

On the combination of prepositions with an infinitive

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1. What kind of infinitive ?

NOT: NOMINALIZED INFINITIVES

- (1) Dit is een goed moment [voor het kopen van een huis].
this is a good moment for the buy.INF of a house
'This is a good time for the buying of a house.'

Direct object is realized as a PP[*van*].

- (2) Ik ben geen fan [van dat langzame rijden].
I am no fan of that slow.DCL drive.INF
'I am not a fan of that slow driving.'

Modifier takes the form of an inflected adjective.

- ▶ Nominalized infinitives project an NP.
- ▶ Nominalized infinitives are compatible with nearly any preposition.
- ▶ The combination is a standard [P+NP] phrase.

Van Eynde (2024)

BUT: VERBAL INFINITIVES

- (3) Ze willen [een huis kopen].
they want a house buy.INF
'They want to buy a house.'

Direct object is realized as an NP and precedes the infinitive.

- (4) Je moet hier [langzaam rijden].
you must here slowly drive.INF
'You must drive slowly here.'

Modifier takes the uninflected adverbial form.

NOT: VERBAL *te*-INFINITIVES

- (5) Ze zijn vertrokken zonder iets te zeggen.
they are left without something to say.INF
'They left without saying anything.'

- ▶ Verbal *te*-infinitives project a VP[*te*].
- ▶ Verbal *te*-infinitives are compatible with a wide range of prepositions.
- ▶ The combination is a [P+VP[*te*]] phrase.

BUT: VERBAL BARE INFINITIVE

There is only a handful of prepositions that combine with a verbal bare infinitive.

2. A survey of $P+V[\textit{inf}]$ -combinations

2.1. THE INGRESSIVE *aan het*-INFINITIVE

- (6) Ze gingen weer [aan het ruzie maken].
they went again at the row make.INF
'They started quarreling again.'

Complement of the inchoative *gaan, raken, slaan* or the causative *maken, brengen, zetten, krijgen*.

- (7) ... dat het om zes uur [aan het regenen] ging.
... that it at six hour at the rain.INF went
'... that it started raining at six.'

Comrie (1976, 19-20)

2.2. THE PROGRESSIVE *aan het*-INFINITIVE

- (8) Ze zijn weer [aan het ruzie maken].
they are again at the row make.INF
'They are quarreling again.'

Complement of the copula and its cognates, such as *blijven*, *lijken*, *blijken* or the transitive *hebben*.

- (9) ... dat het om zes uur [aan het regenen] was.
... that it at six hour at the rain.INF was
'... that it was raining at six.'

Comrie (1976, 32-40), Bertinetto et al. (2000), Ebert (2000)

EVIDENCE THAT *aan het* IS A SINGLE WORD

- ▶ *het* cannot be replaced by any other determiner.
- ▶ Nothing can separate *aan* from *het*.
- ▶ *aan het* can scope over coordination; *aan* alone cannot.
- ▶ Dysfluency occurs after *aan het*, not after *aan*.

Booij (2004, 101), Bogaards et al. (2022, 17), Van Eynde (2025, 182–183)

Other prepositions with incorporated definite article: *ten* (> *te den*) and *ter* (> *te der*)

er ist am Klavierspielen ‘he is playing the piano’
sie sind beim Wellenreiten ‘they are riding the waves’

Behrens et al. (2013, 100)

2.3. THE PROSPECTIVE *op*-INFINITIVE

- (10) Die bom staat [op springen].
that bomb stands up drive.INF
'That bomb is about to explode.'
- (11) De hond ligt [op sterven].
the dog lies up die.INF
'The dog is about to die.'

Complement of *staan* or *liggen*.

Comrie (1976, 64-65), Bogaards (2023)

2.4. THE ABSENTIVE *uit*-INFINITIVE

- (12) We gaan [uit vlinders vangen].
we go out butterflies catch.INF
'We go out to catch butterflies.'

Complement of the inchoative *gaan*, the copula or a deontic modal (*moeten, mogen, kunnen, hoeven, willen*).

de Groot (2000)

2.5. THE ASPECTUAL *met*-INFINITIVE

- (13) Ze zijn eindelijk gestopt [met ruzie maken].
they are finally stopped with row make.INF
'They finally stopped quarreling.'

Complement of *stoppen* or *ophouden*.

2.6. THE *te*-INFINITIVE

- (14) Hij wenst een huis met tuin [te kopen].
he wishes a house with garden to buy.INF
'He wishes to buy a house with a garden.'
- (15) Je hoeft hier niet zo langzaam [te rijden].
you need here not so slowly to drive.INF
'You do not need to drive so slowly here.'

Complement of a wide range of verbs, prepositions, adjectives and nouns.

3. Raising and extraction out of PPs

HEAD-INITIAL PPS

- (16) ... dat ze nog vaak [aan hem/Jim] denkt.
... that she still often on him/Jim thinks
'... that she still often thinks of him/Jim.'
- (17) * ... dat ze hem_i/Jim_i vaak [aan --_i] denkt
... that she him/Jim often on thinks
- (18) * wie_i denkt ze vaak [aan --_i]?
who thinks she often on

No raising/scrambling; no extraction

The complement of P must be realized *in situ*.

HEAD-FINAL PPs

- (19) Hij reed aan hoge snelheid [die tunnel in].
he drove at high speed that tunnel in
'He drove into that tunnel at high speed.'
- (20) Hij reed die tunnel_i aan hoge snelheid [--_i in].
he drove that tunnel at high speed in
'He drove into that tunnel at high speed.'

The complement of P may be raised or extracted.

R-PRONOUNS

If the complement of P is a neuter pronoun, such as *het* 'it', *dit* 'this', *dat* 'that' or *wat* 'what', it is replaced by its R-counterpart, respectively *er* 'it.R', *hier* 'this.R', *daar* 'that.R' and *waar* 'what.R'. R-pronouns necessarily precede the preposition.

- (21) ... dat ze nog vaak [daar aan] denkt.
... that she still often that.R on thinks
'... that she still often thinks of that.'

Raising and extraction are allowed.

- (22) ... dat ze daar_i nog vaak [--_i aan] denkt.
... that she that.R still often on thinks
'... that she still often thinks of that.'
- (23) Waar_i denkt ze vaak [--_i aan]?
what.R thinks she often on
'What does she often think of?'

CONSTRAINT ALSO APPLIES TO PARTS OF THE COMPLEMENT

- (24) Dit wordt vaak [bij het eten geven] gebruikt.
this is often at the food give.INF used
'This is often used while giving food.'
- (25) * dit wordt vaak eten_i [bij het --_i geven] gebruikt
this is often food at the give.INF used
- (26) * wat_i wordt dit vaak [bij het --_i geven] gebruikt?
what is this often at the give.INF used

- (27) Ze zijn vertrokken [zonder iets te zeggen].
they are left without something to say.INF
'They left without saying anything.'
- (28) * ze zijn vertrokken iets_i [zonder --_i te zeggen]
they are left something without to say.INF
- (29) * wat_i zijn ze vertrokken [zonder --_i te zeggen]?
what are they left without to say.INF

4. Two types of P+V[*inf*]-combinations

THE INGRESSIVE *aan het*-INFINITIVE

- (30) Ze gingen weer [aan het ruzie maken].
they went again at the row make.INF
'They started quarreling again.'
- (31) *ze gingen weer ruzie_i [aan het --_i maken]
they went again row at the make.INF
- (32) *wat_i gingen ze weer [aan het --_i maken]
what went they again at the make.INF

Paardekooper (1984, 135), Booij (2004, 101), Bogaards et al. (2022), Van Eynde (2025, 177)

THE PROGRESSIVE *aan het*-INFINITIVE

- (33) Ze zijn weer [aan het ruzie maken].
they are again at the row make.INF
'They are quarreling again.'
- (34) Ze zijn weer ruzie_i [aan het --_i maken]
they are again row at the make.INF
'They are quarreling again.'
- (35) Wat_i zijn ze nu weer [aan het --_i verkopen] ?
what are they now again at the sell.INF ?
'What are they selling now?'

THE ABSENTIVE *uit*-INFINITIVE

- (36) We gaan [uit vlinders vangen].
we go out butterflies catch.INF
'we go out to catch butterflies.'
- (37) * we gaan vlinders_i [uit --_i vangen]
we go butterflies out catch.INF
- (38) * wat_i gaan we [uit --_i vangen]?
what go we out catch?

Haeseryn et al. (1997, 1054)

THE ASPECTUAL *met*-INFINITIVE

- (39) Ze zijn eindelijk gestopt [met ruzie maken].
they are finally stopped with row make.INF
'They finally stopped quarreling.'
- (40) *ze zijn eindelijk gestopt ruzie_i [met --_i maken]
they are finally stopped row with make.INF
- (41) *wat_i zijn ze eindelijk gestopt [met -_i maken] ?
what are they finally stopped with make.INF

THE *te*-INFINITIVE

- (42) Ze beginnen weer ruzie_i [te --_i maken].
they begin again row to make.INF
'They start quarreling again.'
- (43) Wat_i probeert hij ons [te --_i verkopen] ?
what tries he us to sell.INF ?
'What does he try to sell us?'
- (44) *ze beginnen weer te ruzie maken
they begin again to row make.INF

TAKING STOCK

Four of the combinations behave as *bona fide* head-initial PPs:

- ▶ ingressive *aan het*
- ▶ absentive *uit*
- ▶ aspectual *met*
- ▶ prospective *op*

The other two do not:

- ▶ progressive *aan het*
- ▶ infinitival *te*

HYPOTHESIS

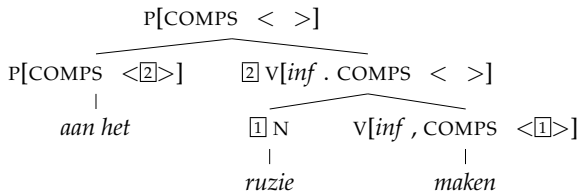
The exceptional combinations are not head-initial PPs.

In other words, the preposition is not the head of a PP in which the infinitive is a complement of the preposition.

Instead, the preposition is a functor that selects a verbal bare infinitive as its head sister.

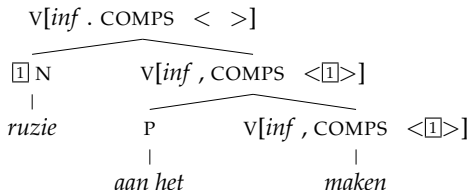
In that analysis the combination of the preposition and the infinitive is a head-final VP.

THE INGRESSIVE *aan het*-INFINITIVE



Similar analysis for the absentive *uit*-infinitive, the aspectual *met*-infinitive and the prospective *op*-infinitive.

THE PROGRESSIVE *aan het*-INFINITIVE



Similar analysis for the *te*-infinitive.

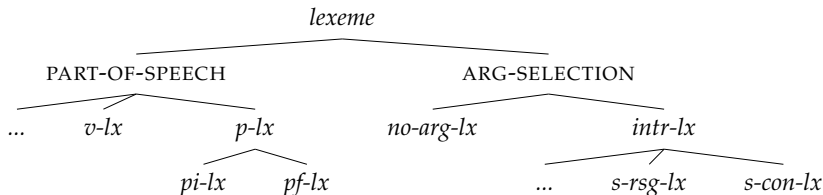
EVIDENCE

Raising and extraction of complements from a head-final VP is very common.

- (45) Ze zal wel weer ruzie_i [willen --_i maken]
She will well again row want.INF make.INF
'She'll want to quarrel again.'
- (46) Wat_i zullen we morgen [--_i maken]?
what will we tomorrow make.INF
'What will we make tomorrow?'

5. How to model this in HPSG

A BI-DIMENSIONAL HIERARCHY OF LEXEMES



Ginzburg and Sag (2000, 22)

- ▶ Many of the Dutch adpositions are inherently initial: *te, per, sinds, sedert, gedurende, tijdens* ...
- ▶ Some are inherently final: *af, heen, geleden, ...*
- ▶ Two take different forms in initial and final position: *met* vs. *mee*, *tot* vs. *toe*

ADPOSITIONAL LEXEMES

$$(47) \quad p\text{-}lx \Rightarrow [SS \mid LOC \mid CAT \mid HEAD \quad adposition]$$

$$(48) \quad pi\text{-}lx \Rightarrow \left[SS \mid LOC \mid CAT \mid COMPS \left\langle \left[\begin{array}{l} LOC \mid CAT \mid COMPS \\ NON\text{-}LOC \mid SLASH \end{array} \begin{array}{l} < > \\ \{ \} \end{array} \right] \right\rangle \right]$$

Head-initial prepositions do not allow raising or extraction out of their complement.

ARGUMENT STRUCTURE

$$(49) \text{ no-arg-lx} \Rightarrow [\text{ARG-ST} \langle \rangle]$$

$$(50) \text{ intr-lx} \Rightarrow [\text{ARG-ST} \langle \text{NP}, \dots \rangle]$$

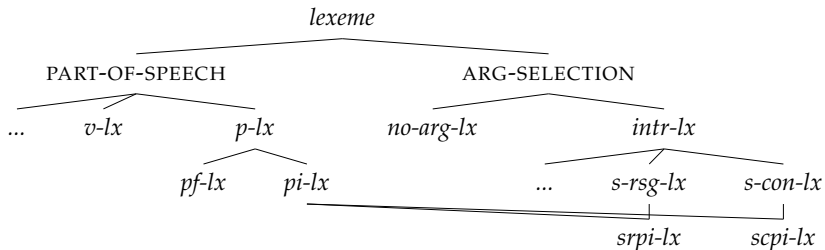
$$(51) \text{ s-rsg-lx} \Rightarrow [\text{ARG-ST} \langle [\text{LOC } \boxed{1}] , [\text{SUBJ} \langle [\text{LOC } \boxed{1}] \rangle] \rangle]$$

$$(52) \text{ s-con-lx} \Rightarrow [\text{ARG-ST} \langle \text{NP}_i , [\text{SUBJ} \langle \text{NP}_i \rangle] \rangle]$$

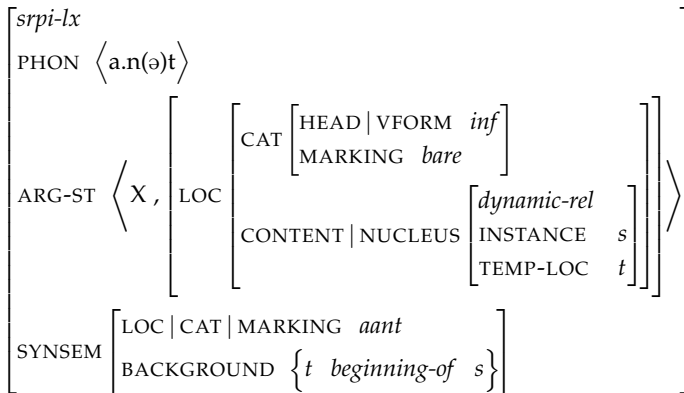
SUBJECT RAISING VS. SUBJECT CONTROL

- (53) ... dat het om zes uur [aan het regenen] ging.
... that it at six hour at the rain.INF went
'... that it started raining at six.'
- (54) ... dat het eindelijk gestopt is [met regenen].
... that it finally stopped is with rain.INF
'... that it has finally stopped raining.'
- (55) ... dat het [op sneeuwen] stond.
... that it up snow.INF stood.
'... that it was about to snow.'
- (56) * ... dat het om zes uur [uit regenen] ging/was.
... that it at six hour out rain.INF went/was

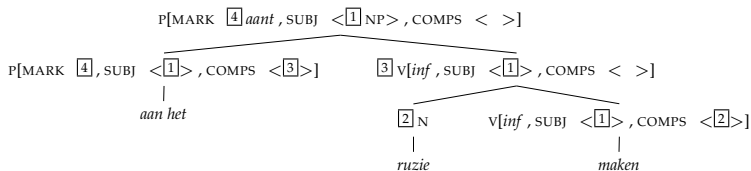
MULTIPLE INHERITANCE



THE INGRESSIVE *aan het*

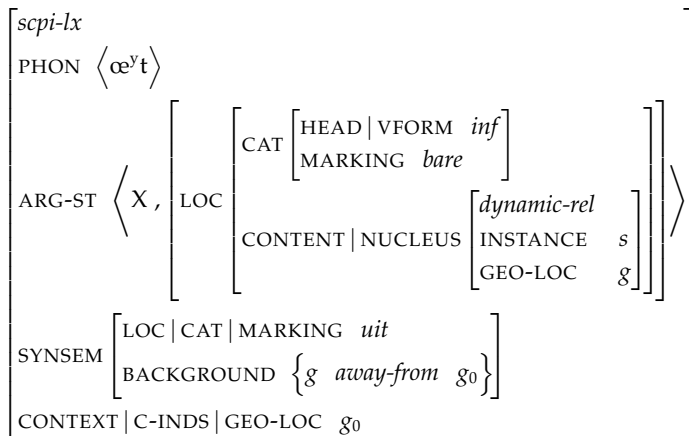


THE INGRESSIVE *aan het*-INFINITIVE

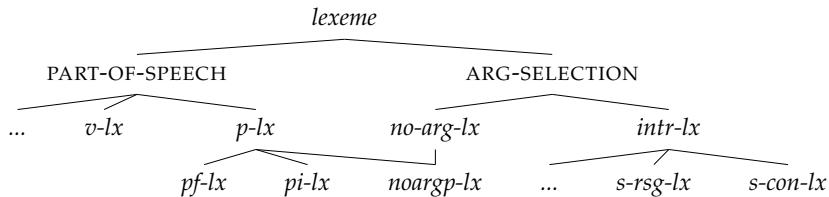


Similar analysis for the aspectual *met*-infinitive and the prospective *op*-infinitive

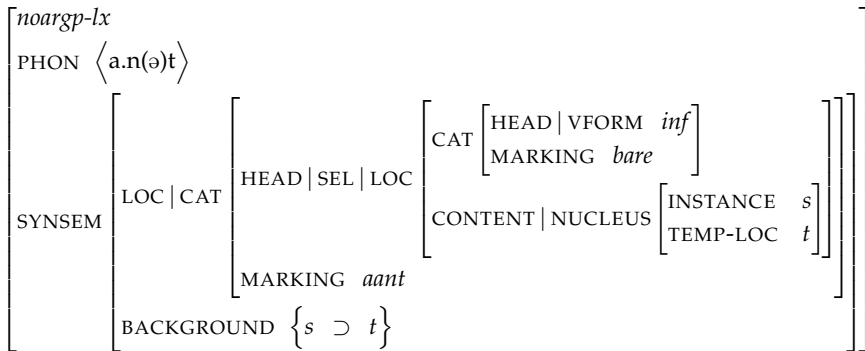
THE ABSENTIVE *uit*



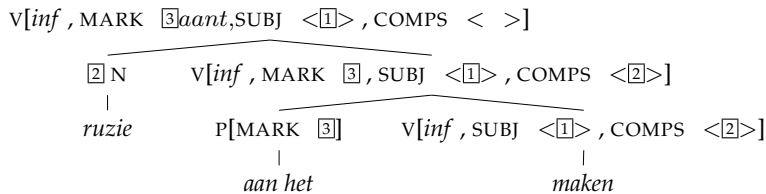
MULTIPLE INHERITANCE



THE PROGRESSIVE *aan het*



THE PROGRESSIVE *aan het*-INFINITIVE



THE INFINITIVAL *te*

$$\left[\begin{array}{l} noargp-lx \\ PHON \langle t\theta \rangle \\ SYNSEM | LOC | CAT \left[\begin{array}{l} HEAD | SEL | LOC | CAT \left[\begin{array}{l} HEAD | VFORM \textit{inf} \\ MARKING \textit{bare} \end{array} \right] \\ MARKING \textit{te} \end{array} \right] \end{array} \right]$$

THE WEAK HEAD TREATMENT

The preposition shares the HEAD and valence values of its complement.

Abeillé et al. (2004)

- ▶ If the progressive *aan het* and the infinitival *te* are bare infinitives, one expects them to have the infinitival affix *-(e)n*, but they don't. Even though the form *ten* exists.
- ▶ If the progressive *aan het* and the infinitival *te* are bare infinitives, one expects them to be head-final, as Dutch infinitives are, but they are not.

OTHER PREPOSITIONAL FUNCTORS

Dutch:

- ▶ *van* in the *van die/dat* N'-construction
- ▶ *voor* in the *wat voor (een)*-construction
- ▶ the complementizer *om*

Van Eynde (2004)

English:

- ▶ the complementizer *for* (Pollard and Sag 1994, 45)
- ▶ *of* in the pseudo-partitive construction (Van Eynde and Kim 2023)

DEGREES OF GRAMMATICALIZATION

1. the members of *scpi-lx* (absentive *uit*)
2. the members of *srpi-lx* (ingressive *aan het*, aspectual *met* and prospective *op*)
3. the members of *noargp-lx* with semantic contribution (progressive *aan het*)
4. the members of *noargp-lx* without semantic contribution (infinitival *te*)

6. Conclusion

- ▶ there are 6 combinations of a preposition with a verbal bare infinitive in Dutch
- ▶ 4 behave as *bona fide* head-initial PPs, disallowing complement raising and extraction from their infinitival complement
- ▶ 3 of those are subject raisers (the ingressive *aan het*, the prospective *op* and the aspectual *met*); 1 is a subject controller (the absentive *uit*)
- ▶ 2 do not behave as *bona fide* head-initial PPs (the progressive *aan het* and the infinitival *to*); to model them we assume that the preposition is not head of a PP, but rather a functor that is adjoined to an infinitival VP.
- ▶ the loss of head status is an instance of grammaticalization

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