COMP Cook again try-3SG COMP DEF:N South Land INF find-INF  
 ‘... that Cook is trying to find the South Land again.’

b.’ *non-integrated, intraposition* (absent in Dutch, present in German)

\* ... dat Cook weer [ het Zuidland te vind-en ] probeer-t  
 COMP Cook again DEF:N South Land INF find-INF try-3SG  
 (intended) ‘... that Cook is trying to find the South Land again.’

(18) *IPP-effect, hallmark of integrated construction (infinitive-pro-participle)*

... dat Cook het Zuidland heeft **prober-en** te vind-en  
 COMP Cook DEF:N South Land AUX:3SG try-IPP INF find-INF  
 ‘... that Cook tried to find the South Land.’ (instead of *ge-probeer-d*)

- is the integrated construction (17a) derived from a biclausal base structure?
  - YES > V-to-auxiliary raising ('verb raising') plus erasing structure (restructuring)
  - NO > reduced clausal structure for embedded predicate (Wurmbrand 2001)
    - auxiliary = V, selects VP ('lexical restructuring') >>> **predicts tenselessness of VP (no T)**  
(try)
    - embedded verb = V, auxiliary is functional head ('functional restructuring')  
(modals, raising, ECM)

- my proposal here: clusters are the product of a separate derivation
  - appear as a single V in the numeration for the derivation of the clause
  - nothing excludes T internal to the separate derivation creating the cluster
  - >>> **predicts tense associated with the embedded V**

(19) restructuring diagnostics (Wurmbrand 2001)

- licensing of the object of the embedded predicate in the functional domain of the matrix clause ('object shift')
- scope of the embedded object over the matrix predicate ('wide scope')
- raising of the embedded object to the status of matrix subject when the matrix predicate is passive ('long passive')

(20) *object shift*

... dass er **den traktor** bereits zu reparier-en **versuch-t** hat (German)  
 COMP he the:ACC tractor already INF repair-INF try-PRT AUX.3SG  
 '... that he already tried to repair the tractor.'

(21) *wide scope of shifted object*

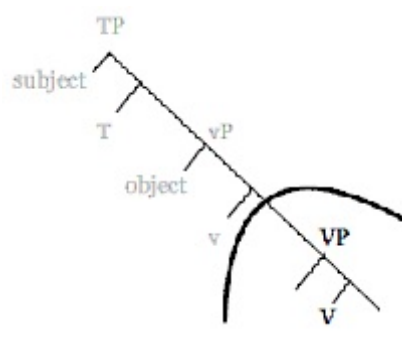
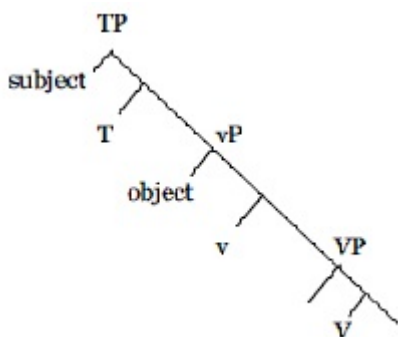
... dass er nur ein-en traktor zu reparier-en verges-sen hat (German)  
 COMP he just a-ACC tractor INF repair-INF forget-PRT AUX:3SG  
 '... that he forgot to repair only one tractor.' (**only** > **forget** ; forget > only)

(22) *long passive*

... dass **die traktor-en** zu reparier-en **versuch-t** wurd-e/en (German)  
 COMP the:PL tractor-PL INF repair-INF try-PRT AUX.PASS-SG/PL  
 '... that they tried to repair the tractors.'

(23) *no object licensing internal to the embedded part > truncated structure*

- full structure
- restructuring (cartographic, Wurmbrand 2001)



> predicts absence of tense, contrary to fact (cf. Ter Beek 2008)

## 7. Restructuring diagnostics in Dutch

### (24) *object shift with modals in Dutch*

- a. ... dat Cook **het Zuidland** niet kan **vind-en**  
 COMP Cook DEF.N South Land NEG AUX:MOD find-INF  
 '... that Cook cannot find the South Land.'
- b. \* ... dat Cook niet kan het Zuidland vind-en  
 COMP Cook NEG AUX:MOD DEF.N South Land find-INF  
 (intended) '... that Cook cannot find the South Land.'

> see also (17b) for control verbs

### (25) *wide scope with object shift*

- a. ... dat hij elk-e knop was vergeten in te druk-ken  
 COMP he every-ARG button AUX:PST.SG forget:PRT in INF press-INF  
 '... that he forgot to press every button.' ( **every > forget** )
- b. ... dat hij was vergeten [ elk-e knop in te druk-ken ]  
 COMP HE AUX:PST.SG forget:PRT every-ARG button in INF press-INF  
 '... that he forgot to press every button.' ( *forget > every* )

> NB, no intraposition; ambiguity in German (21) due to string identity ±integrated construction

- (26) a. ... dass er nur einen traktor [ zu reparieren vergessen hat ] (integrated)  
 b. ... dass er [ nur einen traktor zu reparieren ] vergessen hat (non-integrated, intrapos.)

### (27) *no long passive in Dutch*

- \* ... dat de tractor-en ge-probeer-d **werd-en** te reparer-en  
 COMP DEF:PL tractor-PL GE-try-PRT AUX.PASS:PST-PL INF repair-INF  
 (intended) '... that they tried to repair the tractors.'

### (28) *impersonal passive with clausal embedding in Dutch*

- ... dat (**er**) ge-probeer-d **werd** de tractor-en te reparer-en  
 COMP EXPL GE-try-PRT AUX.PASS DEF:PL tractor-PL INF repair-INF  
 '... that they tried to repair the tractors.'

> so German (22) without agreement = impersonal passive with intraposition (non-integrated)

### (29) *non-integrated construction, extraposition (German)*

- ... dass versuch-t wurd-e die traktor-en zu reparier-en  
 COMP try-PRT AUX.PASS:PAST-SG the:PL tractor-PL INF repair-INF  
 '... that they tried to repair the tractors.'

### (30) *non-integrated construction, intraposition (German)*

- ... dass die traktor-en zu reparier-en versuch-t wurd-e  
 COMP the:PL tractor-PL INF repair-INF try-PRT AUX.PASS:PAST-SG  
 '... that they tried to repair the tractors.'

### (31) *integrated construction, long passive (German)*

- ... dass die traktor-en zu reparier-en versuch-t wurd-en  
 COMP the:PL tractor-PL INF repair-INF try-PRT AUX.PASS:PAST-PL  
 '... that they tried to repair the tractors.'

> *difference German/Dutch: surface position of the embedded clause in non-integrated constr.*

### (32) *order of elements in the verb cluster (higher number is more embedded)*

- |                     |                       |
|---------------------|-----------------------|
| a. two-verb cluster | b. multi-verb cluster |
| German: 2-1         | German: 3-2-1         |
| Dutch: 2-1 or 1-2   | Dutch: 1-2-3          |

## 8. The absence of long passives in Dutch

- Wurmbrand (2001): no long passive > local object licensing > embedded part = bigger than VP
- > Dutch has no restructuring
  - > alternative explanation for restructuring characteristics (object shift and wide scope) [??]

Alternative: explain absence of long passive away

- > Dutch and German are the same as far as restructuring is concerned

(33) *passivizing a verb cluster*

- a. German [ V-inf V-pass ] **Aux<sub>PASS</sub>**  
b. Dutch **Aux<sub>PASS</sub>** [ V-pass V-inf ]

(34) If C is a verb cluster consisting of n verbs, such that V<sub>n</sub> is the hierarchically highest verb in C, and C has the feature passive F<sub>p</sub>, and F<sub>p</sub> is realized by a suffix on V<sub>n</sub> and by a passive auxiliary A<sub>p</sub>, V<sub>n</sub> and A<sub>p</sub> must be string adjacent in the morphological realization of C.

(35) German

active: [to repair forget]

passive: [to repair forget-PASS] **auxiliary**

(36) Dutch

active: [forget to repair]

passive: **auxiliary** [forget-PASS to repair]

(37) *base-generating participle in left periphery*

Ge-lez-en dat HEEFT hij dat boek niet  
GE-read-PRT DEM.N AUX:3SG he DEM.N book NEG

'He didn't (actually) read that book.'

(38) *base-generating cluster in left periphery > long passive possible*

Verget-en te reparer-en dat HEEFT hij de tractor-en niet  
forget-PRT INF repair-INF DEM.N AUX:3SG he DEF.PL tractor-PL NEG

'He didn't (actually) forget to repair the tractors.'

(39) *base-generating cluster in left periphery > long passive possible*

Verget-en te reparer-en dat WERD-en de tractor-en niet  
forget-PRT INF repair-INF DEM.N AUX.PASS:PL DEF.PL tractor-PL NEG

'They didn't (actually) forget to repair the tractors.'

- > *presence/absence of long passive is not structural but morphological*

## 8. Restructuring and tenselessness

Ter Beek (2008): verb classes in Dutch

- > infinitival complement of restructuring verb may be TP, vP or VP
- > same goes for 'third construction' complements (clustering but no IPP-effect)

'Verb Raising'

(40) *object shift with epistemic modal and independent tense interpretation*

... dat hij **de aandel-en** moet heb-ben **ge-kocht**  
COMP he DEF.PL stock-PL AUX AUX-PL GE-buy:PRT  
toen de beurs op instort-en stond  
when DEF exchange on collaps-INF stand:PST.SG

'... that he must have bought the stocks when the exchange was about to collapse.'

- > scope test not possible

(41) *object shift with raising verb and independent tense interpretation*

... dat hij **de aandel-en** schijn-t te heb-ben **ge-kocht**  
 COMP he DEF.PL stock-PL seem-3SG INF AUX-PL GE-buy:PRT  
 toen de beurs op instort-en stond  
 when DEF exchange on collaps-INF stand:PST.SG

'... that he appears to have bought the stocks when the exchange was about to collapse.'

> scope test not possible

'Third construction'

(42) *object shift with independent tense of the embedded predicate*

... dat hij **de aandel-en** beweert te heb-ben **ge-kocht**  
 COMP he DEF.PL stock-PL claim-3SG INF AUX-PL GE-buy:PRT  
 toen de beurs op instort-en stond  
 when DEF exchange on collaps-INF stand:PST.SG

'... that he claims that he bought the stocks when the exchange was about to collapse.'

(43) *wide scope of shifted object with independent tense of the embedded predicate*

... dat hij **elk-e knop** beweert in<ge>druk-t te heb-ben  
 COMP hij every-AGR button claim-3SG <GE>press-PRT INF AUX-INF  
 toen de foutmelding kwam  
 when DEF error.message come:PST

'... that he claims that he pressed every button when the error message appeared.'

( every > claim )

VERB CLASS	EXAMPLE	IPP	OBJECT SHIFT	OBJECT SCOPE	EMB TENSE	CONSTRUCTION
modal (deontic)	moeten 'must'	+	+	single	locked	verb raising
modal (epistemic)	moeten 'probably'	+	+	single	free	verb raising
aspectual	staan 'stand'	+	+	single	locked	verb raising
ECM	zien 'see' laten 'cause'	+	+	single	locked	verb raising
raising	schijnen 'seem'	dna	+	single	free	verb raising
control	proberen 'try'	+/-	+/-	wide/narrow	dep	verb raisg/third constr/extrap
implicative	vergeten 'forget'	-	+/-	wide/narrow	dep	third constr/extraposition
irrealis	besluiten 'decide'	-	+/-	wide/narrow	dep	third constr/extraposition
propositional	beweren 'claim'	-	+/-	wide/narrow	free	third constr/extraposition

Conclusions: - restructuring diagnostics (object shift, wide scope) yield large class of verbs  
 - a narrower class has the IPP-effect ('verb raising')  
 - embedded past tense is not correlated with either the large or the narrow class

Note: 'free' tense of the infinitive is diagnosed by periphrastic expression of the feature PAST  
 (not by the distribution of time adverbials like *tomorrow* > future is not a tense feature)

(44) John decided/\*tried to mow the lawn tomorrow (> both dependent T, but ± single event)

## 9. What is cluster formation?

(45) *deriving a verb cluster via derivation layering*

Numeration: { proberen, vinden }  
Narrow Syntax: Merge *proberen* and *vinden* yielding ⟨proberen, vinden⟩  
Externalization: [proberen te vinden] = V (> single event)

- > derivation of the clause containing a cluster: cluster listed as V in the Numeration
- > restructuring properties follow
  - object can only be object of the V (= cluster) as a whole
  - object shift, wide scope (or single scope), long passive (if the language has it)
- > long passive requires: passivizing a V (= cluster), morphological idiosyncrasies expected

(46) a. a verb cluster is a single V (derived in a separate derivation)  
b. externalization processes apply to a verb cluster as a whole (since it is a single V)  
c. the paradigms in Morphology must contain complex forms for the realization of the V elements we call verb clusters

(47) *IPP-effect : morphological idiosyncrasy of periphrastic morphology*

- a. ... dat Cook het heeft { ge-wil-d / \*wil-len }  
COMP Cook 3SG.N AUX:3SG GE-want-PRT / want-INF  
'... that Cook wanted it.'
- b. ... dat Cook het heeft { \*ge-wil-d / wil-len } doe-n  
COMP Cook 3SG.N AUX:3SG GE-want-PRT / want-INF do-INF  
'... that Cook wanted to do it.'

(48) \*ge-V where V is a cluster (NB, dialects without ge- > no IPP-effect; Hoeksema 1980)

(49) *deriving a verb cluster with tense via derivation layering*

Numeration: { moeten, T, slapen }  
Narrow Syntax: Merge T and *slapen* yielding ⟨T, slapen⟩ = A  
Merge *moeten* and A yielding ⟨moeten, ⟨T, slapen⟩⟩  
Externalization: [moet hebben geslapen] = V (if T=PAST) (cf. (13))

(50) *third construction* (object shift, no IPP-effect)

... dat Cook het Zuidland **ge-probeer-d** heeft te vind-en  
COMP Cook DEF.N South Land GE-try-PRT AUX:3SG INF find-INF  
'... that Cook tried to find the South Land.'

(51) *deriving the third construction via derivation layering*

Numeration: { T, vinden }  
Narrow Syntax: Merge T and *vinden* yielding ⟨T, vinden⟩  
Externalization: [(te) vinden] = V or [(te) hebben gevonden] = V (if T=PAST)

(52) ... dat Cook het Zuidland beweert te **heb-ben ge-vond-en**  
COMP Cook DEF.N South Land claim-3SG INF AUX-INF GE-find-PRT  
'... that Cook claims to have found the South Land.'

## Conclusions

- periphrastic tense is not syntax but morphology
- restructuring is not truncation (cartography) but derivation layering (dynamic syntax)
- infinitival complements have tense (unlike nominalizations), presumably invariably