8

The structural realization of lexical semantics

8.1 Arguments and grammatical functions

In generative grammar, a structural distinction is made between two types of syntactic positions: argument positions and grammatical function positions (e.g. Chomsky 1981). Argument positions are those in which arguments selected by a verb (such as AGENT, THEME, PATIENT) are syntactically realized. Grammatical function positions are those in which grammatical functions (such as subject, object, indirect object) are syntactically realized. Assuming a bottom-up derivational model, noun phrases are first realized in an argument position, and then moved up to a grammatical function position.

On this approach, different argument roles are distinguished configurationally, in that the structural relation between a verb and an element expressing a PATIENT or THEME role is different from the structural relation between a verb and an element expressing an AGENT role. Typically, the PATIENT/THEME element would be a sister of the verb, and the AGENT would not.

Five stages in the thinking about the relation between argument (TH) positions and grammatical function (GF) positions may be distinguished, depending on whether the TH positions and the GF positions are taken to coincide or not. The first stage assumes no movement from TH positions to GF positions at all (i.e. TH = GF), and the final stage assumes that all noun phrases are generated in TH positions and then moved to distinct GF positions (i.e. TH ≠ GF).

(8.1) *Relation between TH positions and GF positions*

GF	TH = GF ?				
	stage 1	stage 2	stage 3	stage 4	stage 5
object	✓	✓	✓	✓	✗
subject (active, transitive)	✓	✓	✓	✗	✗
subject (active, unergative)	✓	✓	✓	✗	✗
subject (active, unaccusative)	✓	✓	✗	✗	✗
subject (passive)	✓	✗	✗	✗	✗

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The idea that the subject of a passive verb is generated in a separate argument position (forming the transition between stages 1 and 2) was introduced as early as Chomsky (1957: 76), and the phenomena of Dutch played no role in its conception. However, a side issue was the question of how to analyze the intransitive passive expletive construction (impersonal passive) of (2.34d), repeated here.

(8.2) Er werd ge-var-en
LOC PASS.AUX:SG GE-sail-N
'People were sailing.'

As Perlmutter (1978: 157) discusses, the existence of impersonal passives had been taken to suggest that the passive is more properly characterized as involving subject demotion than object promotion. In response to this suggestion, Perlmutter (1978) develops an argument, based on Dutch, showing that passivization is indeed promotion (or 'advancement,' in terms of his Relational Grammar framework).

The crucial observation is that impersonal passives occur only with unergative verbs, as in (8.2), not with unaccusative verbs (see (8.3)).

(8.3) *Er werd ge-vall-en
LOC PASS.AUX:SG GE-fall-N
(intended) 'People were falling.'

The contrast between unergative (8.2) and unaccusative (8.3) is unexplained if passive involves demotion of the subject: it is unclear why the subject of an unaccusative verb could not be demoted. On the other hand, if passive involves promotion, the contrast falls out under certain independently established assumptions.

One of these assumptions is a law of Relational Grammar stating that promotion to subject can happen only once (the 1-Advancement Exclusiveness Law of Perlmutter and Postal 1984). A second assumption is that passivization always involves promotion to subject; in impersonal passives, the element *er* is promoted to subject position (Perlmutter 1978: 158). The third assumption is crucial here: the subject of an unaccusative verb like *vallen* 'fall' is generated as an internal argument and raised to subject position (i.e. TH ≠ GF) (Perlmutter 1978: 160):

(8.4) *Raising to subject with unaccusative verbs*
… dat [**Tasman** [plotseling [$_{VP}$ viel **[e]**]]]
C Tasman suddenly fall:PAST.SG GAP
'… that Tasman suddenly fell.'

Now if active unaccusative clauses already involve raising to subject, and impersonal passives involve raising to subject of *er*, unaccusative impersonal passives cannot exist without incurring a violation of the 1-Advancement

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Exclusiveness Law. The ungrammaticality of (8.3) is therefore predicted under Perlmutter's assumptions.

The assumption that unaccusative constructions involve raising (see (8.4)) was subsequently adopted in the Government and Binding framework of generative grammar (Chomsky 1981: 261 and note 35; Burzio 1981: 22 and 1986: 20), marking the transition from stage 2 to stage 3 in (8.1). This created an asymmetry between subjects of unaccusative constructions on one hand, which were raised from out of the verb phrase, and subjects of transitive and unergative constructions, generated outside the verb phrase, on the other. The asymmetry was resolved by assuming that all subjects were generated inside the verb phrase (the VP-internal subject hypothesis; Koopman and Sportiche 1991), marking the transition from stage 3 to stage 4 in (8.1).

The VP-internal subject hypothesis was motivated mostly conceptually, defining the verb phrase as the domain for the assignment of thematic roles. The Dutch facts played no role here, although they bear some relevance to one of the empirical arguments advanced in support of the VP-internal subject hypothesis (cf. Sportiche 1988). The argument involves the distribution of floating quantifiers, which, on the VP-internal subject hypothesis, might be taken to mark the TH position of the subject:

(8.5) *Floating quantifiers in French*

a. **Tous** **les** **Maori-s** ont vu Tasman
all DEF:PL Maori-PL have:3PL see:PART Tasman
'All the Maoris saw Tasman.'

b. **Les** **Maori-s** ont **tous** vu Tasman
DEF:PL Maori-PL have:3PL all see:PART Tasman
'The Maoris all saw Tasman.'

On Sportiche's analysis, *les Maoris* 'the Maoris' in (8.5) is subextracted from a constituent *tous les Maoris* 'all the Maoris,' stranding the quantifier *tous* in the subject's base position inside the verb phrase. But this analysis (with the floating quantifier marking the subject's base position) is weakened by the facts of Dutch, where the floating quantifier *allemaal* has the distribution of an adverb, occupying various positions in the middle field (see (4.99–100) and Ax 1977: 7).

The transition from stage 4 to stage 5 in (8.1) removes another asymmetry, this time between subjects of all types on one hand, and objects on the other. The asymmetry is that whereas subjects are generated in TH positions and raised to their GF position, objects are generated in a position that is simultaneously a TH position and a GF position. The facts of English, where the object remains adjacent to the verb, are consistent with the idea that for objects, the GF and TH positions coincide. But in Dutch, objects appear in the middle field, separated

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from the verb by other middle field material (see section 4.3.1), indicating that the object GF position is different from its TH position (on the assumption that TH positions are VP-internal).

We return to the distribution of objects and their relevance to the analysis of Dutch word order in chapter 9. Here it is relevant to note that Vanden Wyngaerd (1989a) showed that the movement of the object to a position in the middle field is similar to the movement that takes a subject to its GF position (i.e. both positions are A-positions in terms of Chomsky 1981: 47). Like raising to subject position, raising to object position (a) cannot take place out of a tensed clause (8.6) and (b) creates a configuration for variable binding (8.7b) and anaphor binding (8.7c).

(8.6) *Locality of object shift*

a. … dat Tasman dacht dat hij Nauru gisteren
C Tasman think:PAST.SG C 3SG.M.NOM Nauru yesterday
ge-zie-n had
GE-see-N have:PAST.SG
'… that Tasman thought that he saw Nauru the other day.'

b. *… dat Tasman Nauru dacht dat hij
C Tasman Nauru think:PAST.SG C 3SG.M.NOM
gisteren ge-zie-n had
yesterday GE-see-N have:PAST.SG
(intended: same as a.)

(8.7) *Object shift creating a configuration for variable binding and anaphor binding*

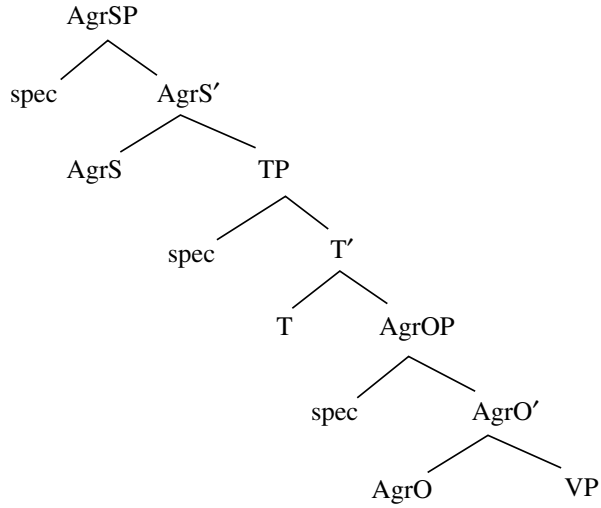
a. Tasman liet **elk-e** **Maori** met **zijn** buurman
Tasman let:PAST.SG Q.DSTR-DEF.SG Maori with POSS.M.3SG neighbor
dans-en
dance-INF
'Tasman made every Maori dance with his neighbour.'

b. Tasman stel-de **de** **Maori-s** aan **elkaar** voor
Tasman put-PAST.SG DEF:PL Maori-PL on RECP fore
'Tasman introduced the Maoris to each other.'
(*voorstellen aan X* = introduce to X)

This led Vanden Wyngaerd (1989a) to conclude that object shift is like raising to subject position, and hence that there must be a structural object position in the middle field that is in relevant respects comparable to the structural subject position (and different from adjunct positions or positions associated with discourse functions). This led Vanden Wyngaerd (1989a: 267) to propose the structure in (8.8).

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(8.8)



The two projections AgrSP and TP are needed if we want to have a single structure for both Dutch and English. Assuming that the object in English is also in the object position (Spec,AgrOP), the verb in English must move to T; but auxiliaries in English have a different distribution from lexical verbs (preceding negation, for example), so that AgrS is needed to host auxiliaries, and Spec,AgrSP is the structural subject position.

The resulting structure was applied more generally in Zwart (1993a), with consequences for the analysis of key elements of Dutch syntax, such as the structure of the verb phrase (head-initial or head-final; see chapter 9) and the verb-second phenomenon (chapter 10).

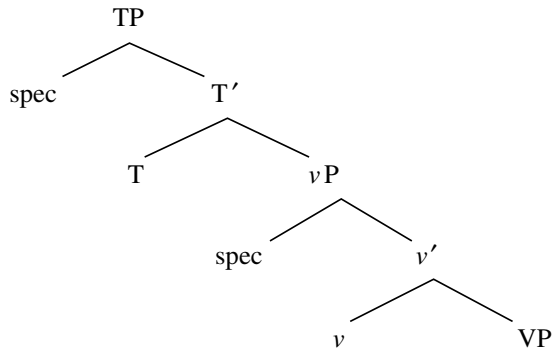
It should be noted here that the structure in (8.8) was also arrived at in Chomsky (1989), as a modification of the structure proposed in Pollock (1989) to account for the order of auxiliaries, lexical verbs, and adverbs in English and French. Pollock's main contribution, building on Kayne (1989), was to distinguish two functional projections TP (headed by TENSE) and AgrP (headed by the complex of agreement features/morphemes), which had been collapsed in a single projection in earlier work (e.g. Chomsky 1986a). In Pollock's proposal, TP dominated AgrP, and a discussion arose as to whether AgrP should not dominate TP (especially since the tense morpheme in French is closer to the verb stem than the agreement morpheme, which is explained if the verb moves through T on its way to Agr). The structure in (8.8), assuming an agreement projection for objects below TP, and one for subjects above TP, provided a happy solution.

In later developments within the Minimalist Program (Chomsky 1995), AgrSP and TP were once more collapsed into a single projection TP, and AgrOP was

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collapsed with a new projection, *v*P, headed by a 'little *v*' expressing the causative/agentive semantics of a transitive verb (structure (8.9)).

(8.9)



Since only transitive verbs have objects, conflating AgrOP and *v*P seemed to make sense. More exactly, the structure in (8.9) immediately explains the so-called Burzio Generalization, which states that a verb without an external argument (i.e. an unaccusative or passive verb) cannot assign case to an object (i.e. cannot realize the object grammatical function) (Burzio 1986: 178f). In (8.9), a single element (little *v*) is responsible for assigning a thematic role to the external argument (realized in Spec,vP) and for assigning case to the object (realized in a second specifier of the vP).

In this connection, two observations from Dutch are relevant. First, a passive ditransitive verb should lack a little *v*, and therefore should not be able to license an object. However, in a passive double object construction, one of the objects still occupies the structural object position in the middle field (cf. (2.43a)):

(8.10)	De	varken-s	werd-en	**Tasman**	niet	ge-gev-en
	DET.PL	pig-PL	PASS.AUX-PL	Tasman	NEG	GE-give-N

'They didn't give Tasman the pigs.'

In (8.10), the indirect object *Tasman* cannot occupy the Spec,*v*P position, assuming that there is no (suitable, i.e. nondefective) *v*P in passive constructions.

Second, raising verbs like *schijnen* 'seem' should, by Burzio's Generalization, also be unable to license an object (raising verbs lacking a little *v*P), but in Dutch, arguments of the raising verb's complement clause are realized in the middle field of the matrix clause (see (8.11); cf. the discussion around (4.45) and (9.60); the negative adverb *niet* is a matrix clause element modifying *scheen* 'seemed'):

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(8.11)

… dat	Tasman	**het**	**Zuidland**	niet	scheen	te	ken-nen
c	Tasman	DEF.N.SG	South Land	NEG	seem:PAST.SG	to	know-INF

'… that Tasman did not seem to know the South Land.'

The distribution of objects in Dutch, then, suggests that the presence of a structural object position is not a function of the presence of little *v*, and that Burzio's Generalization cannot be explained by relating the presence of objects and external arguments to a single-head little *v* (Zwart 2001a).

The earliest version of the unaccusativity hypothesis is found in Roorda (1852: 86f), who uses the terms *súbject* and *óbject* for TH-roles and *onderwerp* for the grammatical function of subject. Roorda states that in *De boom is gevallen* [the tree is fallen] 'The tree fell down' the subject *de boom* 'the tree' is the *óbject*, to which the event happens. (Roorda does not apply the same analysis to the *De boom valt* 'the tree falls,' however.)

The idea that agentivity (in minimalist terminology: the presence of little *v*) is what distinguishes unaccusative and unergative intransitive verbs is advanced in Perlmutter (1978: 162, 172), but in a tradition of Dutch syntactic analysis going back to at least Kern (1912: 18) the relevant factor is taken to be 'mutativity' (see also Den Hertog [1896] 1973, vol. 3: 180, Hoekstra 1984: 177). We may take an intransitive verb to be mutative if its subject's properties are affected. Compare (2.19a), repeated here as (8.12a), and (8.12b):

(8.12)

a.	Tasman	**heeft**	veel	ge-var-en		
	Tasman	have:3SG	much	GE-sail-N		
	'Tasman sailed a lot.'					
b.	Tasman	**is**	naar	Nieuw-Zeeland	**ge-var-en**	
	Tasman	be:3SG	to	New Zealand	GE-sail-N	
	'Tasman sailed to New Zealand.'					

In (8.12a), *varen* 'sail' is not mutative (Tasman is not affected by the activity of sailing), but in (8.12b), it is: Tasman underwent a change of position as result of his sailing. (Crucially, if the PP *naar Nieuw-Zeeland* 'to New Zealand' is interpreted as an adjunct referring to the location in which Tasman's sailing took place, the sailing activity does not affect Tasman's location, and *hebben* 'have' must be used instead of *zijn* 'be.')

The relevance of mutativity was also stressed more recently in Lieber and Baayen (1997), in an attempt to explain auxiliary selection in Dutch without invoking the unaccusativity hypothesis. However, while mutativity explains the pattern in (8.12), the full range of auxiliary selection facts suggests that the relevant factor is unaccusativity, i.e. the absence of an external argument (Hoekstra

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1999). Thus, mutative unergative verbs with the applicative prefix *be-* select the auxiliary *hebben* 'have' (8.13), and nonmutative verbs featuring in the impersonal passive construction select *zijn* 'be' (8.14).

(8.13) Tasman heeft Mount Tasman nooit be-klom-men
Tasman have:3SG Mount Tasman never GE:APPL-climb-N
'Tasman never climbed Mount Tasman.'

(8.14) Er is ge-dans-t
LOC be:3SG GE-dance-D
'People have danced.'

Moreover, Hoekstra (1999) shows that the feature mutativity does not have to reside with the verb, given pairs like (8.15), where the mutativity is brought in by the predicate *nat* 'wet'.

(8.15) a. Het heeft ge-regen-d
3SG.N have:3SG GE-rain-D
'It rained.'

b. Het is nat ge-regen-d
3SG.N be:3SG wet GE-rain-D
'It got wet from the rain.'

As Hoekstra argues, a large class of unaccusative constructions, best analyzed with a small-clause structure (section 8.2), are of this type.

Kern (1912) found the factor of mutativity to be a constraint on attributive adjectival use of the participle of an intransitive verb. This is now a standard diagnostic of unaccusativity (Hoekstra 1988: 178):

(8.16) a. *de veel ge-var-en Tasman
DEF:SG much GE-sail-N Tasman
(intended) 'Tasman who has sailed a lot'

b. de naar Nieuw-Zeeland ge-var-en Tasman
DEF:SG to New Zealand GE-sail-N Tasman
'Tasman who sailed to New Zealand'

In (8.16a), *varen* 'sail' is used as an unergative verb and attributive adjectival use of the participle *gevaren* 'sailed' is impossible; in (8.16b), *varen* 'sail' is combined with the PP *naar Nieuw Zeeland* 'to New Zealand,' ensuring that Tasman undergoes a change of position, and attributive adjectival use of *gevaren* 'sailed' is possible. That this is generally the case with unaccusative verbs, but not with unergative verbs, is shown in (8.17–18) (Hoekstra 1984: 178, Levin and Rappaport 1986, Zaenen 1993: 140).

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(8.17) *Unaccusative* sterven *'die'*

a. De Maori-s zijn ge-storv-en
DEF.PL Maori-PL be:PL GE-die-N
'The Maoris died.'

b. de ge-storv-en Maori-s
DEF.PL GE-die-N Maori-PL
'the Maoris that died'

(8.18) *Unergative* dansen *'dance'*

a. De Maori-s heb-ben ge-dans-t
DEF.PL Maori-PL have-PL GE-dance-D
'The Maoris danced.'

b. *de ge-dans-t-e Maori-s
DEF.PL GE-dance-D-PL Maori-PL
(intended) 'the Maoris that danced'

The unaccusativity hypothesis, according to which the subject of some intransitive verbs is underlyingly an object (more exactly: an internal argument of the verb), is supported by the observation that the object of a transitive verb can also be pre-modified by an attributive adjectival past participle (the relevant intransitive verbs are sometimes called 'ergative' in the literature, because their subjects behave like objects):

(8.19) a. Tasman ontdek-te het eiland
Tasman discover-PAST.SG DEF.N.SG island
'Tasman discovered the island.'

b. het door Tasman ontdek-t-e eiland
DEF.N.SG through Tasman GE:discover-D-DEF.N.SG island
'the island discovered by Tasman'

(On the pure adjectival use of past participles, see section 8.2.)

Using unaccusativity diagnostics, Ackema and Schoorlemmer (1994, 1995) argue that middle constructions in Dutch do not involve raising. For example, the relative past ('perfect') of a verb in a middle construction is formed with *hebben* 'have' instead of *zijn* 'be' (Ackema and Schoorlemmer 1994: 61):

(8.20)

a. Tasman z'n journaal lees-t lekker
Tasman POSS:M.SG log read-3SG good
'Tasman's log reads easily (is a good read).'

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b. Tasman z'n journaal {heeft / *is } altijd lekker ge-lez-en
Tasman POSS:M.SG log have:3SG be:3SG always good GE-read-N
'Tasman's log has always been a good read.'

This shows that the middle is not a kind of passive where the subject is first generated as an internal argument of the verb and raises to subject position. Ackema and Schoorlemmer (1994: 73) argue that middle formation is presyntactic, meaning that the (arbitrary) AGENT is not realized and the PATIENT/THEME assumes the role of external argument.

Ackema and Schoorlemmer's analysis is supported by the existence of nonargument middles in Dutch (Hoekstra and Roberts 1990, Zwart 1998a), where the subject of the middle construction corresponds to a noun phrase internal to an adjunct PP:

(8.21) a. Tasman vaar-t **op** **de** ***Batavia***
Tasman sail-3SG on DEF.SG *Batavia*
'Tasman is sailing on the *Batavia*.'

b. **De** ***Batavia*** vaar-t lekker
DEF.SG Batavia sail-3SG good
'It is nice sailing on the *Batavia*.'

Nonargument middles, absent from English, are not easily accounted for if middle formation involves syntactic raising. Ackema and Schoorlemmer (1994, section 8) propose a presyntactic operation similar to applicative formation, where the preposition is incorporated in the verb, and the preposition's complement can then be treated as the PATIENT/THEME in ordinary middle constructions (realized as an external argument after suppression of the AGENT).

This analysis predicts a contrast between nonargument middles based on argument vs. adjunct PPs, as the incorporation should be allowed only with argument PPs. Ackema and Schoorlemmer (1994: 86) present contrasts like (8.22) in support of the prediction.

(8.22) a. Dit papier schrijf-t lekker
DEM:PROX.N.SG paper write-3SG good
'It is nice writing on this paper.'
(corresponding PP: *op dit papier* 'on this paper')

b. ??Deze lamp schrijf-t lekker
DEM:PROX.CG.SG lamp write-3SG good
'It is nice writing by this light.'
(corresponding PP: *bij deze lamp* 'under this light')

However, the contrast seems not absolute, and replacing *schrijven* 'write' in (8.22b) by *lezen* 'read' yields a marked improvement without changing the adjunct

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status of the corresponding PP. Perhaps related to this is the circumstance that it has proved difficult to determine exactly when PPs are arguments or adjuncts (e.g. Brinker 1972: 154f).

A more conservative statement of the facts would seem to be that any noun phrase responsible for the way an event runs (expressed by the adverb in the middle construction) may appear as the subject in a middle construction in Dutch (see Condoravdi 1989 for a more explicit semantic analysis along these lines). This does not detract from Ackema and Schoorlemmer's (1994) conclusion that the subject of a middle construction is an external argument, but it requires a rethinking of how that element comes to be interpreted as such (see Zwart 1998a).

8.2 The small-clause analysis

A small clause is a subject–predicate combination without the functional make-up of a full-fledged clause (especially without a copula and without tense marking). The small-clause analysis is motivated by the desire to analyze syntactic structures as binary branching (Kayne 1984) and by a view on the relation between lexical semantics and syntactic structure in which structural configurations reflect thematic relations in a direct and consistent way (the Uniformity of Theta-role Assignment Hypothesis or UTAH of Baker 1988: 46).

Historically, small clauses have been proposed for verbless complement clauses like *We found the cage empty* (Jespersen 1933: 308) and 'accusativus cum infinitivo' constructions with perception verbs like *We saw them run* (Poutsma 1904: 562). The first Dutch syntactician to have come up with the essentials of a small-clause analysis appears to have been Taco Roorda, who, strikingly, uses similar examples to those used by Jespersen many decades later (1852: 181) (see Zwart 1995):

(8.23)	Zij	vond	de	kast	ledig
	3SG.F.NOM	find:PAST.SG	DEF.SG	closet	empty
	'She found the closet [to be] empty.'				

As Roorda says (1852: 182):

> In such clauses not only the object, but also the [secondary predicate] must be viewed as an 'objective complement' [i.e. an internal argument]... For when one says that someone *finds* or *makes a closet empty*, the meaning is not so much that one finds or makes an empty closet, but rather the closet's being empty.

For small clauses, Roorda uses the term *zamengesteld complement* 'complex complement.'

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Small clauses were introduced in generative grammar in Williams (1974), and more particularly in Government and Binding theory by Stowell (1981, 1983), Chomsky (1981) and Kayne (1984). The small-clause analysis allows a more consistent application of binary branching phrase structure. This is evident from an early discussion in the generative literature on Dutch, involving the structure of the so-called 'absolute *with*-construction' (Paardekooper 1977, Van Riemsdijk 1978, Beukema and Hoekstra 1983, Smits and Vat 1984).

(8.24)

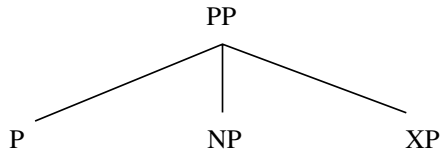
Met	Tasman	aan	het		roer	(vinden	we	het	Zuidland	zó)
with	Tasman	on	DEF.N.SG		helm	find	we	the	South Land	so

'With Tasman at the helm (we find the South Land in no time).'

Jespersen (1940: section 5.1.6) took the phrases following *met* 'with' (*Tasman* and *aan het roer* 'at the helm' in (8.24)) to constitute a simple subject–predicate nexus, suggesting that *met* 'with' takes a small-clause complement. As Paardekooper (1977: 406) notes, the absolute *with*-construction provides a suitable Dutch translation for the Latin absolute ablative construction, itself a bare subject–predicate combination.

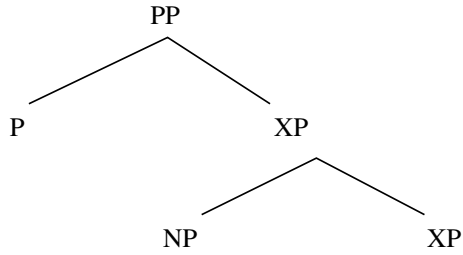
Van Riemsdijk (1978: 65f) discusses arguments pro and contra a small-clause analysis of the absolute *with*-construction, and settles on the ternary branching structure in (8.25).

(8.25)



In the discussion, Van Riemsdijk assumes that the small-clause analysis involves deletion of a verb (e.g. *with Tasman being at the helm* for (8.24)), and his arguments mainly target complications brought on by the deletion transformation. But Van Riemsdijk's arguments do not decide between the ternary branching structure in (8.25) and its binary branching alternative (8.26).

(8.26)



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And Van Riemsdijk (1978: 77–79) mentions one "embarrassing" fact about the absolute *with*-construction, namely that the complement of *met* ('complement' on the analysis in (8.25)) does not assume locative morphology when pronominalized (see (2.9)) (example from Beukema and Hoekstra 1984: 692):

(8.27) a. met dat nog allemaal voor de boeg
with DEM:DIST.N still all before DEF.SG bow
'with all that still ahead of us'

b. *daar mee nog allemaal voor de boeg
DEM:DIST.LOC with still all before DEF.SG bow
(intended: same as a.)

As Beukema and Hoekstra (1984) point out, the impossibility of locative pronominalization is immediately explained on the analysis in (8.26), where *dat* 'that' is not a complement of *met* 'with.' This favors the small-clause analysis of (8.24), as is now widely acknowledged (e.g. Neeleman 1994b: 45).

The small-clause analysis has since been applied to a range of constructions in work by Teun Hoekstra and his students (most notably Marcel den Dikken, René Mulder, and Guido Vanden Wyngaerd) (Hoekstra 1984, 1988, 2004; Hoekstra and Mulder 1990; Den Dikken 1992; Mulder 1992; Vanden Wyngaerd 2001). As in the Roorda/Jespersen cases, a small-clause analysis is motivated in each of these cases because the verb cannot take the noun phrase following it as its complement:

(8.28)

a. Tasman zet-te het journaal *(in de kast)
Tasman put-PAST.SG DEF.N.SG log in DEF.SG closet
'Tasman put the log in the closet.'

b. Tasman had de zon *(in z'n gezicht)
Tasman have:PAST.SG DEF.SG sun in POSS.M.SG face
'Tasman had the sun in his face.'

c. Tasman sloeg de kokosnoot *(in het water)
Tasman hit:PAST.SG DEF.SG coconut in DEF.N.SG water
'Tasman knocked the coconut into the water.'

d. Tasman voer de zeil-en *(aan flard-en)
Tasman sail:PAST.SG DEF.PL sail-PL on shred-PL
'Tasman sailed the sails to shreds.'

e. Tasman blies het kanon *(op)
Tasman blow:PAST.SG DEF.N.SG cannon up
'Tasman blew up the cannon.'

In each of these cases, the verb seems to select a subject–predicate combination (a small clause), where the predicate is the constituent in parentheses.

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As Hoekstra (1984: 235) notes, a PP can be diagnosed as a small-clause predicate in Dutch by its inability to appear in the final field (8.30b), unlike adjunct PPs (8.31b).

(8.29) *Adjunct PP*

a. … dat Tasman een wrat op z'n gezicht had
C Tasman INDF.SG wart up POSS.M.SG face have:PAST.SG

b. … dat Tasman een wrat had op z'n gezicht
C Tasman INDF.SG wart have:PAST.SG up POSS.M.SG face

(both) '… that Tasman had a wart on his face.'

(8.30) *Predicate PP*

a. … dat Tasman de zon in z'n gezicht had
C Tasman DEF.SG sun in POSS.M.SG face have:PAST.SG
'… that Tasman had the sun in his face.'

b. *… dat Tasman de zon had in z'n gezicht
C Tasman DEF.SG sun have:PAST.SG in POSS.M.SG face

(intended) '… that Tasman had the sun in his face.'

Hoekstra's (1984: 236) explanation for the ungrammaticality of (8.30b) is that the small clause *de zon in z'n gezicht* 'the sun in his face' (of which the prepositional phrase *in z'n gezicht* 'in his face' is the predicate) is itself a PP, and the rule extraposing the PP should therefore target the entire small clause. This would take the noun phrase *de zon* 'the sun' out of the government domain of the verb *had* 'had' (assuming that the verb governs to the left in Dutch), and hence *de zon* could not receive case from the verb (leading to a violation of the Case Filter of Chomsky 1981).

The explanation, couched within Government and Binding theory, is not entirely satisfactory (alternative derivations cannot be excluded), and a deeper explanation was not provided until Barbiers (1995: 117). Barbiers (1995) stays very close to Hoekstra's (1988) analysis, where the small clause is a PP and the subject of the small clause is its specifier. But Barbiers analyzes 'PP-extraposition' (the phenomenon of PPs appearing in the final field) not as the result of rightward PP-movement, but as the effect of leftward VP-movement into the specifier position of the PP (see section 9.3.2). Since the specifier position of the small-clause PP is occupied by the small-clause subject, the leftward movement of the VP is not available with small-clause predicate PPs.

A distributional restriction similar to that which applies to PPs can be observed when the small-clause predicate is an adjectival past participle. In (8.31), *hebben* 'have' can be interpreted as a temporal auxiliary (yielding a relative past or 'perfect' tense interpretation), in which case the participle *gestreken* 'lowered' is a verbal participle, or as a verb of possession, in which case *hebben* takes a

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small-clause complement with an adjectival predicate (as in *de gestreken vlag* 'the lowered flag'):

(8.31) Tasman wou de vlag ge-strek-en heb-ben
Tasman want:PAST.SG DEF.SG flag GE-lower-N have-INF
(verbal reading) 'Tasman wished he had lowered the flag.'
(adjectival reading) 'Tasman wished the flag to be lowered.'

As the order auxiliary–participle is variable (see (4.37), (11.1)), the participle can follow the auxiliary, but then the adjectival (small-clause) reading is lost (Hoekstra 1984: 269):

(8.32) Tasman wou de vlag heb-ben ge-strek-en
Tasman want:PAST.SG DEF.SG flag have-INF GE-lower-N
(verbal reading) 'Tasman wished he had lowered the flag.'
(no adjectival reading 'Tasman wished the flag to be lowered.')

The explanation here simply refers to the categorial nature of the predicate, since adjectives in Dutch never appear in the final field.

As Hoekstra (1984: 269) notes, the ambiguity of *hebben* 'have' as an auxiliary or a verb of possession is replicated in the ambiguity of *zijn* 'be' as an auxiliary or a copula. Where *zijn* 'be' is used as a copula, the participle again functions as a small-clause predicate, and must precede *zijn* 'be' (see also Michels 1959).

(8.33) … dat Tasman ge-tik-t was
C Tasman GE-tag-D be:PAST.SG
(verbal) '… that Tasman was tagged.' (*tikken* (V) = 'play tag')
(adjectival) '… that Tasman was crazy.' (*getikt* (A) = 'crazy')

(8.34) … dat Tasman was ge-tik-t
C Tasman be:PAST.S GE-tag-D
(verbal) '… that Tasman was tagged.'
(no adjectival reading '… that Tasman was crazy.')

Hoekstra (1984: 283) therefore analyzes copular *zijn* 'be' as an unaccusative verb (lacking an external argument) taking a small-clause complement. As expected, copular *zijn* 'be' uses the auxiliary *zijn* 'be' to form the relative past ('perfect'):

(8.35) Tasman is altijd een held ge-wees-t
Tasman be:3SG always INDF.SG hero GE-be-D
'Tasman was always a hero.'

(Note that the past participle of copular *zijn* 'be' is formed by suppletion from the root of the verb *wezen* 'be'; Postma 1993 showed that when the participle of *be* is

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not formed via suppletion, the relative past is formed with the auxiliary *have*, e.g. in Frisian and French.)

In fact, on Hoekstra's analysis, unaccusative verbs regularly take small-clause complements:

(8.36) a. Tasman is in zee ge-val-len
Tasman be:3SG in sea GE-fall-N
'Tasman fell in the sea.'

b. *Tasman is ge-val-len in zee
Tasman be:3SG GE-fall-N in sea
(intended: same as a.)

(8.37) a. Tasman is dood ge-gaa-n
Tasman be:3SG dead GE-go-N
'Tasman died.'

b. Tasman is uit ge-var-en
Tasman be:3SG out GE-sail-N
'Tasman sailed out [to sea].'

c. Tasman is kapitein ge-word-en
Tasman be:3SG captain GE-become-N
'Tasman became captain.'

In (8.36), the PP *in zee* 'in the sea' cannot appear in the final field, and therefore must be a predicate. In (8.37), the small-clause predicate is an adjective (8.37a), a particle/adposition (8.37b), or a noun (8.37c). On the combined unaccusative/small-clause analysis, the subject in (8.36–37) is generated as the subject of a small clause, which is itself the internal argument of the verb.

A further extension of the small-clause analysis is proposed in Mulder and Wehrmann (1989), Hoekstra and Mulder (1990) and Mulder (1992) (see also Moro 1991). Hoekstra and Mulder (1990: 13) observe that in certain constructions in Dutch a locational PP cannot be left out, and cannot appear in the final field:

(8.38) a. … dat de kokosnot-en *(in het ruim) zit-ten
C DEF.PL coconut-PL in DEF.N.SG hold sit-PL
'… that the coconuts are in the hold.'

b. *… dat de kokosnot-en zit-ten in het ruim
C DEF.PL coconut-PL sit-PL in DEF.N.SG hold
(intended: same as a.)

As Hoekstra and Mulder argue, the distribution of the locational PP *in het ruim* 'in the hold' in (8.38) is explained if it is a small-clause predicate, with *de kokosnoten* 'the coconuts' as its subject. In their analysis, the postural verb *zitten* 'sit' is used here as a copula (cf. the English translation).

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Note that the postural verb *zitten* (as well as *liggen* 'lie,' *hangen* 'hang,' and *staan* 'stand,' which can likewise be used as a copula) is clearly unergative, witness the choice of the auxiliary *hebben* 'have' in the relative past ('perfect'):

(8.39) De kokosnot-en {heb-ben/ *zijn} (al die tijd) in
DEF.PL coconut-PL have-PL be:PL all DEM time in
het ruim ge-zet-en
DEF.N.SG hold GE-sit-N
'The coconuts were in the hold (the whole time).'

On the small-clause analysis, the unergative/copular postural verb has no external argument, and the subject (*de kokosnoten* 'the coconuts' in (8.38–39)) is generated as the subject of the postural verb's small-clause complement. This, then, would lead one to expect the auxiliary in (8.39) to be *zijn* 'be' rather than *hebben* 'have.'

In view of this, Hoekstra and Mulder (1990: 12) argue that auxiliary choice is determined, not just by the presence/absence of an external argument, but also by aspect (cf. the factor of mutativity discussed in section 8.2). In (8.12b), the PP *naar Nieuw Zeeland* 'to New Zealand' signals the endpoint of a dynamic event (i.e. the construction is telic), whereas the PP *in het ruim* 'in the hold' in (8.39) does not (i.e. the construction is atelic), and if the small-clause analysis of postural verb constructions is to be maintained, auxiliary selection must be a function of telicity.

Hoekstra and Mulder's analysis of postural verb constructions had an important spin-off in their analysis of locative inversion in English of the type *Down the hill rolled the baby carriage*. Hoekstra and Mulder were now able to argue that *down the hill* in these constructions is generated as the predicate of a small clause *the baby carriage down the hill*, and is subseqently raised to the structural subject position. This again explained the fact that the PP is followed by the verb and not by the subject (**Down the hill the baby carriage rolled*), as would be expected if the PP were an adjunct.

Thinking further along these lines, Hoekstra and Mulder (1990) and Moro (1991) argued that the English expletive *there* is not a dummy subject, but a raised small-clause predicate, predicating existence of the small-clause subject. This analysis was largely ignored in the discussion of expletive constructions in Chomsky (1995) and later work, but it has the advantage that the locative morphology of the expletive is immediately understood.

The locative inversion/expletive raising analysis of Hoekstra and Mulder (1990) was applied to Dutch in Zwart (1991a, 1992). In Dutch, locative inversion cannot be demonstrated directly, because the position of the verb following the first

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constituent makes it impossible to tell whether a fronted PP is a subject or a topic. But Zwart (1992) shows that when expletive *er* 'there' is present, extraposition of the PP is no longer ungrammatical (cf. (8.38)):

(8.40) … dat er kokosnot-en zit-ten in het ruim
C LOC coconut-PL sit-PL in DEF.N.SG hold
'… that there are coconuts in the hold.'

This is explained on the Hoekstra and Mulder/Moro analysis: if *er* 'there' in (8.40) is a raised small-clause predicate, *in het ruim* 'in the hold' must be an adjunct, and extraposition is predicted to be possible.

In later developments, small-clause analyses also involve empty predicates or affixal predicates, increasing the level of abstractness (e.g. Den Dikken 1992 on particle constructions and the dative alternation, Mulder 1992 on applicatives and *spray/load* alternations, and Den Dikken and Zwart 1996 on locative exceptional case-marking constructions). To illustrate, Mulder (1992), in an analysis going back to Hoekstra, Lansu, and Westerduin (1988), argues that the applicative prefix *be-* is the head of an adjectival small-clause predicate conveying total affectedness. On this analysis, the structure of (8.41) would be as in (8.42):

(8.41) … dat Tasman het strand met tulp-en be-plant
C Tasman DEF.N.SG beach with tulip-PL APPL-plant
'… that Tasman plants tulips on the beach.'

(8.42) [$_{VP}$ [$_{SC}$ [the beach] [$_{AP}$ *be* [$_{PP}$ with tulips]]] plant]

Be-, being an affix, is adjoined to the verb at some point, yielding the order in (8.41). It follows from the logic of the analysis that *be-* (and *ver-* and *ont-* as well) are small-clause predicates even without a complement PP (such as *met tulpen* 'with tulips' in (8.41)). Typically, the way to demonstrate the small-clause predicate status of *be-* would be to show its incompatibility with other small-clause predicates (such as the resultative predicate *nat* 'wet' in (8.43b)):

(8.43) a. … dat Tasman de tulp-en be-giet
C Tasman DEF.PL tulip-PL APPL-pour:SG
'… that Tasman waters the tulips.'

b. … dat Tasman de tulp-en nat giet
C Tasman DEF.PL tulip-PL wet pour:SG
'… that Tasman waters the tulips.'

c. *… dat Tasman de tulp-en nat be-giet
C Tasman DEF.PL tulip-PL wet APPL-pour:SG
(intended) '…that Tasman waters the tulips.'

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In (8.43), the fact that the presence of *be-* blocks small-clause predicates may be taken to suggest that *be-* is itself a small-clause predicate.

8.3 The complex predicate analysis

The small-clause analysis of secondary predication discussed in section 8.2 was intended to replace a more traditional analysis in which the verb and the secondary predicate form a complex predicate. This analysis was forcefully revived in Neeleman (1994b), and I close this chapter with a discussion of some of his arguments.

We saw that the class of small-clause predicates was ultimately extended so as to include affixes like applicative *be-* (e.g. (8.43)). Since *be-* is never separated from the verb, the analysis betrays a view on the relation between syntax and (derivational) morphology, such that morphological analysis is informed by syntactic analysis. But if the parallellism of affixes and secondary predicates is real, as (8.43) suggests, one might also argue the other way around, and conclude that the combination of a verb and a secondary predicate is somehow morphological. Concretely, one might argue, as Neeleman (1994b) does, that the verb–predicate combination is created first, and that the semantic relation between the predicate and the noun over which it predicates a property (i.e. between the small-clause predicate and its subject) is of a secondary nature.

Neeleman (1994b: 10) proposes that the relation between the 'small-clause predicate' and the 'small-clause subject' is put on hold until after the predicate and the verb have combined in a complex predicate, inheriting the thematic properties of its component parts. Thus, the relation between structure and meaning is more flexible than in the approach underlying the small-clause analysis, a shift of perspective discussed more fully in Neeleman and Weerman (1998).

Neeleman (1994b:51) shows that small clauses fail standard constituency tests such as fronting. Compare (8.44) to (8.28d):

(8.44)

*De	zeilen	aan	flard-en	wou	Tasman	niet	var-en
DEF.PL	sail-PL	on	shred-PL	want:PAST.SG	Tasman	NEG	sail-INF

(intended) 'Tasman did not want to sail the sails to shreds.'

But the combination of the verb and the resultative predicate can be fronted:

(8.45)

Aan	flard-en	zeil-en	wou	Tasman	de	zeil-en	niet
on	shred-PL	sail-INF	want:PAST.SG	Tasman	DEF.PL	sail-PL	NEG

'Tasman did not want to sail the sails to shreds.'

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Note that the less contentious small clauses of the type in (8.24) do allow fronting:

(8.46)

Tasman	aan	het	roer	daar	vind-en	we	het
Tasman	on	DEF.N.SG	helm	DEM:DIST.LOC	find-PL	1PL.NOM	DEF.N.SG
Zuidland	niet	mee					
South Land	NEG	with					

'With Tasman at the helm we won't find the South Land.'

In view of this, Neeleman (1994b: 44) makes a distinction between real (8.24) and alleged (8.28) small clauses.

Another quite compelling argument against the small-clause analysis is found in the observation that in Middle Dutch, where the OV order was not as consistently applied, the small-clause predicate remains adjacent to the verb, regardless of the position of the small-clause subject (Neeleman and Weerman 1992). Thus, next to the Modern Dutch order in (8.47a) we find the mirror order (8.47b), but not the order (8.47c) that would result if the verb and the small clause as a whole were inverted.

(8.47) a. noun phrase–predicate–verb
b. verb–predicate–noun phrase
c. verb–noun phrase–predicate

This is explained if the verb and the predicate form a complex predicate in both Middle and Modern Dutch, with only linear order varying over time. The order (8.47b) is illustrated with a resultative predicate in (8.48) (Neeleman 1994b: 176).

(8.48) *Middle Dutch*

Si	heb-ben	ge-vaerwe-t	root	die	straet-en
3PL.NOM	have-PL	GE-paint-D	red	DEF.PL	street-PL

'They painted the streets red.'

The complex predicate analysis advocated by Neeleman (1994b) did not initially have the same impact as the small-clause analysis, possibly because it required a rethinking of the relation between meaning and structure. We briefly return to implications of the two types of analysis when we discuss the minimalist derivation of word order in the middle field in section 9.3.1.

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