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Syntax of Dutch Verbs and Verb Phrases, Volume 3

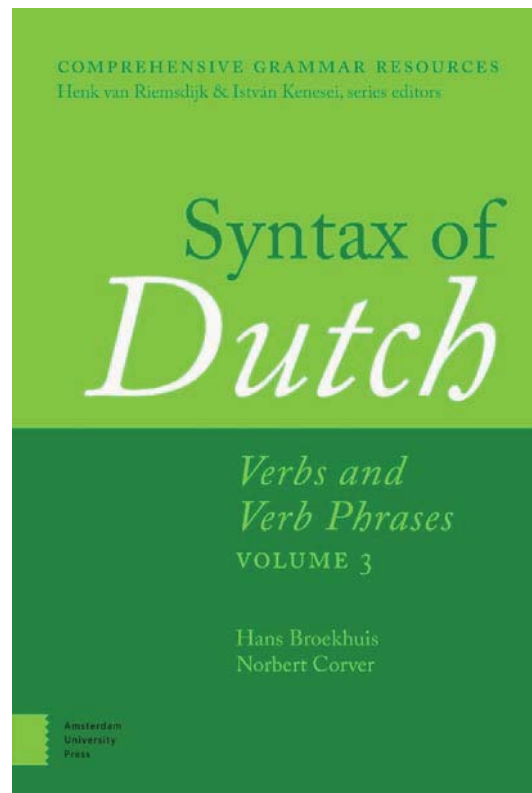
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Volume 2 continues the discussion of complementation, but is more specifically focused on clausal complements: the reader will find detailed discussions of finite and infinitival argument clauses, complex verb constructions and verb clustering.

Volume 3 concludes with a description of adverbial modification and the overall structure of clauses in relation to, e.g., word order (verb placement, wh-movement, extraposition phenomena, scrambling, etc.)



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Syntax of Dutch
Verbs and Verb Phrases
Volume 3

Comprehensive Grammar Resources

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**Syntax of Dutch
Verbs and Verb Phrases
Volume 3**

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The publication of this book is made possible by grants and financial support from:
Netherlands Organisation for Scientific Research (NWO)
Center for Language Studies
University of Tilburg
Truus und Gerrit van Riemsdijk-Stiftung
Meertens Institute (KNAW)

This book is published in print and online through the online OAPEN library
(www.oapen.org).

Cover design: Studio Jan de Boer, Amsterdam
Layout: Hans Broekhuis

ISBN 978 90 8964 732 0
e-ISBN 978 90 4852 484 6 (pdf)
NUR 616 / 624



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Abbreviations and symbols

This appendix contains a list of abbreviations and symbols that are used in this volume. Sometimes, conventions are adopted that differ from the ones given in this list, but if this is the case this is always explicitly mentioned in the text.

References to the other volumes of the *Syntax of Dutch*.

References to the chapters and sections to the other volume in the series *Syntax of Dutch* are preceded by a letter: N + section # refers to the two volumes on nouns and noun phrases, A + section # refers to the volume on *Adjectives and adjective Phrases*, and P+section # refers to the volume on *Adpositions and adpositional phrases*. For example, refers to Section P3.2. in Hans Broekhuis (2013). *Syntax of Dutch: Adpositions and adpositional phrases*. Amsterdam: AUP.

Symbols and abbreviation used in the main text

°xxx refers to the xxx glossary
Domain D The activated discourse domain

Abbreviations used in both the main text and the examples

A-position Argument position: position accessible to arguments only
A'-position Non-argument position: position also accessible to non-arguments
AP Adjectival Phrase
CP Complementizer Phrase
DP Determiner phrase
NP Noun Phrase
Noun phrase used when the NP-DP distinction is not relevant
NumP Numeral Phrase
PP Prepositional Phrase
PO-verb Verb with a prepositional object
QP Quantifier Phrase
TP Tense Phrase
VP Verb Phrase
Aux₂-Main₁ Verb cluster. The numeral indices indicate the hierarchical order of the verbs: V_{n+m} is superior to V_n. the en-dash indicates linear order: the element to the left precedes the element to the right in the surface order of the sentence: see Chapter V7 for details.

Symbols, Abbreviations and conventions used in the examples

e Phonetically empty element
Ref Referent argument (external °thematic role of nouns/adjectives)
Rel Related argument (internal thematic role of relational nouns)
OP Empty operator
PG Parasitic gap
PRO Implied subject in, e.g., infinitival clauses
PRO_{arb} Implied subject PRO with arbitrary (generic) reference
t Trace (the original position of a moved element)
xxx Small caps indicates that xxx is assigned contrastive accent

Abbreviations used as subscripts in the examples

1p/2p/3p	1 st , 2 nd , 3 rd person	nom	Nominative
acc	Accusative	pl	Plural
dat	Dative	poss	Possessor
ben	Beneficiary	pred	Predicate
dim	Diminutive	rec	Recipient
fem	Feminine	ref	Referent
masc	Masculine	sg	Singular

Abbreviations used in the glosses of the examples

AFF	Affirmative marker
COMP	Complementizer: <i>dat</i> ‘that’ in finite declarative clauses, <i>of</i> ‘whether/if’ in finite interrogative clauses, and <i>om</i> in infinitival clauses
prt.	Particle that combines with a particle verb
PRT	Particle of different kinds
REFL	The short form of the reflexive pronoun, e.g., <i>zich</i> .
XXX	Small caps in other cases indicates that XXX cannot be translated

Diacritics used for indicating acceptability judgments

*	Unacceptable
*?	Relatively acceptable compared to *
??	Intermediate or unclear status
?	Marked: not completely acceptable or disfavored form
(?)	Slightly marked, but probably acceptable
no marking	Fully acceptable
%	Varying judgments among speakers
#	Unacceptable under intended reading
\$	Special status: old-fashioned, archaic, very formal, semantically incoherent, degraded/unacceptable for non-syntactic reasons, etc. The nature of the deviation is normally explained in the main text.

Other conventions

xx/yy	Acceptable both with xx and with yy
*xx/yy	Unacceptable with xx, but acceptable with yy
xx/*yy	Acceptable with xx, but unacceptable with yy
(xx)	Acceptable both with and without xx
*(xx)	Acceptable with, but unacceptable without xx
(*xx)	Acceptable without, but unacceptable with xx
.. <xx>	Alternative placement of xx in an example
.. <*xx> ..	Impossible placement of xx in an example
P ⇒ Q	P necessarily implies Q (material implication)
P ⇏ Q	P does not necessarily imply Q
P ⇔ Q	P necessarily implies Q and vice versa (equivalence)
<i>XX ... YY</i>	Italics indicate binding
XX _i ... YY _i	Coindexing indicates coreference
XX _i ... YY _j	Counter-indexing indicates disjoint reference
XX _{*i} _j	Unacceptable with index <i>i</i> , acceptable with index <i>j</i>
XX _i _{*j}	Unacceptable with index <i>j</i> , acceptable with index <i>i</i>
[XP ...]	Constituent brackets of a constituent XP

Chapter 8 Projection of verb phrases IV: Adverbial modification

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Introduction

This chapter discusses adverbial modification of the clause. Section 8.1 starts by introducing the two main classes of adverbials, the so-called VP and clause adverbials: we will discuss their semantic contribution and propose several tests for distinguishing the two kinds. Section 8.2 continues by providing a further semantic subdivision of the main types of adverbial phrases, and Section 8.3 discusses the form of these adverbial phrases and shows that, across-the-board, VP adverbials show a greater variety here than clause adverbials. It seems generally accepted that VP adverbials must follow the clause adverbials; we will show in Section 8.4, however, that the various subtypes of adverbial phrases are subject to additional word order restrictions. Section 8.5 concludes with a brief discussion of verbs such as *wonen* ‘to live’, which obligatorily combine with an adverbial phrase: we will argue that this is not motivated by syntactic but by pragmatic considerations.

8.1. VP adverbials versus clause adverbials

Since Jackendoff (1972) a distinction has normally been made between two main classes of adverbials. The first class is the set of VP ADVERBIALS (also called predicate adverbials), which function semantically as modifiers restricting the denotation of the predicate expressed by the verb phrase: prototypical examples are manner adverbs such as *hard* ‘loudly’ in (1a). The second class is the set of CLAUSE ADVERBIALS, also known as sentence adverbials, which may perform a variety of other functions: prototypical examples are modal adverbs such as *waarschijnlijk* ‘probably’ and the negative adverb *niet* ‘not’ in (1b), which can be seen as logical operators taking scope over a proposition. The logical formulas in the primed examples are added to illustrate this semantic difference.

- | | | |
|-----|---|--|
| (1) | • VP adverbial | • Clause adverbial |
| a. | Jan lacht hard.
Jan laughs loudly
‘Jan is laughing loudly.’ | b. Jan komt waarschijnlijk/niet.
Jan comes probably/not
‘Jan will probably come/Jan won’t come.’ |
| a’. | HARD LACHEN(j) | b’. \Diamond KOMEN(j)/¬KOMEN(j) |

This section will provide a general discussion of the distinction and propose a number of tests that can be used to distinguish the two types.

I. Domain of modification: lexical versus functional domain

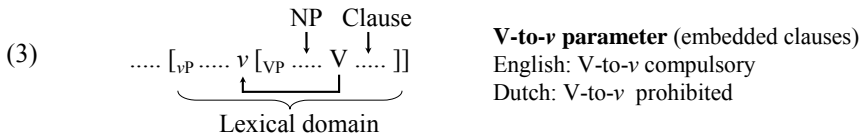
The introduction to this section above has shown that while VP adverbials modify the predicative part of the clause, clause adverbials minimally modify the propositional part of the clause. Moreover, the labels VP adverbial and clause adverbial correctly suggest that the two types of adverbials apply to different syntactic domains, which we will assume to correspond to the so-called LEXICAL and FUNCTIONAL domain of the clause. We will briefly introduce these notions in this subsection, and refer the reader to Chapter 9 for a more detailed discussion.

The lexical domain of the clause consists of the main verb and its °arguments and (optional) VP modifiers, which together form a proposition. In (2a), for example, the verb *kopen* ‘to buy’ takes a direct object as its internal argument and is

subsequently modified by the manner adverb *snel* ‘quickly’, while the resulting complex predicate is finally predicated of the verb’s external argument *Jan*. The complex phrase thus formed expresses the proposition represented by the logical formula in (2b).

- (2) a. [Jan [snel [het boek kopen]]]
 Jan quickly the book buy
 b. BUY QUICKLY (Jan, the book)

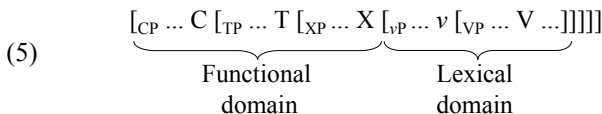
As it is not likely that the linking of semantic and syntactic structure varies arbitrarily across languages, it is often assumed that the hierarchical structure of the lexical domain is more or less invariant across languages, and that the surface differences in word order between languages are superficial phenomena due to, e.g., differences in linearization or movement. Adopting a movement approach, we may assume that the lexical domain is hierarchically structured as in (3), where *NP* and *Clause* stand for the internal theme argument of the verb: we can then account for the word order difference between VO-languages such as English and OV-languages such as Dutch by assuming that the former but not the latter has obligatory V-to-*v* movement; see Section 9.4, sub IC, for more detailed discussion.



The structure in (2a) can now be made more explicit as in (4): internal arguments such as the theme *het boek* ‘the book’ are generated within VP, VP adverbials such as the manner adverb *snel* ‘quickly’ are adjoined to VP, and external arguments such as the agent *Jan* are generated as the specifier of the “light” verb *v*. For concreteness’ sake, we have assumed that the manner adverb is adjoined to the maximal projection VP within the lexical domain; we will return to this assumption shortly.

- (4) [_{νP} Jan v [_{VP} snel [_{VP} het boek kopen]]]
 Jan quickly the book buy

Clause adverbials are generated external to the lexical domain, that is, within the functional domain which contains various functional heads that add information to the proposition expressed by the lexical domain (*νP*). For instance, the functional head *T* in (5) adds the tense feature [\pm PAST] and the functional head *C* indicates illocutionary force (declarative, interrogative, etc.), as is clear from the fact that the complementizers *dat* ‘that’ and *of* ‘if/whether’ introduce embedded declarative and interrogative clauses, respectively. In addition to these functional heads there may be other functional heads, indicated by *X* in (5), which introduce other features.



Modal adverbs and negation seem to be located at the boundary between the functional and the lexical domain. On the assumption that adverbial phrases are introduced into the structure by °adjunction to the various maximal projections found in representation (5), we should conclude that they are adjoined to *vP* (or, alternatively, some low functional projection *XP*). This is illustrated in (6b), where we have assumed that the subject is moved from its *vP*-internal position into the regular subject position, the specifier of *TP*. It should be noted, however, that the adjunction analysis is not uncontroversial; Cinque (1999), for example, made a very strong case for assuming that the various subtypes of clause adverbials are generated as specifiers of designated functional heads. If we accept such an approach, the adverb *waarschijnlijk* would be located in the specifier position of a functional head *EM* expressing epistemic modality, as indicated in (6b').

- (6) a. dat Jan waarschijnlijk het boek koopt.
 that Jan probably the book buys
 'that Jan will probably buy the book.'
 b. dat Jan_i [_{TP} waarschijnlijk [_{VP} t_i v [_{VP} het boek koopt]]].
 b'. dat Jan_i [_{EMP} waarschijnlijk EM [_{VP} t_i v [_{VP} het boek koopt]]].

Because the choice between the two analyses will not be crucial for the discussion of the Dutch data in this chapter, we refer the reader to Cinque (1999/2003), Ernst (2002), and the references cited there for extensive discussion of the pros and cons of the two approaches. We also refer the reader to Section 13.3.1 on Neg-movement, where we will show that there are strong empirical reasons for adopting Cinque's analysis for the negative adverb *niet* 'not' at least.

II. Word order

The hypothesis that clause adverbials are external while *VP* adverbials are internal to the lexical domain of the clause correctly predicts that the former precede the latter in the °middle field of the clause; cf. Cinque (1999) and Zwart (2011: section 4.3.2). This generalization is illustrated by the two (b)-examples in (7) for the modal adverb *waarschijnlijk* 'probably' and the manner adverb *hard* 'loudly'.

- (7) a. Relative order of adverbials in the middle field of the clause:
 clause adverbial > *VP* adverbial
 b. dat Jan waarschijnlijk hard lacht. [clause adverbial > *VP* adverbial]
 that Jan probably loudly laughs
 'that Jan is probably laughing loudly.'
 b'. *dat Jan hard waarschijnlijk lacht. [VP adverbial > clause adverbial]
 that Jan loudly probably laughs

However, the assumptions so far wrongly predict that *VP* adverbials precede the internal arguments of the verb. Example (8a) shows that it is possible for the direct object *de handleiding* 'the manual' to follow the manner adverbial *zorgvuldig* 'meticulously', but example (8b) shows that the object may also precede the adverb. In fact, example (8c) shows that the object may even precede clause adverbials such as *waarschijnlijk* 'probably'. The examples in (8) thus show that there is no strict order between the adverbials and the arguments of the verb in Dutch, a phenomenon that has become known as scrambling. This word order variation is discussed

extensively in Section 13.2, where we will argue that it results from optional leftward movement of the nominal arguments of the verb across the adverbials.

- (8) a. dat Jan waarschijnlijk zorgvuldig de handleiding leest.
 that Jan probably meticulously the manual reads
 ‘that Jan is probably reading the manual meticulously.’
 b. dat Jan waarschijnlijk de handleiding zorgvuldig leest.
 c. dat Jan de handleiding waarschijnlijk zorgvuldig leest.

Note in passing that there are reasons for assuming that the movement which derives example (8b) is (virtually) obligatory in English, since it accounts for the fact that objects normally precede the manner adverbials in English; see Broekhuis (2008:ch.2) for detailed discussion. An alternative approach to this problem can be found in Ernst (2002:ch.4).

III. Adverbial tests

A useful test for recognizing VP adverbials is the paraphrase with a conjoined *PRONOUN doet dat* + *ADVERB* ‘PRONOUN does that + ADVERB’ clause; cf. Van den Hoek (1972). This test is schematized in (9a), where the arrow should be read as “can be paraphrased as”: the first conjunct consists of the clause without the VP adverbial, which is used in the second conjunct as a modifier of the phrase *doet dat*, which replaces the verbal projection VP in the first conjunct. The test is applied in (9b) to example (1a).

- (9) • VP-adverbial test I: *PRONOUN doet dat* paraphrase
 a. [_{CLAUSE} subject ... [_{VP} ... ADVERBIAL ...]] ⇒
 [[_{CLAUSE} subject_i ... [_{VP}]] & [pronoun_i [*doet dat* ADVERBIAL]]]
 b. Jan lacht hard. ⇒ [[Jan lacht] en [hij doet dat hard]].
 Jan laughs loudly Jan laughs and he does that loudly

The (a)-examples in (10) show that the test does not only work for (in)transitive, but also for unaccusative constructions. The result is sometimes less felicitous in the latter case, but in such cases it is often possible to use an *en dat gebeurde* + *ADVERB* paraphrase instead. This is illustrated in the (b)-examples for the time adverbial *plotseling* ‘suddenly’: the paraphrase in (10b’) contrasts sharply with the paraphrase ^{??}*De theepot is gebroken, en hij deed dat plotseling*.

- (10) a. Jan/de trein is op tijd vertrokken. ⇒
 Jan/the train is on time left
 ‘Jan/the train has left on time.’
 a’. Jan/de trein is vertrokken en hij deed dat op tijd.
 Jan/the train is left and he did that on time
 b. De theepot is plotseling gebroken. ⇒
 the teapot is suddenly broken
 ‘The teapot has broken suddenly.’
 b’. De theepot is gebroken en dat gebeurde plotseling.
 the teapot is broken and that happened suddenly

Unfortunately, the test cannot be applied to all clauses with a VP adverbial, often for reasons not well understood, but it generally gives reliable results for clauses with an agentive subject and a non-stative/dynamic predicate.

Another test is based on the fact that VP adverbials restrict the denotation of the verbal predicate. As a result of this, the modified predicate will entail the bare predicate, but not vice versa. This is illustrated in (11) for the intransitive verb *lachen* ‘to laugh’ and the unaccusative verb *vertrekken* ‘to leave’. For convenience, we will use the arrow \rightarrow in the remainder of this chapter to indicate that the entailment is unidirectional.

- (11) • VP-adverbial test II: entailment
- a. Jan lacht hard. \rightarrow Jan lacht.
Jan laughs loudly Jan laughs
 - a'. Jan lacht. \nrightarrow Jan lacht hard.
 - b. De trein vertrekt op tijd. \rightarrow De trein vertrekt.
the train leaves on time the train leaves
 - b'. De trein vertrekt. \nrightarrow De trein vertrekt op tijd.

That clause adverbials like modal adverbs such as *waarschijnlijk* or the negative adverb *niet* do not restrict the denotation of the verbal predicate but perform some other function is clear from the fact that they cannot be paraphrased by means of a conjoined *PRONOUN doet dat* clause, as shown in (12) for the examples in (1b); the arrow with a slash should be read here as “cannot be paraphrased as”.

- (12) a. Jan komt waarschijnlijk. \nrightarrow [[Jan komt] en [hij doet dat waarschijnlijk]].
Jan comes probably Jan comes and he does that probably
- b. Jan komt niet. \nrightarrow [[Jan komt] en [hij doet dat niet]].
Jan comes not Jan comes and he does that not

The examples in (13) show furthermore that the clause with the clause adverbial does not entail the clause without it, nor vice versa.

- (13) a. Jan komt waarschijnlijk/niet. \nrightarrow Jan komt.
Jan comes probably/not Jan comes
- b. Jan komt. \nrightarrow Jan komt waarschijnlijk/niet.
Jan comes Jan comes probably/not

Clause adverbials may have several functions: *waarschijnlijk* and *niet*, for instance, can be equated with the logical operators \diamond and \neg , which scope over the entire proposition, as in the predicate calculus equivalents of (1b). This is illustrated in (14), where the arrow indicates that the sentence and the logical formula express the same core meaning.

- (14) a. Jan komt waarschijnlijk $\Leftrightarrow \diamond \text{COME}(j)$
Jan comes probably
- b. Jan komt niet $\Leftrightarrow \neg \text{COME}(j)$
Jan comes not

That clause adverbials are external to the lexical domain of the clause is also made clear by the clause-adverbial test in (15), which shows that clause adverbials can even be external to the entire clause.

- (15) • Clause-adverbial test: scope paraphrase
- a. [_{CLAUSE} ... ADVERBIAL [_{VP}]] ⇒
 Het is ADVERBIAL ZO [_{CLAUSE} dat [_{VP}]]
- b. Jan lacht waarschijnlijk. ⇒ Het is waarschijnlijk zo dat Jan lacht.
 Jan laughs probably it is probably the case that Jan works

For the cases in which the VP-adverbial and clause-adverbial tests do not provide satisfactory results, we can appeal to the generalization (7a) from Subsection II that clause adverbials precede VP adverbials in the middle field of the clause: if an adverbial precedes an independently established clause adverbial, it cannot be a VP adverbial; if an adverbial follows a VP adverbial, it cannot be a clause adverbial. For example, all adverbials that precede the modal adverb *waarschijnlijk* can be considered clause adverbials.

The tests discussed above should be approached with caution, due to the fact that specific clause adverbials may sometimes be used with a more restricted scope. A well-known example is the negative adverb *niet* ‘not’, which can be used to express sentence negation, that is, with scope over the complete proposition expressed by the lexical domain of the clause, or as constituent negation, that is, with scope over a smaller constituent within the clause; cf. Section 13.3.2, sub IC. The (a)-examples in (16) show that in the latter case, negation may occur in a conjoined *PRONOUN doet dat*-clause as a modifier of the negated constituent. Whether or not Jan’s advent is indeed entailed by a sentence such as *Jan komt niet volgende WEEK* may be a matter of debate, but it is clear that there is a strong tendency to accept it. The main point is, however, that negation does not function as a VP adverbial in (16a) but as a modifier of the time adverbial; the paraphrase shows that the full constituent *niet volgende week* functions as a VP adverbial. The (b)-examples show that more or less the same observations can be made for modal adverbs such as *waarschijnlijk* ‘probably’; the paraphrase shows that *waarschijnlijk morgen* can function as a complex VP adverbial if *morgen* is assigned contrastive accent.

- (16) a. Jan komt niet volgende WEEK (maar volgende MAAND).
 Jan probably not next week but next month
 ‘Jan does not come next WEEK (but next MONTH).’
- a’. Jan komt maar hij doet dat niet volgende WEEK.
 Jan comes but he does that not next week
- b. Jan komt waarschijnlijk MORGEN.
 Jan comes probably tomorrow
 ‘Jan will probably come TOMORROW.’
- b’. Jan komt en hij doet dat waarschijnlijk MORGEN.
 Jan comes and he does that probably tomorrow

IV. Adverbials that can perform multiple syntactic functions

Some adverbials can be used either as a clause adverbial or as a VP adverbial, depending on their position in the middle field of the clause. We illustrate this here by means of temporal adverbials. Consider the punctual adverbial *om drie uur* ‘at 3 o’clock’ in (17a); the fact that the *PRONOUN doet dat* + *ADVERB* paraphrase in (17b)

is possible and the entailment in (17c) is valid shows that we are dealing with a VP adverbial.

- (17) a. Jan vertrekt (waarschijnlijk) om drie uur.
 Jan leaves probably at 3 o'clock
 'Jan will (probably) leave at 3 o'clock.'
 b. Jan vertrekt om drie uur. ⇒ [[Jan vertrekt] en [hij doet dat om drie uur]].
 c. Jan vertrekt om drie uur. → Jan vertrekt.

That we are dealing with a VP adverbial in (17a) is also consistent with the fact that it follows the modal adverb *waarschijnlijk* 'probably'. Example (18a) shows, however, that it is not always the case that temporal adverbs must follow the clause adverb. According to the generalization in (7a) that VP adverbials cannot precede clause adverbials, the adverb *morgen* 'tomorrow' must be a clause adverbial, which is confirmed by the fact that the scope paraphrase in (18b) is acceptable.

- (18) a. Jan vertrekt morgen waarschijnlijk.
 Jan leaves tomorrow probably
 'Jan will probably leave tomorrow.'
 b. Het is morgen waarschijnlijk zo dat Jan vertrekt.
 it is tomorrow probably the.case that Jan leaves

The hypothesis that the temporal adverbials in (17a) and (18a) perform different syntactic/semantic functions is supported by the fact illustrated in (19a) that they can co-occur in a single clause. Example (19b) shows that we find similar facts for spatial adverbials.

- (19) a. Jan zal morgen_{clause} waarschijnlijk om drie uur_{VP} vertrekken
 Jan will tomorrow probably at three hour leave
 'Tomorrow, Jan will probably leave at 3 o'clock.'
 b. Jan zal in Amsterdam_{clause} waarschijnlijk bij zijn tante_{VP} logeren.
 Jan will in Amsterdam probably with his aunt stay
 'In Amsterdam, Jan will probably stay at his aunt's place.'

The discussion above shows that we should be aware that adverbials may in principle perform multiple syntactic/semantic functions in a clause, and that we should not jump to conclusions on the basis of the application of a single test.

8.2. Semantic types of adverbial modifiers

This section adopts the division between VP and clause adverbials introduced in Section 8.1 as its point of departure. Sections 8.2.1 and 8.2.2 provide a more detailed semantic subdivision of these adverbials and investigate to what extent the various subcategories satisfy the adverbial tests introduced in Section 8.1, sub III. Section 8.2.3 concludes with a more detailed discussion of the spatio-temporal adverbials: Section 8.1 has shown that these adverbials can be used either as VP adverbials or as clause adverbials and we will investigate the differences in semantic contribution of these two uses.

8.2.1. VP adverbials

This section discusses various types of VP adverbials. A first group, which will be referred to as process adverbials, consists of adverbials that modify the eventuality itself by indicating, e.g., a manner, an instrument or a means. A second group, which we will refer to as agentive, consists of agentive *door*-PPs, which we find in passive constructions, and comitative *met*-PPs, which introduce a co-agent. A third group consists of spatio-temporal adverbials, which locate the eventuality in space and time. A fourth group consists of contingency adverbials referring to causes, reasons, purposes, etc. We conclude with a brief discussion of predicate-degree adverbials. The adverbials in (20) restrict the denotation of the verbal predicate and are characterized by the fact that they can be questioned by means of a *wh*-phrase.

- (20) • VP adverbials
- a. Process: manner; instrument; means; volition; domain
 - b. Agentive: passive *door*-PP; comitative *met*-PP
 - c. Spatio-temporal: place; time
 - d. Contingency: cause, reason, purpose, result, concession
 - e. Predicate-degree: *erg* ‘very’; *een beetje* ‘a bit’

1. Process Adverbials

Process adverbials restrict the denotation of the verbal predicate by adding specific information about the eventuality and are characterized by the fact that they can be questioned by means of a *wh*-phrase. We will briefly discuss the five semantic subclasses in (21).

- (21) • Process adverbials
- a. Manner: *grondig* ‘thoroughly’; *hoe* ‘how’.
 - b. Instrument: *met een schep* ‘with a shovel’; *waarmee* ‘with what’
 - c. Means: *met de bus* ‘by bus’; *hoe* ‘how’
 - d. Domain: *juridisch* ‘legally’; *hoe* ‘how’
 - e. Volition: *vrijwillig* ‘voluntarily’; *graag* ‘gladly’, [?]*hoe* ‘how’

Manner adverbs such as *grondig* ‘thoroughly’ in (22a) are prototypical cases of process adverbials; they restrict the denotation of the verb phrase by specifying the manner in which the eventuality was performed: the primed examples show that manner adverbs satisfy the two VP-adverbial tests introduced in Section 8.1, sub III. Instrumental adverbials such as *met een schep* ‘with a shovel’ in (22b) restrict the denotation of the verb phrase by specifying the instrument used in performing the action; the primed examples show that instrumental adverbials satisfy the two VP-adverbial tests. Instrumentals normally have the form of a *met*-PP although there are also incidental adjectival forms like *handmatig* ‘by hand’ and *machinaal* ‘mechanically’.

- (22) a. Jan heeft het artikel *grondig* gelezen. [manner]
 Jan has the article thoroughly read
 ‘Jan has read the article thoroughly.’
 a’. Jan heeft het artikel gelezen en hij deed dat grondig.
 a’’. Jan heeft het artikel grondig gelezen. → Jan heeft het artikel gelezen.

- b. Jan heeft het gat *met een schep* gegraven. [instrument]
 Jan has the hole with a shovel dug
 'Jan has dug the hole with a shovel.'
- b'. Jan heeft het gat gegraven en hij deed dat met een schep.
 b''. Jan heeft het gat *met een schep* gegraven. → Jan heeft het gat gegraven.

Another set of process adverbials indicates the means used in performing the action, as in (23a). Substantial subsets of these adverbials indicate means of transportation or communication; some typical examples are given in (23b&c). The primed examples again show that these adverbials satisfy the two VP-adverbial tests.

- (23) a. Jan heeft het gat *met zand* gevuld. [means]
 Jan has the hole with sand filled
 'Jan has filled the hole with sand.'
- a'. Jan heeft het gat gevuld en hij deed dat met zand.
 a''. Jan heeft het gat met zand gevuld. → Jan heeft het gat gevuld.
- b. Jan is *met de bus/te voet* naar Leiden gegaan. [means of transportation]
 Jan is with the bus/on foot to Leiden gone
 'Jan has gone to Leiden by bus/on foot.'
- b'. Jan is naar Leiden gegaan en hij deed dat met de bus/te voet.
 b''. Jan is met de bus/te voet naar Leiden gegaan → Jan is naar Leiden gegaan.
- c. Jan heeft Marie *per brief/telefonisch* ingelicht. [means of communication]
 Jan has Marie by letter/by.phone informed
 'Jan has informed Marie by letter/phone.'
- c'. Jan heeft Marie ingelicht en hij deed dat per brief/telefonisch.
 c''. Jan heeft Marie per brief/telefonisch ingelicht. → Jan heeft Marie ingelicht.

Adverbials like *juridisch* 'legally', *lichamelijk* 'physically', *medisch* 'medically', *psychologisch* 'psychologically', and *wetenschappelijk* 'scientifically' are known as domain adverbials because they restrict the process to a specific (e.g. legal, medical, or scientific) domain.

- (24) a. Jan vecht zijn ontslag *juridisch* aan.
 Jan fights his dismissal legally prt
 'Jan contests his dismissal on legal grounds.'
- a'. Jan vecht zijn ontslag aan en hij doet dat juridisch.
 a''. Jan vecht zijn ontslag *juridisch* aan. → Jan vecht zijn ontslag aan.
- b. Marie onderzocht de kat *medisch*.
 Marie examined the cat medically
 'Marie medically examined the cat.'
- b'. Marie onderzocht de kat en zij deed dat medisch.
 b''. Marie onderzocht de kat *medisch*. → Marie onderzocht de kat.

Volitional adverbials like *gedwongen* 'forced', *met opzet* 'on purpose', *met tegenzin* 'reluctantly', *met plezier* 'with pleasure', *noodgedwongen* 'by necessity', *opzettelijk* 'deliberately', *per ongeluk* 'by accident', and *vrijwillig* 'voluntarily' specify the relation between the eventuality denoted by the verb (phrase) and the person performing/undergoing it. These adverbials are often considered subject-

oriented, which is well-founded in the case of *vrijwillig* ‘voluntarily’, as passivization of example (25a) shifts the orientation of this adverb from agent to theme.

- (25) a. De dokter onderzocht Marie vrijwillig. [agent]
 the doctor examined Marie voluntarily
 ‘The doctor examined Marie of his own volition.’
 b. Marie werd vrijwillig onderzocht. [theme]
 Marie was voluntarily examined
 ‘Marie was examined of her own free will.’

However, adverbials such as *opzettelijk* ‘deliberately’ and *per ongeluk* ‘by accident’ are oriented towards the (implied) agent only, as is clear from the fact that passivization of example (26a) does not affect the orientation of these adverbials.

- (26) a. Jan beledigde Marie opzettelijk. [agent]
 Jan insulted Marie deliberately
 b. Marie werd opzettelijk beledigd. [implied agent]
 Marie was deliberately insulted

The examples in (27) show for the adverbials *vrijwillig* in (25a) and *opzettelijk* in (26a) that volitional adverbials satisfy the two VP-adverbial tests.

- (27) a. De dokter onderzocht Marie en hij deed dat vrijwillig.
 the doctor examined Marie and he did that voluntarily
 a’. De dokter onderzocht Marie vrijwillig. → De dokter onderzocht Marie.
 b. Jan beledigde Marie en hij deed dat opzettelijk.
 Jan insulted Marie and he did that deliberately
 b’. Jan beledigde Marie opzettelijk. → Jan beledigde Marie.

That process adverbials are VP adverbials is also supported by the fact that, under a neutral (that is, non-contrastive) intonation, they follow modal adverbials such as *waarschijnlijk* ‘probably’; this is illustrated in (28). We will see in Section 8.2.2, sub XI, however, that domain adverbials such as *juridisch* in (28d) may also be used as clause adverbials.

- (28) a. Jan heeft het gat waarschijnlijk met zand gevuld.
 Jan has the hole probably with sand filled
 ‘Jan has probably filled the hole with sand.’
 b. Jan is waarschijnlijk met de bus/te voet naar Leiden gegaan.
 Jan is probably with the bus/on foot to Leiden gone
 ‘Jan has probably gone to Leiden by bus/on foot.’
 c. Jan heeft Marie waarschijnlijk per brief/telefonisch ingelicht.
 Jan has Marie probably by letter/by phone informed
 ‘Jan has probably informed Marie by letter/phone.’
 d. Hij vecht zijn ontslag waarschijnlijk juridisch aan.
 he fights his dismissal probably legally prt
 ‘He probably contests his dismissal on legal grounds.’
 e. Jan beledigde Marie waarschijnlijk opzettelijk.
 Jan insulted Marie probably deliberately
 ‘Jan probably insulted Marie deliberately.’

II. Agentive adverbials

There are two types of agentive adverbials. The agentive *door*-PP in (29a) refers to the agent of the eventuality in passive constructions, while the comitative *met*-PP in (29b) introduces a co-agent. The primed examples show that these adverbials satisfy the first VP-adverbial test, provided we also passivize the conjoined PRONOUN *doet dat* clause in (29a').

- (29) a. Het pakket werd *door Jan* bezorgd. [agentive]
 the parcel was by Jan delivered
 'The parcel was delivered by Jan.'
 a'. Het pakket werd bezorgd en dat werd door Jan gedaan.
 the parcel was delivered and that was by Jan done
 'The parcel was delivered and that was done by Jan.'
 a''. Het pakket werd *door Jan* bezorgd. → Het pakket werd bezorgd.
 b. Jan heeft *met Els* het museum bezocht. [comitative]
 Jan has with Els the museum visited
 'Jan has visited the museum with Els.'
 b'. Jan heeft het museum bezocht en hij deed dat met Els.
 b''. Jan heeft met Els het museum bezocht. → Jan heeft het museum bezocht.

That agentive adverbials are VP adverbials is also supported by the fact illustrated in (30) that, under a neutral intonation, they follow modal adverbials such as *waarschijnlijk* 'probably'. Observe that comitative PPs can easily precede the modal adverbs but only if the nominal complement of *met* can be accented, which suggests that this order is the result of focus movement; cf. Section 13.3.2.

- (30) a. Het pakket wordt waarschijnlijk door Jan bezorgd.
 the parcel is probably by Jan delivered
 'The parcel will probably be delivered by Jan.'
 b. Jan heeft <met Els/*r> waarschijnlijk het museum <met Els/'r> bezocht.
 Jan has with Els/her probably the museum visited
 'Jan has probably visited the museum with Els/her.'

III. Spatio-temporal adverbials

Spatio-temporal VP adverbials restrict the denotation of the predicate by anchoring the eventuality at a certain location or time.

- (31) a. Marie heeft waarschijnlijk *in de tuin* gewerkt.
 Marie has probably in the garden worked
 'Marie has probably been working in the garden.'
 b. Marie heeft waarschijnlijk *om drie uur* koffie gedronken.
 Marie has probably at 3 o'clock coffee drunk
 'Marie probably drank coffee at 3 o'clock.'

That the adverbials *in de tuin* and *om drie uur* in (31) function as VP adverbials is not only suggested by the fact that they follow the modal adverb *waarschijnlijk* 'probably' but also by the fact that they satisfy the VP-adverbial tests from Section

8.1, sub III: this is illustrated in (32), which shows that the primeless examples allowing the *PRONOUN* *doet dat* + *ADVERB* paraphrase also pass the entailment test.

- (32) a. Marie heeft *in de tuin* gewerkt.
 Marie has in the garden worked
 ‘Marie has been working in the garden.’
 a’. Marie heeft gewerkt en ze deed dat in de tuin.
 a’’. Marie heeft in de tuin gewerkt. → Marie heeft gewerkt.
 b. Marie heeft *om drie uur* koffie gedronken.
 Marie has at 3 o’clock coffee drunk
 ‘Marie drank coffee at 3 o’clock.’
 b’. Marie heeft koffie gedronken en ze deed dat om drie uur.
 b’’. Marie heeft om drie uur koffie gedronken. → Marie heeft koffie gedronken.

The various subtypes of spatio-temporal VP adverbials will be discussed in Subsections A and B. Note that we diverge from more traditional grammars by assuming that spatial phrases are not only used as adverbials but also as complementives. Semantically, adverbial and complementive phrases differ in that an adverbial phrase provides more information about the eventuality as a whole while a complementive phrase provides more information about the subject or the direct object of the clause (which originates as its °logical SUBJECT). The difference is illustrated in (33): while (33a) expresses that the eventuality of Jan playing takes place in the garden, (33b) merely expresses that Jan’s location is in the garden.

- (33) a. Jan speelt *in de tuin*. [adverbial]
 Jan plays in the garden
 ‘Jan is playing in the garden.’
 b. Jan is *in de tuin*. [complementive]
 Jan is in the garden

For a more detailed discussion, we refer the reader to Sections P1.1.2.2 and P4.2.1.1, where it is extensively argued that complementive PPs function as predicates denoting a (change of) location or a direction. Some representative examples discussed in these sections are given in (34).

- (34) a. Jan ligt *in het zwembad*. [location]
 Jan lies in the swimming.pool
 b. Jan valt *in het zwembad*. [change of location]
 Jan falls into the swimming.pool
 c. Jan valt/*ligt *het zwembad in*. [directional]
 Jan falls the swimming.pool into

Finally, it should be noted that spatio-temporal adverbials can also be used as clause adverbials; we will ignore this use here and provide the relevant data in Section 8.2.2, sub IX; the semantic difference between the two cases will be investigated in more detail in Section 8.2.3.

A. *Temporal adverbials*

Temporal VP adverbials can be punctual or durational: the adverbial *om drie uur* ‘at 3 o’clock’ in (35a) locates the eventuality of Jan walking in the park at a specific point on the time axis while the adverbial *de hele dag* ‘the whole day’ in (35b) indicates the duration of the eventuality: it refers to an interval on the time axis during which the eventuality of Jan walking in the park took place. The primed examples show that both instances satisfy the VP-adverbial tests.

- (35) a. Jan wandelde *om drie uur* in het park. [punctual]
 Jan walked at 3 o’clock in the park
 ‘Jan walked in the park at three o’clock.’
 a’. Jan wandelde in het park en hij deed dat om drie uur.
 a’’. Jan wandelde om drie uur in het park. → Jan wandelde in het park.
 b. Jan wandelde *de hele dag* in het park. [durational]
 Jan walked the whole day in the park
 ‘Jan walked in the park all day.’
 b’. Jan wandelde in het park en hij deed dat de hele dag.
 b’’. Jan wandelde de hele dag in het park. → Jan wandelde in het park.

In addition, temporal adverbials can be relational or non-relational: cf. Haeseryn et al. (1997). Relational temporal adverbials locate the eventuality expressed by the clause with respect to some other eventuality on the time axis while non-relational temporal adverbials locate the eventuality on the time axis without taking other eventualities into consideration (although the speech time may still function as an anchoring point). Examples of non-relational temporal adverbials are *volgende week* ‘next week’ and *verleden jaar* ‘last year’ in (36). Such adverbials can typically be replaced by the temporal proforms *nu* ‘now’, *toen* ‘then (past)’ and *dan* ‘then (future)’. The adverbials *onlangs* ‘recently’ and *straks* ‘later’ or *spoedig* ‘soon’ are special in indicating proximity to the speech time.

- (36) a. We gaan *volgende week/dan* naar Maastricht.
 we go next week/then to Maastricht
 ‘We will go to Maastricht next week/then.’
 b. Jan is *verleden jaar/toen* gepromoveerd.
 Jan is last year/then taken.his.PhD
 ‘Jan was awarded his PhD last year/then.’

Relational temporal adverbials are typically PPs or clauses. Prototypical punctual examples are given in (35a) and in the (a)-examples in (37); in the latter examples, the adverbials locate Jan’s going home in a position after, respectively, the meeting and the moment that Jan had spoken to Els. That the PP and the clause are relational is also clear from the fact that they can be pronominalized by means of the pronominal PP *daarna* ‘after that’ in (37b). It should be noted, however, that they can have a non-relational reading as well, as is clear from the fact that they can also be replaced by the non-relational proform *toen* ‘then’ in (37b’).

- (37) a. Jan ging *na de vergadering* naar huis. [relational/non-relational]
 Jan went after the meeting to home
 ‘Jan went home after the meeting.’
- a'. Jan ging naar huis *nadat hij Els gesproken had*. [relational/non-relational]
 Jan went to home after he Els spoken had
 ‘Jan went home after he had spoken to Els.’
- b. Jan ging *daarna* naar huis. [relational]
 Jan went after.that to home
- b'. Jan ging *toen* naar huis. [non-relational]
 Jan went then to home

In the (a)-examples in (38), we provide instances of a prepositional and a clausal adverbial expressing a durational relation. Although the PP and the clause must receive a relational interpretation, they cannot be replaced by a pronominal PP because PPs headed by *sinds* ‘since’ do not allow pronominalization at all; instead *sindsdien* ‘since then’ in (38b) is used, which is a fossilized form consisting of the preposition *sinds* and a case-marked demonstrative meaning “since that moment”.

- (38) a. Jan heeft *sinds haar vertrek* erg hard gewerkt.
 Jan has since her departure very hard worked
 ‘Jan has worked very hard since her departure.’
- a'. Jan heeft erg hard gewerkt *sinds zij vertrokken is*.
 Jan has very hard worked since she left is
 ‘Jan has worked very hard since she left.’
- b. Jan heeft *sindsdien* erg hard gewerkt.
 Jan has since.then very hard worked
 ‘Jan has worked very hard since then.’

Temporal PPs such as *om drie uur* ‘at 3 o'clock’, *op zondag* ‘on Sunday’, *in (het jaar) 1990* ‘in (the year) 1990’, *op eerste kerstdag* ‘on Christmas Day’, *in/tijdens de vakantie* ‘in/during the vacation’, *tijdens de oorlog* ‘during the war’, which are more or less conventionalized means of referring to specific (often recurring) points/intervals on the time axis, are strictly non-relational: they can only be replaced by a temporal pro-form. Some examples are given in (39).

- (39) a. We gaan *in de vakantie* naar Maastricht.
 we go in the vacation to Maastricht
 ‘We are going to Maastricht in the vacation period.’
- a'. We gaan *dan/*daarin* naar Maastricht.
 we go then/there.in to Maastricht
- b. Jan is *in 2013* gepromoveerd.
 Jan is in 2013 taken.his.PhD
 ‘Jan took his PhD in 2013.’
- b'. Jan is *toen/*daarin* gepromoveerd.
 Jan is then/there.in taken.his.PhD

Temporal adverbials may also refer to a repeated action: example (40a) may express the single eventuality of Jan ringing the doorbell three times (e.g. as a

means of identifying himself). That we are dealing with VP adverbials is again clear from the (b)-examples, which show that the two VP-adverbial tests can be satisfied.

- (40) a. Jan belde *drie keer (achter elkaar)* aan.
 Jan rang three times after each.other prt.
 ‘Jan rang the doorbell three times (in succession).’
 b. Jan belde aan en hij deed dat drie keer (achter elkaar).
 b’. Jan belde drie keer (achter elkaar) aan. → Jan belde aan.

B. Spatial adverbial phrases

Spatial adverbial PPs such as *in het park* ‘in the park’ in (41a) are normally locational; directional PPs as well as PPs denoting change of location function as complementives and will therefore not be discussed here. The (b)-examples show once more that clauses with locational adverbial PPs satisfy the two VP-adverbial tests.

- (41) a. Jan heeft *in het park* gespeeld.
 Jan has in the park played
 ‘Jan has played in the park.’
 b. Jan heeft gespeeld en hij deed dat in het park.
 b’. Jan heeft in het park gespeeld. → Jan heeft gespeeld.

It seems that locational adverbial PPs can refer to a specific location or to a distance: in (41a) the PP *in het park* simply refers to the specific location where the eventuality of Jan playing takes place, while in (42a) the adverbial phrase refers to the distance Jan has covered by running. It might be tempting to analyze the noun phrase *de hele weg naar huis/4 kilometer* as a direct object, as would certainly be appropriate for an example such as *Jan rende de 100 meter in 12 seconden* ‘Jan ran the 100 meters in 12 seconds’, but the fact that the noun phrase can occur in a conjoined *PRONOUN doet dat* clause in (42b) is sufficient to show that this is not correct because direct objects are not able to do that.

- (42) a. Jan heeft *de hele weg naar huis/4 kilometer* gerend.
 Jan has the whole way to home/4 kilometer run
 ‘Jan has run the whole way home/for 4 kilometers.’
 b. Jan heeft gerend en hij deed dat *de hele weg naar huis/4 kilometer*.
 b’. Jan heeft *de hele weg naar huis/4 kilometer* gerend. → Jan heeft gerend.

For completeness’ sake, it should be noted that the distance reading of spatial PPs comes quite close sometimes to the duration reading of temporal PPs: the adverbial *de hele weg naar huis* in (43) can easily be construed as referring to the time span needed to cover the track.

- (43) Jan heeft *de hele weg naar huis* gekletst.
 Jan has the whole way to home talked
 ‘Jan has chatted the whole way home.’

Haeseryn et al. (1997:1190ff.) observe that punctual locational PPs can be relational or non-relational. Relational locational PPs denote a specific location

relative to some other location and are pronominalized by means of a pronominal PP. Non-relational locational PPs, on the other hand, refer directly to a specific place and are pronominalized by a bare R-word. Examples with relational location PPs are given in (44a). It should be noted, however, that as in the case of temporal PPs, these PPs also allow a non-relational interpretation; they can be replaced either by a pronominal PP, as in (44b), or by a bare R-word, as in (44b').

- (44) a. Jan verstoppt zich *achter/onder de bank*. [relational/non-relational]
 Jan hides REFL behind/under the couch
 'Jan is hiding behind/under the couch.'
- b. Jan verstoppt zich *daarachter/daaronder*. [relational]
 Jan hides REFL there.behind/there.under
 'Jan is hiding behind/under that.'
- b'. Jan verstoppt zich *daar*. [non-relational]
 Jan hides REFL there
 'Jan is hiding there.'

It is easy to construct examples in which the locational PP has an exclusive non-relational reading. This is illustrated by the PPs in (45a), which are normally replaced by a bare R-word: the pronominal PPs in (45b) give rise to a marked result and certainly cannot be construed as the counterparts of the PPs in (45a).

- (45) a. Jan werkt *in de bibliotheek/op zolder/bij Marie*. [non-relational]
 Jan works in the library/on the.attic/with Marie
 'Jan is working in the library/in the attic/at Marie's place.'
- b. Jan werkt *daar*[#]Jan werkt *daar in/op/bij*. [non-relational]
 Jan works there/Jan works there in/on/with
 'Jan is working there.'

Haeseryn et al. (1997:1192) claim that non-relational adverbial PPs are mainly headed by *op* and *in*, which also occur in a large set of more or less idiomatic adverbial constructions: *Jan werkt in een fabriek/op een kantoor* 'Jan works in a factory/in an office'. This claim is far too strong, however, as the examples in (44) have shown that locational PPs headed by other prepositions often allow both readings. It seems true, however, that complementive PPs are preferably assigned a relational reading when they denote a change of location. This is clear from the difference in behavior of the complementive PPs in examples (34a&b), repeated here as (46a&b): the PP in the locational construction can be replaced either by a pronominal PP or by a bare locational proform, which shows that it can have a relational or a non-relational interpretation. The PP in the change-of-location construction, on the other hand, must be replaced by a bare locational proform, which shows that it can have a non-relational interpretation only. For completeness' sake, note that the number sign in (46b') is used to indicate that the pro-form *daar* in (46b') is possible if it is interpreted as an adverbial, but this is not relevant for our present discussion.

- (46) a. Jan ligt in het zwembad. [location]
 Jan lies in the swimming.pool
 a'. Jan ligt erin/daar. [relational/non-relational]
 Jan lies in.it/there
 b. Jan valt in het zwembad. [change of location]
 Jan falls into the swimming.pool
 b'. Jan valt erin/#daar. [relational only]
 Jan falls into.it/there

We provisionally conclude that adverbial locational PPs (as well as complementive PPs denoting a location) prototypically allow both a relational and non-relational reading, while complementive PPs denoting a change of location normally receive a relational reading only. We leave this as a suggestion for future research.

IV. Contingency adverbials

Contingency adverbials relate the eventuality expressed by the clause to some other concurrent circumstance. Prototypical examples are adverbial phrases indicating cause and reason; the primed examples show that these adverbials satisfy the two VP-adverbial tests. We will follow Quirk et al. (1979: Section 8.7) in assuming that cause can be established more or less objectively while reason involves a subjective and often personal assessment. The distinction can be clarified in Dutch by means of questioning: *waardoor* 'by what' normally evokes an answer providing a cause while *waarom* 'why' normally evokes an answer providing a reason.

- (47) a. De plantenpot barstte *door de vorst*. [cause]
 the plant.pot cracked by the frost
 'The flower pot cracked due to the frost.'
 a'. De plantenpot barstte en hij deed dat door de vorst.
 a''. De plantenpot barstte door de vorst. → De plantenpot barstte.
 b. Els bleef *vanwege de regen* thuis. [reason]
 Els stayed because.of the rain home
 'Els stayed at home because of the rain.'
 b'. Els bleef thuis en ze deed dat vanwege de regen.
 b''. Els bleef thuis vanwege de regen. → Els bleef thuis.

The concessive adverbial PPs headed by *ondanks* 'despite' in (48) refer to a potential cause of an effect which did not occur, against the speaker's expectation. The primed examples show that the concessive PPs satisfy both VP-adverbial tests.

- (48) a. De plantenpot bleef *ondanks de vorst* heel. [concession]
 the plant.pot remained despite the frost intact
 a'. De plantenpot bleef heel en hij deed dat ondanks de vorst.
 a''. De plantenpot bleef ondanks de vorst heel. → De plantenpot bleef heel.
 b. Els vertrok *ondanks de regen*. [concession]
 Els left despite the rain
 'Els left despite the rain.'
 b'. Els vertrok en ze deed dat ondanks de regen.
 b''. Els vertrok ondanks de regen. → Els vertrok.

Quirk et al. (1979) show that reason is often also difficult to distinguish from purpose. The actual interpretation depends upon the point of view adopted: in an example such as (49a) earning money or getting pleasure out of it can be seen as indicating Els' motivation or goal for working here. Questioning can again help to clarify the two sides: while *waarom* 'why' calls up an answer providing a reason, *waarvoor* 'for what' evokes an answer providing a goal. Similarly, purpose and result are difficult to distinguish although the latter is often expressed by the preposition *tot*.

- (49) a. Els werkt hier *voor haar plezier/het geld*. [reason/purpose]
 Els works here for her pleasure/the money
 'Els enjoys working here/works here for the money.'
 a'. Els werkt hier en ze doet dat voor haar plezier/het geld.
 a''. Els werkt hier voor haar plezier/het geld. → Els werkt hier.
 b. Els werkt hier *tot haar grote vreugde*. [result]
 Els works here to her great pleasure
 'Els takes great pleasure in working here.'
 b'. Els werkt hier en ze doet dat tot haar grote vreugde.
 b''. Els werkt hier tot haar grote vreugde. → Els werkt hier.

All contingency adverbials discussed so far satisfy the two VP-adverbial tests. That they truly are VP adverbials is further supported by the fact that they may follow the modal adverbs under a neutral intonation. It should be noted, however, that at least adverbials indicating cause and reason may also precede the modal adverb, which suggests that they can also be used as clause adverbials: we return to this in Section 8.2.2, sub X.

- (50) a. De plantenpot is waarschijnlijk door de vorst gebarsten. [cause]
 the plant.pot is probably by the frost cracked
 'The flower pot probably cracked due to the frost.'
 b. Els bleef waarschijnlijk vanwege de regen thuis. [reason]
 Els stayed probably because.of the rain home
 'Els probably stayed at home because of the rain.'
 c. Els werkt waarschijnlijk *voor haar plezier/het geld*. [reason/purpose]
 Els works probably for her pleasure the money
 'Els probably enjoys working/works for the money.'
 d. Els werkt waarschijnlijk *tot haar grote vreugde*. [result]
 Els works probably to her great pleasure
 'Els probably takes great pleasure in working.'

Quirk et al. (1979) also count conditionals as contingency adverbials. We will postpone discussion of such cases to Section 8.2.2, sub X, because there is good reason to believe that they can only be used as clause adverbials. We conclude this subsection by noting that Haeseryn et al. (1997:1212) provide adverbial phrases which do not seem to fall into one of the semantic subclasses above but simply refer to a concomitant circumstance; some examples are given in (51).

- (51) a. De boot vertrok *bij slecht weer*.
 the boat left with bad weather
 ‘The boat left in bad weather.’
- b. Hij sliep *met open ogen*.
 he slept with open eyes
 ‘He slept with open eyes.’
- c. Hij vertrok *zonder te groeten*.
 he left without to greet
 ‘He left without saying goodbye.’

V. Predicate-degree adverbials

Section A3.1 has shown that there is a relatively large set of adjectival adverbials that are typically used as degree modifiers of adjectives: prototypical examples are *erg* ‘very’ and *vrij* ‘rather’ in *erg/vrij aardig* ‘very/rather nice’. A small subset of these adverbials can also be used as modifiers of verbal projections; the examples in (52) show, for example, that this is possible for the intensifier *erg* ‘very’ but not for the downtoner *vrij* ‘rather’.

- (52) a. Jan moest *erg/*vrij* lachen.
 Jan had.to very/rather laugh
 ‘Jan had to laugh a lot.’
- b. De vloer kraakt *erg/*vrij*.
 the floor creaks very/rather
 ‘The floor creaks terribly.’

The use of *erg* ‘very’ has more restrictions. Although it is not clear to us what precisely determines whether its use is possible or not, it seems that *erg* is common with verbs denoting involuntary bodily actions such as *niezen* ‘to sneeze’, verbs denoting a psychological state such as *zich vervelen* ‘to be bored’, verbs of sound emission such as *gillen* ‘to scream’ and weather verbs such as *vriezen* ‘to freeze’, while it is less felicitous with verbs denoting voluntary actions like *werken* ‘to work’, *fietsen* ‘to cycle’ and *praten* ‘to talk’.

- (53) a. Jan niest *erg*.
 Jan sneezes very
- b. Marie verveelt zich *erg*.
 Marie bores REFL very
- c. De kinderen gillen *erg*.
 the children scream very
- d. Het vriest/waait *erg*.
 it freezes/blows very
- (54) a. ??Jan werkt/fietst *erg*.
 Jan works/cycles very
- b. ??Jan praat *erg*.
 Jan talks very

Section A3.1 has also shown that nominal degree adverbials modifying adjectives are always downtoners: cf. *een beetje ziek* ‘a little bit sick’. The use of such modifiers as downtoners of verbal projections is quite common; they do not only occur with the verbs in (53) but also with the verbs in (54) denoting a voluntary action.

- (55) a. Jan niest een beetje. a'. Jan werkt/fietst een beetje.
 Jan sneezes a bit Jan works/cycles a bit
 b. Marie verveelt zich een beetje. b'. Jan praat een beetje.
 Marie bores REFL a bit Jan talks a bit

The status of the degree adverbials differs from the VP adverbials discussed in the previous subsections in that they do not provide very clear results when it comes to the *PRONOUN doet dat* + *ADVERB* paraphrase: the paraphrases of the (a)-examples in (53) and (55) in (56b) are perhaps not impossible but still feel clumsy. They do have the property, however, that they restrict the denotation of the predicate expressed by the lexical domain of the clause, as is clear from the fact that the entailment test in (56c) leads to a positive result.

- (56) a. Jan niest erg/een beetje.
 Jan sneezes very/a bit
 b. ?Jan niest en hij doet dat erg/een beetje.
 c. Jan niest erg/een beetje. → Jan niest.

8.2.2. Clause adverbials

This section discusses various types of clause adverbials, that is, adverbials that do not restrict the denotation of the verbal predicate but provide other, additional, information. The meaning contributions of these adverbials are quite varied: their main similarity is that they are located external to the lexical domain of the clause. The following subsections will discuss the subclasses in (57).

- (57) a. Polarity: negation (*niet* 'not'); affirmation (*wel*)
 b. Focus particles: *alleen* 'only', *ook* 'too', *zelfs* 'even', etc.
 c. Aspectual: habitual; iterative; frequentative; continuative; etc.
 d. Clause-degree (*bijna* 'nearly'; *amper* 'hardly', etc.)
 e. Propositional modal (*waarschijnlijk* 'probably'; *blijkbaar* 'apparently')
 f. Subject-oriented (*stom genoeg* 'stupidly', *wijselijk* 'wisely', etc.)
 g. Subjective: factive (*helaas* 'unfortunately'); non-factive
 h. Point-of-view (*volgens Els* 'according to Els')
 i. Spatio-temporal: place; time
 j. Contingency: cause; reason; condition; concession
 k. Domain (*juridisch gezien* 'legally', *moreel gezien* 'morally', etc.)
 l. Conjunctive (*echter* 'however', *derhalve* 'therefore', etc.)
 m. Speech-act related (*eerlijk gezegd* 'honestly', etc.)

We will investigate to what extent these adverbial types satisfy the scope test proposed in Section 8.1, sub III, repeated here as (58a): the test is illustrated in (58b) by means of the prototypical clause adverbial *waarschijnlijk* 'probably'.

- (58) • Clause-adverbial test: scope paraphrase
 a. [_{CLAUSE} ... ADVERBIAL [_{VP} ...]] ⇒ Het is ADVERBIAL zo [_{CLAUSE} dat ... [_{VP} ...]]
 b. Jan lacht waarschijnlijk. ⇒ Het is waarschijnlijk zo dat Jan lacht.
 Jan laughs probably it is probably the.case that Jan laughs

I. Polarity adverbials

This section discusses the negative adverb *niet* ‘not’ and its affirmative counterpart *wel* in (59). Note in passing that the adverb *niet* can also be used as constituent negation (cf. Section 13.3.2, sub IC), and that both *niet* and *wel* can also be used as intensifiers of adjectives; *Jan is niet onaardig*/*Jan is wel aardig* ‘Jan is quite nice’ (cf. Section A3.3). These uses will not be discussed here.

- (59) a. Jan heeft Marie *niet* ontmoet. [sentence negation]
 Jan has Marie not met
 ‘Jan hasn’t met Marie.’
 b. Jan heeft Marie *wel* ontmoet. [affirmation]
 Jan has Marie AFF met
 ‘Jan did meet Marie.’

Polarity adverbials are clearly not VP adverbials, as is shown by the fact that the sentences in (59) do not satisfy the two VP-adverbial tests. The primeless examples in (60) first show that the *PRONOUN doet dat* + *ADVERB* paraphrase does not give rise to a felicitous result: the left-right arrow with a slash (\nrightarrow) indicates that it leads to a contradiction in the case of *niet* ‘not’ and the left-right arrow without a slash (\rightarrow) indicates that it leads to a tautology in the case of *wel*. The primed examples show that the entailment test also fails: the entailment holds in neither direction in the case of *niet* and in both directions in the case of *wel* (at least in as far as the meaning expressed by traditional predicate calculus is concerned).

- (60) a. ^SJan heeft Marie ontmoet en hij deed dat niet. [sentence negation]
 Jan has Marie met and he did that not
 a'. Jan heeft Marie niet ontmoet. \nrightarrow Jan heeft Marie ontmoet.
 b. ^SJan heeft Marie ontmoet en hij deed dat wel. [affirmation]
 Jan has Marie met and he did that AFF
 b'. Jan heeft Marie wel ontmoet. \rightarrow Jan heeft Marie ontmoet.

Polarity adverbials take scope over the proposition expressed by the lexical domain of the clause. This is the standard assumption for negation in predicate calculus, which treats negation as an operator taking scope over a well-formed expression Φ : $\neg\Phi$. It is also clear from the fact that both negative and affirmative clauses pass the scope test in (58a): the examples in (59) can easily be paraphrased by the examples in (61).

- (61) a. Het is niet zo dat Jan Marie heeft ontmoet. [sentence negation]
 it is not the.case that Jan Marie has met
 ‘It is not the case that Jan has met Marie.’
 b. Het is wel zo dat Jan Marie heeft ontmoet. [affirmation]
 it is AFF the.case that Jan Marie has met
 ‘It IS the case that Jan has met Marie.’

The polarity adverbials are located very low in the functional domain of the clause: they must be preceded by all the clause adverbials that will be discussed in the following subsections. This shows immediately that these other adverbials are also

part of the functional domain of the clause and thus cannot function as VP adverbials, cf. Section 8.1, sub II.

It should also be pointed out that the negative adverbial *niet* is probably not in an adjoined position, but located in the specifier of a functional projection (NegP): the reason for assuming this is that this position is not only accessible to *niet* but arguably also functions as a landing site for negative phrases. This is especially clear if the negative phrase is part of a PP-complement of a complementive adjective, as in (62): while there is good reason for assuming that the PP is base-generated in a position following the adjective, it must occur in a position preceding the adjective if the nominal part of the PP is a negative phrase such as *niemand* ‘nobody’. This would follow if we assume that a negative phrase must be moved into the specifier of NegP, as indicated in (62c), in order for negation to be assigned scope over the complete proposition. We will not digress on this here but refer the reader to Section 13.3.1 for detailed discussion.

- (62) a. dat Jan erg dol op Peter/*niemand is.
 that Jan very fond of Peter/nobody is
 ‘that Jan is very fond of Peter.’
- b. dat Jan op niemand erg dol is.
 that Jan of nobody very fond is
 ‘that Jan isn’t very fond of anybody.’
- c. dat Jan [_{NegP} [_{PP} op niemand]_i Neg [_{VP} ... [_{AP} erg dol *t_i*] is]].
 that Jan of nobody very fond is

We want to conclude this section by noting that the semantic contributions of the two polarity adverbials differ considerably: from a logical point of view, the negative adverbial *niet* is needed to express negation (unless it is expressed in some other way) while the affirmative marker is superfluous. This is demonstrated in (63): omission of *niet* results in an affirmative expression whereas omission of *wel* results in a logically equivalent expression.

- (63) a. Jan heeft Marie ([#]niet) ontmoet. [sentence negation]
 Jan has Marie not met
 ‘Jan hasn’t met Marie.’
- b. Jan heeft Marie (wel) ontmoet. [affirmation]
 Jan has Marie AFF met
 ‘Jan did meet Marie.’

It is therefore not surprising that the use of the affirmative marker *wel* is mainly pragmatically motivated: it is used to indicate contrast, to deny an assertion or a presupposition held by the hearer, to make a concession, etc. Illustrations are given in (64). The affirmative marker *wel* thus plays a prominent role in signaling that the background (the shared information of the discourse participants) needs to be updated, and its heavy informational load may be the reason why affirmative *wel* is always accented (contrary to the modifier *wel* discussed in Section A3.3, which never carries accent).

- (64) a. Ik kom vandaag niet, maar morgen wel. [contrast]
 I come today not but tomorrow AFF
 'I won't come today but tomorrow I will.'
- b. A. Je komt morgen toch niet? B. Ik kom wel. [denial]
 you come tomorrow PRT not I come AFF
 'You won't come tomorrow, will you? I WILL come.'
- c. Ik kom morgen, maar wel wat later. [concession]
 I come tomorrow but AFF somewhat later
 'I will come tomorrow, but it will be a bit later.'

II. Focus particles

Sentence negation can be preceded by focus particles such as *alleen* 'just/only', *ook* 'also', and *zelfs* 'even'. A number of typical examples are given in the primeless examples in (65). That these particles function as clause adverbials is clear from the fact that they satisfy the scope test in (58a), as is shown in the primed examples.

- (65) a. Jan is een goed geleerde; hij is *alleen* niet geschikt als decaan.
 Jan is a good scholar he is only not suitable as dean
 'Jan is a good scholar; he is just not suitable as Dean.'
- a'. Het is alleen zo dat hij niet geschikt is als decaan.
 it is only the.case that he not suitable is as dean
- b. Marie komt morgen niet en Jan komt *ook* niet.
 Marie comes tomorrow not and Jan comes also not
 'Marie won't come tomorrow and Jan won't come either.'
- b'. Het is ook zo dat Jan niet komt.
 it is also the.case that Jan not comes
- c. Jan heeft het druk: hij gaat *zelfs* niet op vakantie.
 Jan has it busy he goes even not on vacation
 'Jan is busy; he will not even take a vacation.'
- c'. Het is zelfs zo dat hij niet op vakantie gaat.
 it is even the.case that he not on vacation goes

As in the case of negation, there are reasons for assuming that focus particles are not in an adjoined position but in the specifier position of a functional projection (FocusP). In order to show this, it should first be noted that focus particles are not only used as independent adverbials but can also be used as narrow focus markers, in which case they form a constituent with the focused phrase. This can be seen in the examples in (66); the fact that the particle and the focused phrase co-occur in clause-initial position shows that they must be a constituent (cf. °constituency test).

- (66) a. [Alleen als decaan] is Jan niet geschikt.
 only as dean is Jan not suitable
- b. [Ook Jan] komt morgen niet.
 also Jan comes tomorrow not
- c. [Zelfs op vakantie] gaat Jan niet.
 even on vacation goes Jan not

The reason for assuming that the focus particles are in the specifier of FocusP is that this position is not accessible to focus particles only; it also functions as a landing site for narrowly focused phrases. This is especially clear if the focused phrase is a PP-complement of a complementive adjective, as in (67). It is uncontroversial that the PP is base-generated in a position following the adjective; however, it must precede the adjective if it is narrowly focused. This would follow if we assume that narrowly focused phrases must be moved into the specifier of FocusP, as indicated in (67c), in order to be assigned scope over the backgrounded part of the clause. We do not digress on this here but refer the reader to Section 13.3.2, sub IC, which also discusses a number of other focus particles.

- (67) a. dat Jan erg dol (*zelfs) op Peter is.
that Jan very fond even of Peter is
'that Jan is very fond of Peter.'
- b. dat Jan zelfs op Peter erg dol is.
that Jan even of Peter very fond is
'that Jan is even very fond of Peter.'
- c. dat Jan [_{FocusP} [_{PP} zelfs op Peter]_i Focus ... [_{VP} ... [_{AP} erg dol *t_i*] is]].
that Jan even of Peter very fond is

III. Aspectual adverbials

Sentence negation can also be preceded by aspectual adverbs such as habitual *gewoonlijk* 'usually', continuative *nog* (*steeds*) 'still', terminative *niet meer* 'no longer', iterative *weer* 'again', and frequentative *vaak* 'often'. Other adverbials that may belong to this group are *al* 'already' and *spoedig* 'soon' but these do not easily co-occur with the sentence adverbial *niet*. Some instances are provided in the primeless examples in (68); the primed examples show that these adverbials satisfy the scope test in (58a).

- (68) a. dat Jan *gewoonlijk* niet aanwezig is.
that Jan usually not present is
'that Jan usually isn't present.'
- a'. Het is *gewoonlijk* zo dat Jan niet aanwezig is.
it is usually the.case that Jan not present is
- b. dat Jan *nog* *steeds* niet aanwezig is.
that Jan still not present is
'that Jan still isn't present.'
- b'. Het is *nog* *steeds* zo dat Jan niet aanwezig is.
it is still the.case that Jan not present is
- c. dat Jan *vaak* niet aanwezig is.
that Jan often not present is
'that Jan often isn't present.'
- c'. Het is *vaak* zo dat Jan niet aanwezig is.
it is often the.case that Jan not present is

It should be noted that the frequency adverb *vaak* 'often' can also be used as a VP adverbial; cf. Section 8.2.1, sub IIIA. The examples in (69) illustrate this by showing that it may either precede or follow the negative adverb *niet* 'not'. The two

examples differ in the relative scope of the adverbials *vaak* and *niet*, which can be brought out by the paraphrases in the primed examples.

- (69) a. dat Jan niet vaak aanwezig is. [VP adverbial: not > often]
 that Jan not often present is
 'that Jan isn't present often.'
 a'. Het is niet zo dat Jan vaak aanwezig is.
 it is not the.case that Jan often present is
 'It is not the case that Jan is present often.'
 b. dat Jan vaak niet aanwezig is. [clause adverbial: often > not]
 that Jan often not present is
 'that Jan often isn't present.'
 b'. Het is vaak zo dat Jan niet aanwezig is.
 it is often the.case that Jan not present is
 'It is often the case that Jan isn't present.'

The scope difference becomes even clearer with frequency adverbials such as *drie keer* 'three times'. Suppose we are dealing with a sequence of four lectures; then example (70a) expresses that Jan attended less than three meetings while (70b) expresses that Jan attended only one lecture. Example (70c) shows that the two uses can co-occur in a single sentence: in case we are dealing with six sequences of four lectures, (70c) expresses that for two of these sequences Jan attended less than three lectures.

- (70) a. dat Jan niet drie keer aanwezig is geweest. [VP adverbial]
 that Jan not three times present is been
 'that Jan hasn't been present three times.'
 b. dat Jan drie keer niet aanwezig is geweest. [clause adverbial]
 that Jan three times not present is been
 'that three times Jan hasn't been present.'
 c. dat Jan twee keer niet drie keer aanwezig is geweest. [co-occurrence]
 that Jan two times not three times present is been
 'that twice (in two sequences) Jan hasn't been present three times.'

A more complicated class of adverbs that may be considered aspectual consists of the adverbs *helemaal* 'completely' and *gedeeltelijk* 'partly' in (71a), which indicate whether the eventuality was or was not completely finished. That these adverbs are not VP adverbials is clear from the fact that they do not restrict the denotation of the verbal predicate, as appears from the fact that the entailment test in (71b) fails in the case of *gedeeltelijk*. However, it is not immediately evident either that these adverbs function as clause adverbials, as is clear from the fact that the scope test in (71c) produces questionable results.

- (71) a. Jan heeft de appel helemaal/gedeeltelijk opgegeten.
 Jan has the apple completely/partly prt.-eaten
 'Jan has completely/partly eaten the apple.'
 b. Jan heeft de appel gedeeltelijk opgegeten. → Jan heeft de appel opgegeten.
 c. ?Het is helemaal/gedeeltelijk zo dat Jan de appel heeft opgegeten.
 it is completely/partly the.case that Jan the apple has eaten

There are nevertheless good reasons for supposing that we are dealing with clause adverbials, given that the adverb *gedeeltelijk* ‘partly’ can precede sentence negation; cf. (72). It should be noted that the order *niet gedeeltelijk* is also possible if the adverb is accented; this case can be put aside because we are probably dealing with constituent negation in that case. Note also that examples similar to (72) are difficult to construct for *helemaal*, due to the fact that this adverb can be construed as a modifier of negation in *helemaal niet* ‘absolutely not’.

- (72) Jan heeft de film gedeeltelijk niet gezien.
 Jan has the movie partly not prt.-seen
 ‘Jan missed a part of the movie.’

IV. Clause-degree adverbials

Adverbs like *bijna* ‘almost’, *echt* ‘really’, and *haast* ‘nearly’ are referred to as clause-degree adverbs by Ernst (2002). These are clear cases of clause adverbials: they satisfy the scope test.

- (73) a. Jan ging bijna kwaad weg.
 Jan went almost angry away
 ‘Jan almost went away angry.’
 a’. Het was bijna zo dat Jan kwaad weg ging.
 it was nearly the.case that Jan angry away went
 b. Jan werd haast overreden.
 Jan was nearly run.over
 ‘Jan was nearly run over (by a car).’
 b’. Het was haast zo dat Jan werd overreden.
 it was nearly the.case that Jan was run-over

It may be the case that (inherently negative) adverbs like *amper* ‘hardly’ and *nauwelijks* ‘scarcely’ in (74a) belong to the same class, although (74b) shows that they do not pass the scope paraphrase in a convincing way. We leave the problem with these adverbials for future research.

- (74) a. Jan was amper/nauwelijks thuis toen Marie belde.
 Jan was hardly/scarcely home when Marie called
 ‘Jan was hardly/scarcely home when Marie called.’
 b. ^SHet was amper/nauwelijks zo dat Jan thuis was toen Marie belde.
 it was hardly/scarcely the.case that Jan home was when Marie called

V. Propositional modal adverbials

Propositional modality provides an evaluation of the factual status of propositions expressed by the lexical projection of the main verb. By uttering a sentence such as *Marie is thuis* ‘Marie is at home’ the speaker normally commits himself to the truth of the proposition expressed by the lexical projection of the main verb. The speaker may, however, also comment on the factual status of the proposition. Palmer (2001) claims that these judgments may be of two different kinds: there are epistemic and evidential judgments. Epistemic judgments are concerned with the likelihood of the actual occurrence of a specific eventuality. Section 5.2.3.2, sub IIIA1, has shown

that epistemic judgments can be expressed by means of modal verbs such as *kunnen* ‘may’, *moeten* ‘must’ and *zullen* ‘will’.

- (75) a. Marie kan nu thuis zijn. [speculative]
 Marie may now at.home be
 b. Marie moet nu thuis zijn. [deductive]
 Marie must now at.home be
 c. Marie zal nu thuis zijn. [assumptive]
 Marie will now at.home be

By uttering sentences such as (75a-c), the speaker provides three different epistemic judgments about (his commitment to the truth of) the proposition BE AT HOME (*Marie*). The modal verb *kunnen* ‘may’ presents the proposition as a *possible* conclusion: the speaker is uncertain whether the proposition is true, but on the basis of the information available to him he is not able to exclude it. The modal verb *moeten* ‘must’ presents the proposition as the *only possible* conclusion: on the basis of the information available the speaker infers that the proposition is true. The modal verb *zullen* ‘will’ presents the proposition as a *reasonable* inference on the basis of the available evidence. A wider range of epistemic judgments can be expressed by means of the adverbial phrases in (76a).

- (76) a. Epistemic adverbials: *gegarandeerd* ‘certainly’, *hoogstwaarschijnlijk* ‘most likely’, *misschien* ‘maybe’, *mogelijk* ‘possibly’, *naar alle waarschijnlijkheid* ‘in all probability’, *natuurlijk* ‘naturally/of course’, *noodzakelijk(erwijs)* ‘necessarily’, *ongetwijfeld* ‘undoubtedly’, *vermoedelijk* ‘supposedly’, *waarschijnlijk* ‘probably’, *zeker* ‘certainly’, etc.
 b. Marie is misschien/zeker/natuurlijk/... thuis.
 Marie is maybe/certainly/naturally at.home

Evidential judgments are concerned with the source of information that the judgment is based on: cf. Section 5.2.3.2, sub IIIA2. Perception verbs such as *zien* ‘to see’, for instance, are used in °AcI-constructions such as *Ik zag Peter vertrekken* ‘I saw Peter leave’ to express that the evidential judgment is based on direct sensory evidence: the speaker was an eye-witness of the eventuality. And modal verbs such as *blijken* ‘to turn out’, *lijken* ‘to appear’, and *schijnen* ‘to seem’ indicate whether there is direct evidence in favor of the truth of the proposition, whether there are identifiable individuals that can be held responsible for the truth of the proposition, or whether we are dealing with hearsay/rumors; see Vliegen (2011).

- (77) a. Uit deze feiten blijkt [dat Jan de dader is]. [direct evidence]
 from these facts turns.out that Jan the perpetrator is
 ‘These facts clearly show that Jan is the perpetrator.’
 b. Het lijkt mij/haar [dat Jan de dader is]. [identifiable source]
 it appears me/her that Jan the perpetrator is
 ‘It appears to me/her that Jan is the perpetrator.’
 c. Het schijnt [dat Jan de dader is]. [hearsay/rumors]
 it seems that Jan the perpetrator is
 ‘It seems that Jan is the perpetrator.’

Again a wider range of evidential judgments can be expressed by means of the adverbial phrases in (78a):

- (78) a. Evidential adverbials: *blijkbaar* ‘evidently’, *duidelijk* ‘clearly’, *evident* ‘evidently’, *kennelijk* ‘obviously’, *klaarblijkelijk* ‘apparently’, *ogenschijnlijk* ‘apparently’, *onmistakbaar* ‘unmistakably’, *schijnbaar* ‘seemingly’, *vermoedelijk* ‘probably’, *zichtbaar* ‘visibly/evidently’, *zo te zien* ‘apparently/by the looks of it’, etc.
- b. Jan is *blijkbaar/duidelijk/zo te zien/...* de dader.
Jan is evidently/clearly/by the looks of it/ ... the perpetrator

The propositional modal adverbials in (76a) and (78a) satisfy the scope-adverbial test in (58a), as is illustrated in (79) for the examples in (76b) and (78b). That epistemic modal adverbials allow the scope paraphrase is also in conformity with the fact that epistemic judgments are expressed in formal logic by means of the operators \square and \diamond , which take scope over a well-formed expression Φ : $\square\Phi$ and $\diamond\Phi$.

- (79) a. Het is misschien/zeker/natuurlijk zo dat Marie thuis is.
it is maybe/certainly/naturally the.case that Marie at.home is
‘It is maybe/certainly/naturally the case that Marie is at home.’
- b. Het is *blijkbaar/duidelijk/zo te zien zo* dat Jan de dader is.
it is evidently/clearly/apparently the.case that Jan the perpetrator is
‘Evidently/Clearly/By the looks of it, it is the case that Jan is the perpetrator.’

VI. Subject-oriented adverbials

Subject-oriented adverbials like *slim genoeg* ‘cleverly’ and *wijselijk* ‘wisely’ in (80) provide the speaker’s subjective evaluation of the subject of the clause in relation to the predicate expressed by the lexical projection of the verb. Example (80a) expresses that the speaker considers Jan clever for not attending the performance and (80b) that he considers Marie wise for not contradicting Peter.

- (80) a. Jan vertrok *slim genoeg* voor de voorstelling.
Jan left clever enough before the performance
‘Jan cleverly left before the performance.’
- b. Marie sprak Peter *wijselijk* niet tegen.
Marie said Peter wisely not against
‘Marie wisely didn’t contradict Peter.’

Example (80b) shows that subject-oriented adverbials may precede negation. The fact that the reverse order gives rise to a marginal result also suggests that they function as clause adverbials. Even more support is that they do not restrict the denotation of the predicate, as (81) clearly shows that the examples in (80) cannot be paraphrased by means of a conjoined *PRONOUN doet dat + ADVERB* clause. Note in passing that the paraphrase *Jan vertrok en hij deed dat slim genoeg voor de voorstelling* is acceptable but involves restricted scope of the subject-oriented adverb over the time adverbial. The acceptability of this paraphrase is consequently not relevant here; see Section 8.1, sub III, for discussion.

- (81) a. *Jan vertrok voor de voorstelling en hij deed dat slim genoeg.
 Jan left before the performance and he did that clever enough
 b. *Marie sprak Peter niet tegen en zij deed dat wijselijk.
 Marie said Peter not against and she did that wisely

The examples in (82) show that scope paraphrases are not possible either. However, this is understandable in the light of the fact that the matrix clauses in these paraphrases do not contain a suitable subject that the adverbial could be applied to: the paraphrases are uninterpretable as a result.

- (82) a. ^SHet is slim genoeg zo dat Jan voor de voorstelling vertrok.
 it is clever enough the.case that Jan before the performance left
 b. ^SHet is wijselijk zo dat Marie Peter niet tegensprak.
 it is wisely the.case that Marie Peter not contradicted

For completeness' sake, it should be noted that the examples in (80) can be paraphrased as in (83). These paraphrases suggest that subject-oriented adverbials have scope over the proposition expressed by the lexical domain of the clause. We will not push this idea any further but provisionally assume that the infelicity of the scope paraphrases in (82) is indeed due to the fact that they do not contain a suitable subject that the adverbial could be applied to.

- (83) a. Het is slim van Jan dat hij voor de voorstelling vertrok.
 it is clever of Jan that he before the performance left
 b. Het is wijs van Marie dat zij Peter niet tegensprak.
 it is wise of Marie that she Peter not contradicted

VII. Subjective adverbials

Subjective adverbials specify a specific mental attitude towards the state-of-affairs referred to by the clause. These adverbials are difficult to distinguish from the epistemic adverbials because they also comment on the factual status of the proposition in that they express that the proposition is or is not necessarily/yet true.

- (84) • Subjective adverbials
 a. Factive: *begrijpelijkerwijs* 'understandably', *helaas* 'unfortunately', *gelukkig* 'fortunately', *jammer* genoeg 'regrettably', *(on)gelukkigerwijs* '(un)fortunately', *vanzelfsprekend* 'obviously/self-evidently'
 b. Non-factive: *hopelijk* 'hopefully'

However, the main informational load of these adverbials involves a subjective evaluation of the eventuality. By uttering (85a) the speaker expresses that the proposition expressed by the clause is true while the two adverbials *gelukkig* and *helaas* reveal that the speaker has either a positive or a negative attitude toward the eventuality of 'Jan having arrived on time'. By uttering (85b) the speaker expresses that he does not know whether the proposition expressed by the clause is true, but that he would consider it a good thing if it were true.

- (85) a. Jan is gelukkig/helaas op tijd gearriveerd.
 Jan is fortunately/unfortunately on time arrived
 ‘Jan has fortunately/unfortunately arrived on time.’
 b. Jan is hopelijk op tijd gearriveerd.
 Jan is hopefully on time arrived
 ‘Jan has hopefully arrived on time.’

Example (85b) is clearly not epistemic as the speaker does not provide an evaluation of the factual status of the proposition. This is different with adverbial phrases such as *naar ik hoop/vrees* in (86): these adverbials are subjective in that they provide an evaluation of the proposition, but they are also epistemic in that the speaker expresses that the proposition is a *reasonable* conclusion on the basis of the evidence available to him. Since the epistemic verb *vermoeden* ‘to suspect’ can also be used in this phrase, it is not evident that the adverbial phrase *naar ik +V* should be considered intrinsically subjective in nature.

- (86) Jan is naar ik hoop/vrees/vermoed op tijd gearriveerd.
 Jan is as I hope/fear/suspect on time arrived
 ‘Jan has arrived on time, I hope/fear/suspect.’

That subjective adverbials are clause adverbials is clear from the fact that they satisfy the scope test; this is illustrated in (87a&b) for the examples in (85). For completeness’ sake we have added the paraphrase in (87c) for the examples in (86).

- (87) a. Het is gelukkig/helaas zo dat Jan op tijd gearriveerd is.
 it is fortunately/unfortunately the.case that Jan on time arrived is
 b. Het is hopelijk zo dat Jan op tijd gearriveerd is.
 it is hopefully the.case that Jan on time arrived is
 c. Het is naar ik hoop/vrees/vermoed zo dat Jan op tijd gearriveerd is.
 it is as I hope/fear/suspect the.case that Jan on time arrived is

Other examples of subjective adverbials are *toch*, *maar*, *dan*, and *nou*. These particle-like items often occur in combination and may express various, often subtle, meaning modulations of the sentence; cf. Haeseryn et al. (1997;457/1349).

VIII. Point-of-view adverbials

In the linguistic literature on English since Jackendoff (1972) epistemic adverbials have been classified as speaker-oriented adverbs. The epistemic judgments of the proposition are normally taken to be the speaker’s, that is, by uttering the sentence in (88) the speaker takes responsibility for the truth of the assertion that Jan will visit us.

- (88) Jan komt zeker op visite.
 Jan comes certainly on visit
 ‘Jan will certainly visit us.’

Although the speaker-oriented reading of epistemic adverbials is certainly their default interpretation, it is not semantically determined but it is the result of a pragmatic implicature. This is evident from the fact that the speaker’s responsibility

for the truth of the assertion can be made explicit or be canceled by adding an adverbial phrase indicating the person responsible for the truth of the relevant information: some more or less fixed expressions for, respectively, emphasizing and canceling of the speaker's responsibility are given in (89).

- (89) • Point-of-view adverbials:
- a. Making explicit the speaker's responsibility: *bij/naar mijn/ons weten* 'as far as I/we know', *mijns/ons inziens* 'in my/our view', *naar mijn/onze mening* 'according to my/our opinion', *naar mijn/onze overtuiging* (lit.: "according to my/our conviction"), etc.
 - b. Canceling the speaker's responsibility: *blijkens dit rapport* 'according to this report', *zijns inziens* 'in his view', *naar verluidt* 'according to reports', etc.

A common productive way of expressing a point-of-view is using a PP headed by the preposition *volgens* 'according to': by using *volgens mij* 'according to me' in (90a) the speaker makes his responsibility for the truth of assertion explicit, while he shifts this responsibility to Els by using *volgens Els* in (90b). Example (90c) shows that point-of-view adverbials pass the scope test.

- (90) a. Jan komt volgens mij zeker op visite. [speaker's responsibility]
 Jan comes according.to me certainly on visit
 'According to me, Jan will certainly come and visit us.'
- b. Jan komt volgens Els zeker op visite. [not speaker's responsibility]
 Jan comes according.to Els certainly on visit
 'According to Els, Jan will certainly come and visit us.'
- c. Het is volgens mij/Els zo dat Jan zeker op visite komt.
 it is according me/Els the.case that Jan certainly on visit comes
 'According to me/Els, it is the case that Jan will certainly come and visit us.'

Subjective adverbials like *gelukkig* 'fortunately' and *helaas* 'unfortunately' are normally also considered to be speaker-oriented. This may seem justifiable in (91): the assessment of Jan's dismissal as a fortunate event can be attributed to the speaker despite the presence of the point-of-view PP *volgens Els* 'according to Els'. However, it also seems possible to attribute this assessment to Els, as is clear from the fact that the part in parentheses can be added without creating a contradiction. The speaker-oriented reading of evaluation adverbials may therefore still be a pragmatic effect; we leave this issue to future research.

- (91) Jan is volgens Els gelukkig ontslagen (maar ik vind het naar).
 Jan is according.to Els fortunately fired but I find it unpleasant
 'According to Els, it's a stroke of luck that Jan was fired (but I think it's terrible).'

IX. Spatio-temporal adverbials

Spatio-temporal adverbials are not only used as VP adverbials (cf. Section 8.2.1, sub III) but also as clause adverbials. That temporal adverbials may be ambiguous in this way is demonstrated in (92); the primeless examples show that these adverbials can either precede or follow a modal adverb such as *waarschijnlijk* 'probably', and the primed examples show that they pass both the clause-adverbial and the VP-adverbial test.

- (92) a. Jan komt *morgen* waarschijnlijk op visite. [clause adverbial]
 Jan comes tomorrow probably on visit
 ‘Jan will probably visit us tomorrow.’
- a'. Het is morgen waarschijnlijk zo dat Jan op visite komt.
 it is tomorrow probably the.case that Jan on visit comes
- b. Jan komt waarschijnlijk *om drie uur* op visite. [VP adverbial]
 Jan comes probably at 3 o'clock on visit
 ‘Jan will probably visit us at 3 o'clock.’
- b'. Jan komt waarschijnlijk op visite en hij doet dat om 3 uur.
 Jan comes probably on visit and he does that at 3 o'clock

The examples in (93) show that the two time adverbials *morgen* and *om drie uur* in (92) may co-occur but that they obey certain ordering restrictions: the time interval referred to by the clause adverbial includes the time (interval) referred to by the VP adverbial. Since (93b) becomes fully acceptable if one of the two time adverbials is omitted, it is not likely that we are dealing with a syntactic restriction; Section 8.2.3 will argue that this restriction is semantic in nature, for which reason we have marked the deviating order in (93b) with a dollar sign.

- (93) a. Jan komt *morgen* waarschijnlijk *om drie uur* op visite.
 Jan comes tomorrow probably at 3 o'clock on visit
 ‘Jan will probably visit us at 3 o'clock tomorrow.’
- b. ^{\$}Jan komt *om drie uur* waarschijnlijk *morgen* op visite.
 Jan comes at 3 o'clock probably tomorrow on visit

For locational adverbials we can make more or less the same observations. The examples in (94) first illustrate that locational adverbials can either precede or follow a modal adverb and that they pass both the clause-adverbial test in (94a') and the VP-adverbial test in (94b').

- (94) a. Jan geeft *in Amsterdam* waarschijnlijk een lezing. [clause adverbial]
 Jan gives in Amsterdam probably a talk
 ‘Jan will probably give a talk in Amsterdam.’
- a'. Het is in Amsterdam waarschijnlijk zo dat Jan een lezing geeft.
 it is in Amsterdam probably the.case that Jan a talk gives
- b'. Jan geeft waarschijnlijk een lezing *op de universiteit*. [VP adverbial]
 Jan gives probably a talk at the university
 ‘Jan will probably give a talk at the university.’
- b'. Jan geeft waarschijnlijk een lezing en hij doet dat op de universiteit.
 Jan gives probably a talk and he does that at the university

The examples in (95) show that the two place adverbials in (94) may co-occur but that they obey certain ordering restrictions: the location referred to by the clause adverbial includes the location referred to by the VP adverbial. Since (95b) becomes fully acceptable if one of the two locational adverbials is omitted, it is again not likely that we are dealing with a syntactic restriction, for which reason we have marked the deviating order in (95b) with a dollar sign.

- (95) a. Jan geeft *in Amsterdam* waarschijnlijk een lezing *op de universiteit*.
 Jan gives in Amsterdam probably a talk at the university
 ‘In Amsterdam Jan will probably give a talk at the university.’
- b. ^sJan geeft *op de universiteit* waarschijnlijk een lezing *in Amsterdam*.
 Jan gives at the university probably a talk in Amsterdam

X. Contingency adverbials

Section 8.2.1, sub IV, has shown that adverbials indicating cause and reason can be used as VP adverbials. The fact illustrated in (96) that these adverbials may occur on either side of the modal *waarschijnlijk* ‘probably’ suggests, however, that they can also be used as clause adverbials.

- (96) a. De pot is waarschijnlijk door de vorst gebarsten. [VP/cause]
 the pot is probably by the frost cracked
 ‘The pot has probably cracked because of frost.’
- a’. De pot is door de vorst waarschijnlijk gebarsten. [clause/cause]
 the pot is by the frost probably cracked
 ‘Because of frost the pot has probably cracked.’
- b. De winkel is waarschijnlijk vanwege Pasen gesloten. [VP/reason]
 the shop is probably because.of Easter closed
 ‘The shop is probably closed because of Easter.’
- b’. De winkel is vanwege Pasen waarschijnlijk gesloten. [clause/reason]
 the shop is because.of Easter probably closed
 ‘Because of Easter, the shop is probably closed.’

That the adverbials indicating cause or reason are clause adverbials in the primed examples in (96) is given greater credence by the fact that these examples can easily be paraphrased by means of the scope paraphrases in (97).

- (97) a. Het is door de vorst waarschijnlijk zo dat de pot gebarsten is.
 it is by the frost probably the.case that the pot cracked is
- b. Het is vanwege Pasen waarschijnlijk zo dat de winkel gesloten is.
 it is because of Easter probably the.case that the shop closed is

The semantic difference between the primeless and primed examples in (96) is genuinely a matter of relative scope: in the primeless examples the adverbials indicating cause and reason are in the scope of the modal adverb *waarschijnlijk*, while they are not in the scope of the adverb in the primed examples. This induces the following meaning differences: example (96a) expresses that the pot has probably cracked as a result of frost, while (96a’) expresses that the frost is a good reason for assuming that the pot has cracked; example (96b) expresses that the shop is probably closed because of Easter, while (96b’) expresses that Easter is a good reason for assuming that the shop is closed.

The concessive counterparts of the cause/reason adverbials may likewise be used as clause adverbials; the examples in (98) illustrate this by showing that these adverbials can easily occur in front of the modal *waarschijnlijk* ‘probably’.

- (98) a. De pot is *ondanks de vorst* waarschijnlijk heel gebleven. [concession]
 the pot is despite the frost probably intact remained
 ‘The pot has probably remained undamaged despite the frost.’
- b. Els is *ondanks de regen* waarschijnlijk vertrokken. [concession]
 Els is despite the rain probably left
 ‘Els has probably left despite the rain.’

Conditionals differ from adverbials indicating cause and reason in that they always function as clause adverbials. Although conditionals are normally expressed by means of adverbial clauses, there are also a number of more or less idiomatic prepositional phrases headed by *in* ‘in’ and *bij* ‘with’; cf. Haeseryn et al. (1997:1209). Two typical cases are given in the primeless examples in (99). These conditional adverbials do not restrict the denotation of the verbal predicate, as is clear from the fact illustrated in the singly-primed examples that they do not satisfy the entailment test. Furthermore, the scope paraphrase in the doubly-primed examples seems perfectly adequate. This leads to the conclusion that conditional adverbials differ from adverbials indicating cause and reason in that they function as clause adverbials only.

- (99) a. Wij helpen u *in noodgevallen* direct.
 we help you in emergencies immediately
 ‘We will help you immediately in case of an emergency.’
- a'. Wij helpen u in noodgevallen direct. → Wij helpen u direct.
- a''. Het is in noodgevallen zo dat wij u direct helpen.
 it is in emergencies the.case that we you promptly help
- b. *Bij diefstal* bellen wij altijd de politie.
 in.case.of theft phone we always the police
 ‘In case of theft, we always call the police.’
- b'. Bij diefstal bellen wij altijd de politie → Wij bellen altijd de politie.
- b''. Het is bij diefstal zo dat wij de politie helpen.
 it is in.case.of theft the.case that we the police phone

That conditional phrases cannot be used as VP adverbials is due to the fact that they function as the antecedent P of a material implication $P \rightarrow Q$ and not as a restrictor of Q: we can only conclude that proposition Q is true if proposition P is true as well. For the same reason we can conclude that the conditional clause in (100a) must function as a clause adverbial. Although this cannot be proved on the basis of the entailment test, we should probably conclude the same for its concessive counterpart in (100b). That these conditional and concessive clauses can be used as clause adverbials is evident from the fact illustrated in the primed examples that they pass the scope test.

- (100) a. Als het mooi weer is, gaan we naar de dierentuin.
 if it nice weather is go we to the zoo
 ‘If the weather is nice we will go to the zoo.’
- a'. Als het mooi weer is, is het zo dat we naar de dierentuin gaan.
 if it nice weather is is it the.case that we to the zoo go

- b. Hoewel het regent, gaan we naar de dierentuin.
 although it rains go we to the zoo
 ‘Although it is raining we will go to the zoo.’
- b'. Hoewel het regent, is het zo dat we naar de dierentuin gaan.
 although it rains is it the.case that we to the zoo go

XI. Domain adverbials

Section 8.2.1, sub I, has shown that domain adverbials such as *juridisch* ‘legally’ in (101a) can be used as VP adverbials. The fact illustrated in (101b) that such adverbials sometimes precede the modal adverb *waarschijnlijk* ‘probably’ suggests that they can also be used as clause adverbials. The primed examples show that this is supported by the application of the entailment and scope tests.

- (101) a. Jan vecht zijn ontslag (waarschijnlijk) *juridisch* aan. [VP adverbial]
 Jan fights his dismissal probably legally prt
 ‘Jan (probably) contests his dismissal on legal grounds.’
- a'. Jan vecht zijn ontslag aan en hij doet dat *juridisch*.
 Jan fights his dismissal prt. and he does that legally
- a''. Jan vecht zijn ontslag *juridisch* aan. → Jan vecht zijn ontslag aan.
- b. Jan heeft *juridisch* (waarschijnlijk) gelijk. [clause adverbial]
 Jan has legally probably right
 ‘Legally, Jan is (probably) right.’
- b'. Het is *juridisch* zo dat Jan gelijk heeft.
 it is legally the.case that Jan right has
- b''. Jan heeft *juridisch* gelijk. ↗ Jan heeft gelijk.

The two uses of domain adverbials involve a different scope. VP adverbials restrict the denotation of the verbal projection; consequently, the particular choice of one of the domain adverbials in (102) will have far-reaching consequences for the goal, means and method used in performing the action of investigating adverbs.

- (102) Jan onderzoekt adverbia *syntactisch/morfologisch/semantisch*.
 Jan investigates adverbs syntactically/morphologically/semantically
 ‘Jan is investigating adverbs syntactically/morphologically/semantically.’

The clause adverbials, on the other hand, have scope over the complete proposition expressed by lexical domain of the clause and may affect the truth value of the clause: as is indicated by the invalidity of the entailment in (101b''), the fact that Jan is right from a legal point of view does not entail that he is right, since he might be wrong from, e.g., a moral point of view. Related to this difference is the fact that the clause (but not the VP) adverbials prototypically surface in the form of a phrase headed by the participle *gezien* ‘seen’, which embeds a domain adverbial functioning as a modifier of the participle; this is illustrated in (103).

- (103) a. Jan vecht zijn ontslag waarschijnlijk *juridisch* (*gezien) aan.
 Jan fights his dismissal probably legally seen prt
 ‘Jan contests his dismissal on legal grounds.’
- b. Jan heeft *juridisch* (gezien) waarschijnlijk gelijk.
 Jan has legally seen probably right
 ‘Legally speaking, Jan is probably right.’

XII. Conjunctive adverbials

Conjunctives are adverbial phrases relating the clause they modify to some state-of-affairs mentioned earlier in the discourse. Although conjunctives differ syntactically from conjunctions in that they are clausal constituents, Haeseryn et al. (1997: section 8.5) note that they perform a similar semantic function in that both of them specify various relations between utterances. Conjunctives may simply function as linkers, indicate contrast and various contingency relations between utterances, as indicated in (104): we omitted from these lists various obsolete forms provided by Haeseryn et al., as well as particles such as *ook* ‘also’, *zelfs* ‘even’, which were discussed in Subsection II as focus particles.

- (104) • Conjunctives
- a. Linking: *bovendien/daarenboven* ‘moreover’, *eveneens* ‘also’, *evenmin* ‘neither’, *tevens* ‘also’
 - b. Contrast: *daarentegen* ‘on the other hand’, *desalniettemin/desondanks* ‘nevertheless’, *echter/evenwel* ‘however’, *integendeel* ‘on the contrary’, *niettemin* ‘nevertheless’, *nochtans* ‘still’, *toch* (with accent) ‘just the same’
 - c. Contingency: *althans* ‘at least’, *bijgevolg* ‘as a consequence’, *derhalve* ‘therefore’, *dus* ‘thus’, *dientengevolge* ‘consequently’, *immers* ‘after all’, *overigens*, ‘anyway’, *trouwens* ‘for that matter’, *toch* (without accent)

That the adverbials in (104) are clause adverbials is clear from the fact that they satisfy the scope test in (58b), as is illustrated in (105).

- (105) a. Jan is een goed taalkundige. Hij is *bovendien* een goed schrijver.
 Jan is a good linguist. he is moreover a good writer
 ‘Jan is a good linguist. Moreover, he is a good writer.’
- a’. Het is *bovendien* zo dat hij een goed schrijver is.
 it is moreover the.case that he a good writer is
 - b. Els heeft weinig tijd. Ze komt *desondanks* toch naar je lezing.
 Els has little time she comes nevertheless prt to your talk
 ‘Els is very busy. Nevertheless, she will attend your talk.’
 - b’. Het is *desondanks* zo dat ze naar je lezing komt.
 it is nevertheless the.case that she to your talk comes
 - c. Marie is er niet. Ze is *immers* ziek.
 Marie is there not she is after.all ill
 ‘Marie is not present. She’s ill, as you know.’
 - c’. Het is *immers* zo dat ze ziek is.
 it is after.all the.case that she ill is

Note in passing that some of the conjunctives in (104) also easily occur clause-externally; *daarentegen* in (106a’) is clearly used parenthetically, as is clear from the fact that it is preceded and followed by an intonation break; *trouwens* in (106b’) is clearly clause-external, as it precedes the clause-initial position.

- (106) a. Marie is erg open. Jan is *daarentegen* terughoudend. [adverbial]
 Marie is very candid. Jan is on.the.other.hand reserved
- a'. Marie is open. Jan, *daarentegen*, is terughoudend. [clause-external]
 Marie is candid. Jan on.the.other.hand is reserved
 'Marie is candid. Jan, on the other hand, is reserved.'
- b. Ik wil niet dansen. Ik heb *trouwens* geen tijd. [adverbial]
 I want not dancing I have anyway no time
- b'. Ik wil niet dansen. *Trouwens*, ik heb geen tijd. [clause-external]
 I want not dancing anyway, I have no time
 'I do not want to dance. I don't have time, for that matter.'

XIII. *Speech-act related adverbials*

Speech-act adverbials such as *eerlijk gezegd* 'honestly speaking' are normally phrasal and consist of a participle preceded by a manner adverb. They are always speaker-oriented and provide information about the performance of the speech act; by using the adverbial *eerlijk gezegd* in (107a), for instance, the speaker expresses that he gives his opinion straightforwardly despite the fact that he is aware of the fact that the addressee may feel uneasy about it. That speech-act adverbials are clause adverbials is clear from the fact that they easily pass the scope test, as is shown for *eerlijk gezegd* in (107b).

- (107) a. *Eerlijk gezegd* heb ik geen zin in dansen.
 honestly said have I no liking in dance
 'Honestly speaking, I don't feel like dancing.'
- b. Het is *eerlijk gezegd* zo dat ik geen zin in dansen heb.
 it is honestly said the.case that I no liking in dancing have

Speech-act adverbials are placed high in the functional domain of clause; they are often the first adverbial in the clause. Furthermore, they also occur and, in fact, often feel more comfortable in clause-external position.

- (108) a. *Eerlijk gezegd*: ik heb geen zin in dansen.
 honestly said I have no liking in dance
 'Honestly speaking, I don't feel like dancing.'
- b. *Kort/ruwweg gezegd/samengevat*: Jan is ontslagen.
 briefly/roughly said/summarized Jan is fired
 'In short, Jan is fired.'
- c. *Vertrouwelijk gezegd*: hij wordt ontslagen.
 confidentially said he is fired
 'Confidentially, he will be fired.'

8.2.3. *Multiple temporal/locational adverbials*

This section discusses the meaning contribution of spatio-temporal adverbial phrases in more detail. The basic observation is that clauses may contain more than one temporal or locational adverbial, as illustrated in the sentences in (109): the adverbials preceding the modal adverb (*gisteren/in Amsterdam*) function as clause adverbials while the ones following the modal (*om drie uur/bij zijn tante*) function as VP adverbials.

- (109) a. Jan is gisteren waarschijnlijk om drie uur vertrokken.
 Jan is yesterday probably at 3 o'clock left
 'Jan probably left at 3 o'clock yesterday.'
- b. Jan heeft in Amsterdam waarschijnlijk bij zijn tante gelogeed.
 Jan has in Amsterdam probably with his aunt stayed
 'Jan has probably stayed with his aunt in Amsterdam.'

This raises the question in what way the meaning contributions of these clause and VP adverbials differ. Our point of departure in answering this question will be binary tense theory: cf. Te Winkel (1866) and Verkuyl (2008). This theory was introduced in Section 1.5.1 and used in the description of the Dutch Tense system in Section 1.5.4. Although we will assume that the reader is familiar with these sections, we start in Subsection I by repeating some of the core findings. Subsection II subsequently discusses the semantic contribution of the two kinds of temporal adverbials: we will argue that VP adverbials are modifiers of eventualities, while clause adverbials modify the temporal domains that contain them. Subsection III will extend this proposal to locational adverbials.

I. Theoretical background (Binary Tense Theory)

Binary tense theory claims that the mental representation of tense is based on the three binary distinctions in (110). Languages differ when it comes to the means used for expressing these oppositions: this can be done within the verbal system by means of inflection and/or auxiliaries but it may also involve the use of adverbial phrases, aspectual markers, pragmatic information, etc.

- (110) a. [±PAST]: present versus past
 b. [±POSTERIOR]: future versus non-future
 c. [±PERFECT]: imperfect versus perfect

Verkuyl (2008) claims that Dutch expresses all the oppositions in (110) in the verbal system: [+PAST] is expressed by inflection, [+POSTERIOR] by the verb *zullen* 'will', and [+PERFECT] by the auxiliaries *hebben* 'to have' and *zijn* 'to be'. This leads to the eight-way distinction between tenses in Table 1 found in most Dutch grammars.

Table 1: The Dutch tense system according to Verkuyl (2008)

		PRESENT	PAST
SYNCHRONOUS	IMPERFECT	present <i>Ik wandel.</i> I walk	simple past <i>Ik wandelde.</i> I walked
	PERFECT	present perfect <i>Ik heb gewandeld.</i> I have walked	past perfect <i>Ik had gewandeld.</i> I had walked
POSTERIOR	IMPERFECT	future <i>Ik zal wandelen.</i> I will walk	future in the past <i>Ik zou wandelen.</i> I would walk
	PERFECT	future perfect <i>Ik zal hebben gewandeld.</i> I will have walked	future perfect in the past <i>Ik zou hebben gewandeld.</i> I would have walked

Sections 1.5.2 and 1.5.4 departed from Verkuyl’s original claim that *zullen* can be used as a future auxiliary and argued that it is an epistemic modal verb in all its uses—it is only due to pragmatic considerations that examples with *zullen* are sometimes interpreted with future time reference; cf. Broekhuis & Verkuyl (2014). If this is indeed correct, the Dutch verbal system only expresses the binary features $[\pm\text{PAST}]$ and $[\pm\text{PERFECT}]$, and therefore does not make an eight-way but only a four-way tense distinction. This means that the traditional view on the Dutch verbal tense system in Table 1 should be replaced by the one in Table 2. Since the examples with *zullen* no longer define a separate set of future tenses, posteriority must be expressed by other means.

Table 2: *The Dutch verbal tense system (revised)*

	PRESENT	PAST
IMPERFECT	simple present <i>Ik wandel/Ik zal wandelen.</i> I walk/I will walk	simple past <i>Ik wandelde/Ik zou wandelen.</i> I walked/I would walk
PERFECT	present perfect <i>Ik heb gewandeld/</i> <i>Ik zal hebben gewandeld.</i> I have walked/I will have walked	past perfect <i>Ik had gewandeld/</i> <i>Ik zou hebben gewandeld.</i> I had walked/I would have walked

The revised view on the verbal tense system of Dutch implies that utterances in the simple present/past should in principle be able to refer to any subinterval within present/past-tense interval i . This is indicated in Figure 1, in which the dotted line indicates the time line, for various possible worlds in which simple present/past sentences like *Ik wandel* ‘I walk’ and *Ik wandelde* ‘I walked’ are predicted to be true; observe that the number of possible worlds is in principle infinite and that we simply made a selection that suits our purpose. World 1 depicts the situation in which eventuality k precedes speech time n or virtual speech-time-in-the-past n' , that is, the situation in which k is located in the actualized part i_a of present/past-tense interval i . World 3 depicts the situation in which k follows n/n' , that is, in which it is located in the non-actualized part i_\diamond of present/past-tense interval i . World 2, finally, depicts the situation in which k occurs at n/n' . We did not mention time interval j yet, but its function will become clear shortly.

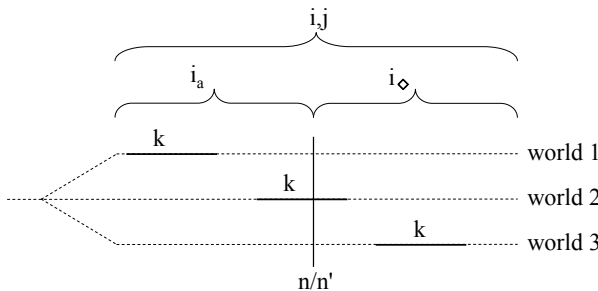


Figure 1: *Simple tenses in Dutch*

The representation of perfect tense examples like *Ik heb gewandeld* ‘I have walked’ and *Ik had gewandeld* ‘I had walked’ in Figure 2 is virtually identical to that in Figure 1; the only difference is that eventuality k is presented as a completed autonomous unit within present/past-tense interval i , as is indicated by the vertical line at the right-hand border of k .

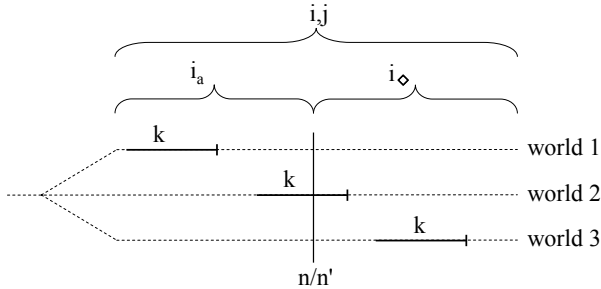


Figure 2: Perfect tenses in Dutch

The proposal outlined above overgenerates considerably. We predict, for instance, that any simple present sentence can refer to the situation depicted in world 1 in Figure 1, whereas we would generally use a present perfect to refer to such a situation. Section 1.5.4.1 has shown that the prediction is correct in the more specific situation depicted in Figure 1 in which the speaker has a knowledge gap about the state-of-affairs in the actual world prior to speech time n (indicated by the fact that the split-off point of the possible worlds precedes n); example (111) can be used only if the speaker does not know whether Els has already finished reading.

- (111) Els leest vanmorgen mijn artikel.
 Els reads this.morning my paper
 ‘Els is reading my paper this morning.’

The reason for this is pragmatic in nature. If the speaker knows that eventuality k precedes n , he can present k as a discrete, bounded unit which has been completed within the actualized part time interval i_a of present-tense interval i : since this can be described more precisely by the present perfect, Grice’s °maxim of quantity prohibits the use of the less informative simple present. We refer the reader to 1.5.4.1, sub II, and 1.5.4.2, sub II, for a more detailed discussion.

Furthermore, it seems that simple present-tense clauses refer by default to the situation depicted in world 2 in Figure 1, while present perfect clauses refer by default to the situation depicted in world 1 in Figure 2; reference to the situations in the alternative worlds is possible but only if the context provides special clues that this is indeed what is intended by the speaker. The subsections below will show that temporal and locational adverbials play an important role in providing such clues. The discussion will pay special attention to how their status as clause or VP adverbial affects their meaning contribution. Subsection II starts by discussing the temporal adverbials; it adopts the hypothesis put forth in Sections 1.5.4.1, sub III, and 1.5.4.2, sub III, that while temporal VP adverbials modify eventuality k directly, temporal clause adverbials do so indirectly by modifying the so-called present j of k , that is, the subdomain of present/past-tense interval i within which k must be located and which is taken to be identical to i in the default case (as

indicated in the two figures above). Subsection III will show that something similar holds for locational adverbials.

II. Temporal adverbials

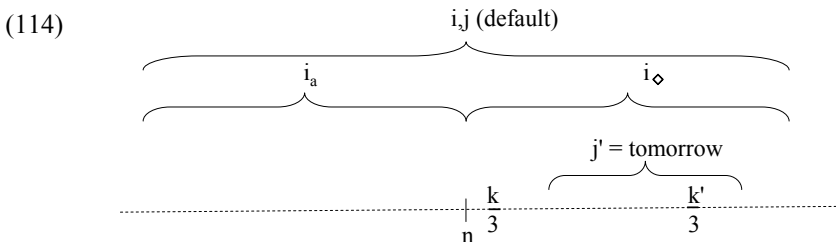
This subsection discusses the semantic contribution of the temporal adverbials to the meaning of the clause. We will adopt the standard assumption from Section 8.2.1 that VP adverbials are modifiers of the proposition expressed by the lexical projection of the verb. In terms of the tense representations in Figure 1 and Figure 2 this amounts to saying that VP adverbials are modifiers of an eventuality *k*. This is evidently correct for durational adverbials such as *drie uur (lang)* ‘for three hours’ in (112), which simply indicate the duration of *k*.

- (112) Jan heeft drie uur (lang) gezongen.
 Jan has three hour long sung
 ‘Jan has been singing for three hours.’

This is also correct for punctual adverbials such as *om 15.00 uur* ‘at 3 p.m.’ in (113), which locates the eventuality of Jan’s departure at 3 p.m. in the non-actualized part *i*_◇ of present-tense interval *i* (where the selection of *i*_◇ is due to the use of the simple present for the pragmatic reason discussed in Subsection I). The default interpretation of (113a) is that Jan will be leaving at 3 o’clock *today*, but it can easily be overridden by contextual factors; this is especially clear in example (113b) where the clause adverbial *morgen* ‘tomorrow’ is used to indicate that the departure of Jan will take place at 3 o’clock of the first day following speech time *n*. Note that we have added the modal adverb *waarschijnlijk* ‘probably’ in order to distinguish between VP and clause adverbials; here we will ignore its semantic distribution in our discussion for the sake of simplicity.

- (113) a. Jan vertrekt (waarschijnlijk) om 15.00 uur.
 Jan leaves probably at 3:00 p.m.
 ‘Jan will (probably) leave at 3:00 p.m.’
- b. Jan vertrekt morgen (waarschijnlijk) om 15.00 uur.
 Jan leaves tomorrow probably at 3:00 p.m.
 ‘Jan will (probably) leave at 3:00 p.m. tomorrow.’

The easiest way of accounting for the meaning contribution of the clause adverbial *morgen* ‘tomorrow’ in (113b) is by assuming that it modifies the present *j* of *k*: representation (114) shows that *j* is taken to be identical to *i* by default, but that the use of a temporal clause adverbial restricts *j* to a subdomain of *i*; for ease of representation we indicated the non-default interpretation of *j* (and *k*) by means of a prime.

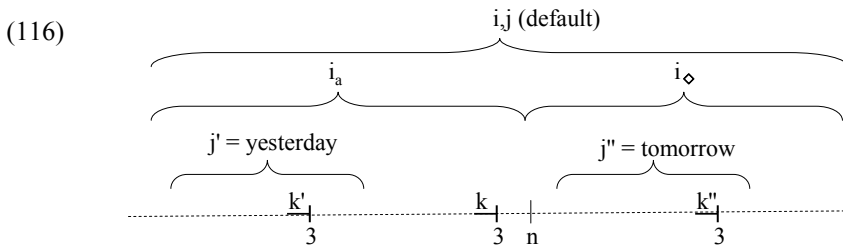


If we assume, as indicated in representation (114), that sentence (113a) is uttered at noon, its default interpretation would be derived as follows: the present j of k will be taken by default to be identical to the present-tense interval i . Since the simple present is again restricted to the non-actualized part i_\diamond of present-tense interval i for pragmatic reasons, the sentence refers to eventuality k as this is the first occasion after speech time n that fits the description *om 15.00 uur* (indicated by the numeral 3 in representation (114)). Note in passing that the sentence would refer to k' by default if it were uttered at 10.00 p.m., as this would be the first occasion after speech time n that fits the description *om 15.00 uur*. Representation (114) also shows that the default interpretation of (113a) is overridden in (113b) by the clause adverbial *morgen* ‘tomorrow’, which restricts the present of the eventuality to time interval j' : as a result, sentence (113b) can only refer to k' .

Now consider the present perfect examples in (115). If we assume that sentence (115a) is uttered in the evening, its default interpretation would be that eventuality k occurred earlier that day. The examples in (115b&c) show that this default reading can easily be overridden by adding a clause adverbial such as *gisteren* ‘yesterday’ or *morgen* ‘tomorrow’.

- (115) a. Jan is (waarschijnlijk) om 15.00 uur vertrokken.
 Jan is probably at 3:00 p.m. left
 ‘Jan (probably) left at 3:00 p.m.’
- b. Jan is gisteren (waarschijnlijk) om 15.00 uur vertrokken.
 Jan is yesterday probably at 3:00 p.m. left
 ‘Jan (probably) left at 3:00 p.m. yesterday.’
- c. Jan is morgen (waarschijnlijk) om 15.00 uur vertrokken.
 Jan is tomorrow probably at 3:00 p.m. left
 ‘Jan will (probably) have left at 3:00 p.m. tomorrow.’

The easiest way to account for the meaning contribution of the clause adverbials is again by assuming that clause adverbials modify the present j of k ; this is shown in representation (116), in which the various non-default interpretations of j and k are again indicated by means of primes.



The default interpretation would be derived as follows. First, the present j of the eventuality will be taken to be identical to the present-tense interval i . Since Subsection I has shown that the present perfect is restricted to the actualized part i_a of the present-tense interval i for pragmatic reasons, the sentence refers to eventuality k , as this is the first occasion preceding speech time n that fits the description *om 15.00 uur*; note in passing that the sentence would refer to k' by

default, if it were uttered at 8.00 a.m., as that would then be the first occasion before speech time n that fits the description *om 15.00 uur*. The default interpretation of (115a) is overridden in (115b) by the clause adverbial *gisteren* ‘yesterday’, which restricts the present j to the time interval j' : as a result, sentence (115b) can only refer to k' . Similarly, the clause adverbial *morgen* ‘tomorrow’ in (115c) overrides the default interpretation of (115a) and restricts the present j to time interval j'' : as a result, sentence (115c) can only refer to k'' .

Representation (116) suggests that the VP adverbial *om 15.00 uur* locates the completion of the eventuality at 3 p.m. precisely. However, this is not what this adverbial actually does: it instead refers to a time at which the resulting state of eventuality k applies. This is clear from examples such as (117), based on Janssen (1983), in which the adverbial *al* indicates that the completion of the eventuality of Jan’s departure took place *before* 3 p.m. From this we may conclude that the interpretations indicated in representation (116) are default interpretations of the modified structures in (115b&c), which can again be overridden by adverbial modification (here: by *al*).

- (117) Jan is (waarschijnlijk) om 15.00 uur al vertrokken.
 Jan is probably at 3:00 p.m. already left
 ‘Jan will (probably) already have left at 3:00 p.m.’

The examples discussed so far have all been in the present tense, but the account can straightforwardly be applied to corresponding past tense cases as well (which will not be demonstrated here). We can conclude from this that the semantic interpretation of clauses with two temporal adverbials finds a natural accommodation and explanation in binary tense theory. This provides a strong argument in favor of the binary tense theory because Janssen (1983: fn.1) has shown that such cases are highly problematic for the Reichenbachian approach. Binary tense theory also accounts for the stringent word order restriction that applies to the two adverbials. First, consider the examples in (118), which show that the adverbials *morgen* ‘tomorrow’ and *om 15.00 uur* ‘at 3 o’clock’ can be used freely either as a VP adverbial or as a clause adverbial.

- (118) a. Jan gaat waarschijnlijk morgen/om 15.00 uur naar de bioscoop.
 Jan goes probably tomorrow/at 3:00 p.m. to the cinema
 ‘Jan will probably go to the cinema tomorrow/at 3:00 p.m.’
 b. Jan gaat morgen/om 15.00 uur waarschijnlijk naar de bioscoop.
 Jan goes tomorrow/at 3:00 p.m. probably to the cinema
 ‘Jan will probably go to the cinema tomorrow/at 3:00 p.m.’

When the two adverbials co-occur in a single clause, however, there are severe restrictions on their distribution: the examples in (119) show that *morgen* ‘tomorrow’ must precede while *om 15.00 uur* must follow the modal adverb *waarschijnlijk* ‘probably’. Note in passing that we do not discuss cases such as *Jan gaat morgen om 15.00 uur waarschijnlijk naar de bioscoop*, in which the phrase *Morgen om 15.00 uur* constitutes a single clause adverbial, as is clear from the fact that it can be topicalized as a whole: *Morgen om 15.00 uur gaat Jan waarschijnlijk naar de bioscoop.*

- (119) a. Jan gaat morgen waarschijnlijk om 15.00 uur naar de bioscoop.
 Jan goes tomorrow probably at 3:00 p.m. to the cinema
 ‘Jan will probably go to the cinema at 3:00 p.m. tomorrow.’
 b. ^sJan gaat om 15.00 uur waarschijnlijk morgen naar de bioscoop.
 Jan goes at 3:00 p.m. probably tomorrow to the cinema

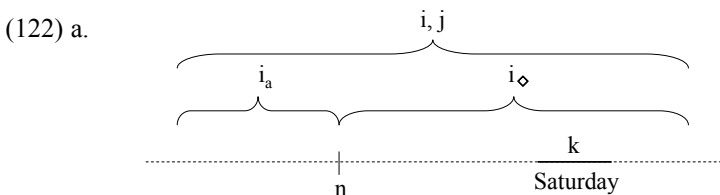
The use of the dollar sign in (119b) indicates that the reason for the unacceptability of this example is not syntactic but semantic in nature: it is simply incoherent. Because *j* contains eventuality *k*, the modifier of *j* must refer to a time interval that contains the time (interval) indicated by the modifier of *k*. This is indeed the case in (119a), as *morgen* refers to a time interval that contains a point in time indicated by the adverbial *om 15.00 uur*, but this is not the case in (119b). For the same reason, an example such as (120) will only be felicitous if the addressee knows that there will be a meeting the next day; if not, the addressee will correct the speaker or ask him for more information about this meeting.

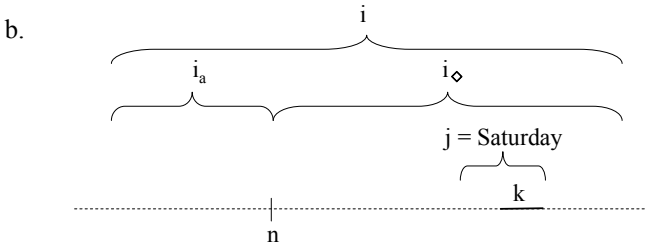
- (120) Jan geeft morgen waarschijnlijk een lezing na de vergadering.
 Jan gives tomorrow probably a talk after the meeting
 ‘Jan will probably give a talk after the meeting tomorrow.’

It is often difficult to pinpoint the precise semantic difference between the use of an adverbial as a VP adverbial or a clause adverbial. Consider the simple present examples in (121):

- (121) a. Jan gaat waarschijnlijk zaterdag dansen. [VP adverbial]
 Jan goes probably Saturday dance
 ‘Jan will probably go dancing on Saturday.’
 b. Jan gaat zaterdag waarschijnlijk dansen. [clause adverbial]
 Jan goes Saturday probably dance
 ‘Jan will probably go dancing on Saturday.’

Many speakers judge these examples to be near-synonymous as they both refer to a dancing event on Saturday, but the semantic representations assigned to them under our current assumptions are quite different. In (121a), the present *j* of *k* is simply assigned the default reading according to which it is identical to present-tense interval *i*; eventuality *k* will be located in the non-actualized part *i*_◊ of this interval for pragmatic reasons and will therefore be situated at the first Saturday following speech time *n*; cf. representation (122a). The interpretation in (122b) is more indirect: first the present *j* of *k* is limited to the first Saturday in *i*_◊ and then eventuality *k* is located in this restricted time interval; cf. representation (122b). Note that the continuous line below *k* refers to the time interval referred to by *Saturday* in (122a) but to the duration of *k* in (122b).

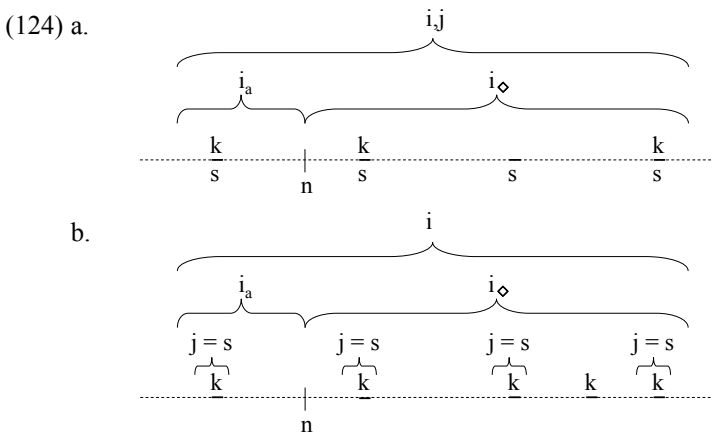




The meaning difference can be highlighted by means of the scope paraphrases that we have introduced for detecting clause adverbials. While (121a) can be paraphrased as *Het is waarschijnlijk zo dat Jan zaterdag gaat dansen* ‘It is probably the case that Jan will go dancing on Saturday’, example (121b) can be paraphrased as *Het is zaterdag waarschijnlijk zo dat Jan gaat dansen* ‘On Saturday, it is probably the case that Jan will go dancing’. The meaning difference becomes more conspicuous in examples such as (123) with the frequency adverb *altijd* ‘always’.

- (123) a. Jan gaat altijd op zaterdag dansen. [VP adverbial]
 Jan goes always on Saturday dance
 ‘Jan always goes dancing on a Saturday.’
- b. Jan gaat op zaterdag altijd dansen. [clause adverbial]
 Jan goes on Saturday always dance
 ‘Jan always goes dancing on Saturdays.’

Frequency adverbs such as *altijd* ‘always’ express that we are dealing with a re-occurring eventuality *k* in present/past-tense interval *i*. The VP adverbial *op zaterdag* ‘on a Saturday’ in (123a) provides more precise information about the locations of *k*; it indicates that *k* takes place on Saturdays only, as in representation (124a), in which *s* stands for *Saturday*. The clause adverbial *op zaterdag* ‘on Saturdays’ in (123b), on the other hand, indicates that it is an inherent property of Saturdays that *k* occurs; cf. (124b).



Representation (124a) also shows that it is not necessary that *k* occurs at every Saturday in order for (123a) to be true, while such a representation would make example (123b) false. Representation (124b) further shows that (123b) allows *k* to

occur on other days as well, while such a representation would make (123a) false. This suggests that the examples in fact express °material implications: example (123a) can be paraphrased by (125a), while (123b) can be paraphrased by (125b).

- (125) a. If Jan goes dancing, it is a Saturday.
- b. If/Whenever it is a Saturday, Jan goes dancing.

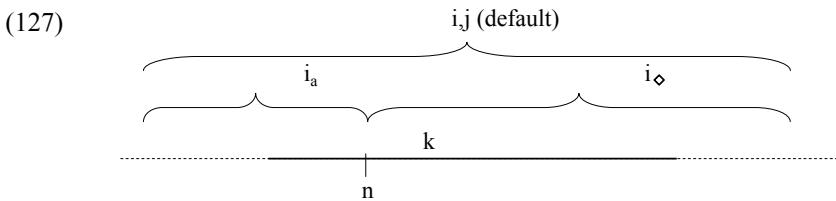
This section has discussed a number of phenomena that receive a natural account within the binary tense approach. Since temporal modification in relation to tense theory is still a relatively unexplored domain, we have to leave it to future research to investigate to what extent binary tense theory can be exploited in this domain (although the reader may find some more information on this in Section 1.5.4). Subsection III will continue by showing that clauses with two locational adverbials may receive a similar account as clauses with two temporal adverbials.

III. Locational adverbials

This subsection discusses the semantic contribution of locational adverbials to the meaning of the clause. We again adopt the standard assumption from Section 8.2.1 that VP adverbials are modifiers of the proposition expressed by the lexical projection of the verb. In terms of tense representations like those given in Figure 1 and Figure 2, this amounts to saying that VP adverbials are modifiers of eventuality *k*. This claim is evidently correct for example (126a), which simply locates the eventuality of Jan staying in some hotel. It is, however, less clear what the semantic contribution of the clause adverbial *in Amsterdam* in (126b) is.

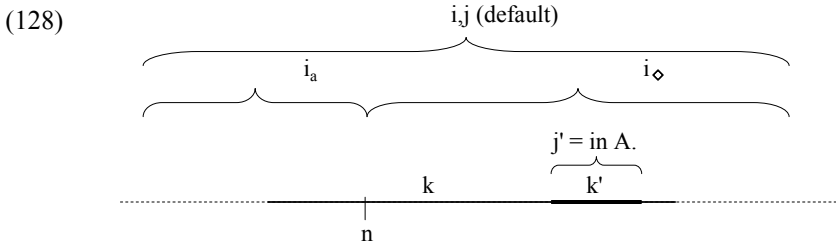
- (126) a. Jan verblijft (waarschijnlijk) in een hotel.
 Jan lodges probably in a hotel
 ‘Jan is (probably) staying in a hotel.’
- b. Jan verblijft in Amsterdam (waarschijnlijk) in een hotel.
 Jan lodges in Amsterdam probably in a hotel
 ‘Jan is (probably) staying in a hotel in Amsterdam.’

Assume that the sentences in (126) are used in a conversation about Jan, who is currently on a vacation. The default reading of example (126a) would then be that the eventuality of Jan staying in a hotel occurs at speech time *n*, as depicted in (127): the present *j* of *k* is taken to be identical to the present-tense interval *i* and *k* is taken to co-occur with speech time *n*.



Example (126b) would instead express that the eventuality of Jan staying in a hotel is limited to the period in which he is visiting Amsterdam. This can be accounted for by assuming that the locational clause adverbial overrides the default interpretation in the same way as a temporal clause adverbial, namely by restricting the

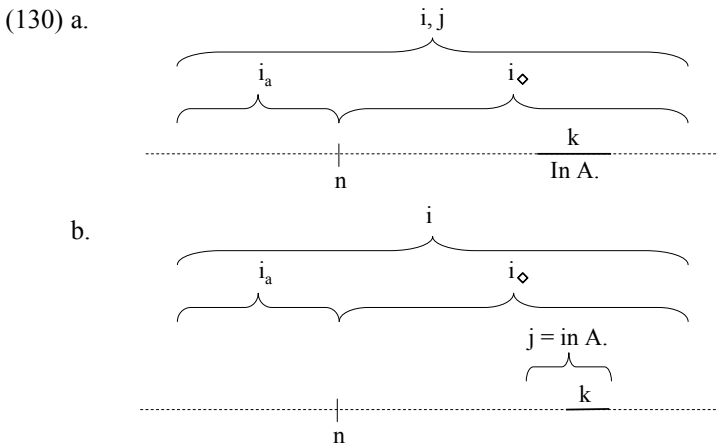
present j of the eventuality. This is shown in representation (128), in which k is the eventuality of Jan being on holiday and k' is the eventuality of Jan staying in a hotel.



The discussion above has shown that locational and temporal adverbials are similar in that they modify the eventuality k when they are used as a VP adverbial, but the present j of k when they are used as clause adverbials. As in the case of temporal adverbials, the two uses of locational adverbials are not always easy to distinguish. Consider the examples in (129).

- (129) a. Jan gaat waarschijnlijk in Amsterdam dansen. [VP adverbial]
 Jan goes probably in Amsterdam dance
 ‘Jan will probably go dancing in Amsterdam.’
- b. Jan gaat in Amsterdam waarschijnlijk dansen. [clause adverbial]
 Jan goes in Amsterdam probably dance
 ‘Jan will probably go dancing in Amsterdam.’

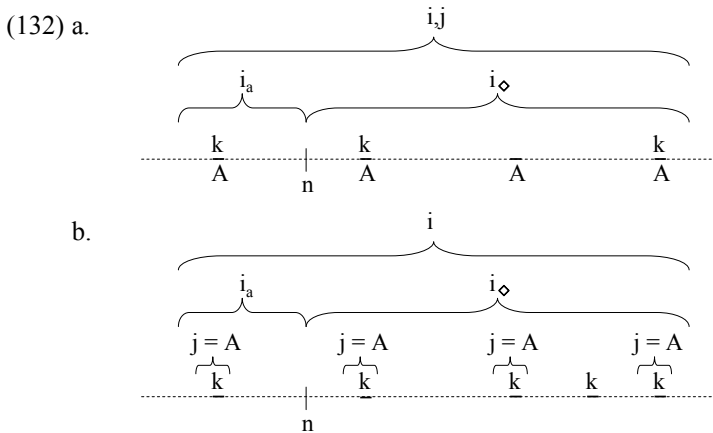
Many speakers judge these examples to be near-synonymous as they both refer to a dancing event in Amsterdam, but the semantic representations assigned to them under our current assumptions are quite different. In (129a), the present j of k is simply assigned the default reading according to which it is identical to present-tense interval i . The eventuality k will be located in the non-actualized part $i_◇$ of this interval for pragmatic reasons; see representation (130a), which is essentially the same as (122a). The interpretation in (129b) is more indirect: first the present j of k is limited to the first occasion in $i_◇$ that Jan will be in Amsterdam and then eventuality k is located in this restricted time interval; cf. representation (130b), which is essentially the same as (122b).



The meaning difference shows up in the scope paraphrases as well. While (129a) can be paraphrased as *Het is waarschijnlijk zo dat Jan in Amsterdam gaat dansen* ‘It is probably the case that Jan will go dancing in Amsterdam’, example (129b) can be paraphrased as *Het is in Amsterdam waarschijnlijk zo dat Jan gaat dansen* ‘In Amsterdam, it will probably be the case that Jan will go dancing’. The meaning difference again becomes more conspicuous in examples such as (131), with the frequency adverb *altijd* ‘always’.

- (131) a. Jan gaat altijd in Amsterdam dansen. [VP adverbial]
 Jan goes always in Amsterdam dance
 ‘Jan always goes dancing in Amsterdam.’
 b. Jan gaat in Amsterdam altijd dansen. [clause adverbial]
 Jan goes in Amsterdam always dance
 ‘Jan always goes dancing in Amsterdam.’

The frequency adverb *altijd* is used to express that we are dealing with a re-occurring eventuality *k* in the present/past-tense interval *i*. The VP adverbial *in Amsterdam* (131a) provides more precise information about the location of *k*; it indicates that *k* takes place in Amsterdam only, as in representation (132a), in which *A* stands for *in Amsterdam*. The clause adverbial *in Amsterdam* in (131b), on the other hand, indicates that it is an inherent property of Jan’s visits to Amsterdam that *k* occurs; cf. (132b).



Representation (132a) also shows that it is not necessary that *k* occurs at every occasion that Jan is in Amsterdam in order for (131a) to be true, while such a representation would make example (131b) false. Representation (132b) further shows that (131b) allows *k* to occur on other days as well, while such a representation would make (131a) false. This suggests that the examples in fact express \circ material implications: example (131a) can be paraphrased by (133a), while (131b) can be paraphrased by (133b).

- (133) a. If Jan goes dancing, he is in Amsterdam.
 b. If/Whenever Jan is in Amsterdam, he goes dancing.

The discussion above has shown that locational clause adverbials have more or less the same semantic impact as temporal clausal adverbs. Locational and temporal clause adverbials may also co-occur. The examples in (134a&b) are simply repeated from above and show that *op zaterdag* and *in Amsterdam* can both be used as clause adverbials; example (134c) shows that the two can also be combined. Such examples can be paraphrased as material implications with two conditions: (P & Q) → R: “if Jan is in Amsterdam and if it is Saturday, Jan goes dancing”.

- (134) a. Jan gaat op zaterdag altijd dansen.
 Jan goes on Saturday always dance
 ‘Jan always goes dancing on Saturdays.’
 b. Jan gaat in Amsterdam altijd dansen.
 Jan goes in Amsterdam always dance
 ‘Jan always goes dancing in Amsterdam.’
 c. Jan gaat in Amsterdam op zaterdag altijd dansen.
 Jan goes in Amsterdam on Saturday always dance
 ‘Jan always goes dancing in Amsterdam on Saturdays.’

IV. Conclusion

The previous subsections have shown that clauses with multiple temporal/locational adverbial phrases find a natural accommodation and explanation in binary tense theory: used as VP adverbials, they modify the eventuality expressed by the lexical domain of the clause; used as clause adverbials, they modify the present of this eventuality. We have noted that the difference between the resulting interpretations can be made more telling in the presence of the frequency adverb *altijd*; the interpretation can then be paraphrased by means of material implications, as illustrated by the example in (135), repeated from Subsection II.

- (135) a. Jan gaat altijd op zaterdag dansen. [VP adverbial]
 Jan goes always on Saturday dance
 ‘Jan always goes dancing on a Saturday.’
 a’. If Jan goes dancing, it is a Saturday.
 b. Jan gaat op zaterdag altijd dansen. [clause adverbial]
 Jan goes on Saturday always dance
 ‘Jan will probably go dancing on Saturdays.’
 b’. If it is a Saturday, Jan goes dancing.

In conclusion, note that a similar effect was found in Section A6.3.3 in the case of supplementives. This would suggest that our proposal concerning temporal and locational adverbials may be extended to other adverbials and adjuncts in general. Since this suggestion opens a new research program, we leave this issue for future research.

8.3. Categorical types of adverbial modifiers

It is generally recognized that adverbial phrases can be of various categorial types. They can be adjectival, prepositional, nominal, and may also take the form of a clause. We illustrate this in (136) by means of temporal adverbial phrases.

- (136) a. Jan gaat *erg vroeg* weg. [adjective phrase]
 Jan goes very early away
 ‘Jan is leaving quite early.’
- b. Jan gaat *voor zonsopgang* weg. [prepositional phrase]
 Jan goes before sunrise away
 ‘Jan is leaving before sunrise.’
- c. Jan gaat *volgende week* weg. [noun phrase]
 Jan goes next week away
 ‘Jan is leaving next week.’
- d. Jan gaat weg *voordat de zon op komt*. [clause]
 Jan goes away before the sun up comes
 ‘Jan is leaving before the sun rises.’

It is not the case, however, that all semantic types of adverbials can be realized in all four forms, and this section discusses the restrictions that we find. We start, however, by explaining why we do not distinguish a separate category of adverbs. After that, Sections 8.3.2 and 8.3.3 will deal with the constraints on the categorial realization of, respectively, VP and clause adverbials.

8.3.1. On the notion of adverb

There is little agreement in the literature on the question as to whether we should distinguish a separate category of adverbs. Proponents of the position that we should, e.g., Haeseryn et al. (1997:451) and Ernst (2002:8), define this presumed word class as consisting of lexical elements (and perhaps phrases) that can only function as adverbials. Nevertheless, it is customary for grammars to include elements in the set of adverbs that do not satisfy this criterion. Haeseryn et al. (1997:454), for instance, list the form *morgen* ‘tomorrow’ in examples such as (137a) as an adverb despite the fact that example (137b) shows that it can occur as the complement of a preposition. Because complements of prepositions are typically nominal, the examples in (137) should lead us to the conclusion that *morgen* is not an adverb but a noun.

- (137) a. Jan gaat *morgen* weg.
 Jan goes tomorrow away
 ‘Jan is leaving tomorrow.’
- b. Jan gaat pas *na morgen* weg.
 Jan goes only after tomorrow away
 ‘Jan will only be leaving after tomorrow.’

Another criterion that is sometimes used is that adverbs are invariant in form. This can be found in Haeseryn et al. (1997:451) but the same grammar simultaneously claims that certain adverbs such as the manner adverb *snel* ‘fast’ and the frequentative adverb *vaak* ‘often’ in (138) do allow comparative and superlative formation. Given this, there is no clear reason not to call these lexical items adjectives.

- (138) a. Jan wandelt snel/sneller.
 Jan walks fast/faster
 ‘Jan is walking fast/faster.’
- b. Jan komt vaak/vaker bij zijn moeder.
 Jan comes often/more.often with his mother
 ‘Jan visits his mother often/more often.’

Haeseryn et al. (1997:454) contrast “spurious” adverbs such as *snel* ‘quick’ and *vaak* ‘often’ in (138) with true adverbs, which are invariant in form. They illustrate these “true” adverbs by means of the locational elements *buiten* ‘outside’ and *hier* ‘here’ in (139a). However, the fact that the form of *buiten* is invariant also follows if we assume that it is actually a preposition, just as *buiten* in *Jan speelt graag buiten het gebouw* ‘Jan likes to play outside the building’. Furthermore, the fact that *hier* ‘here’ in example (139b) is invariant is due to the fact that we are dealing with a proform: in this respect, locational pro-forms simply behave like pronouns such as *hij* ‘he’ and *hem* ‘him’. That we should not consider the elements *buiten* and *hier* to be adverbs is also supported by the fact that they can also be used in other syntactic functions; this is illustrated in the primed examples in (139) by means of the verb *zetten* ‘to put’, which obligatorily selects a °complementive.

- (139) a. Jan speelt graag *buiten*. a'. Jan zet de bloemen buiten.
 Jan plays gladly outside Jan puts the flowers outside
 ‘Jan likes to play outside.’ ‘Jan is putting the flowers outside.’
- b. Jan speelt *hier* graag. b'. Jan heeft de bloemen hier gezet.
 Jan plays here gladly Jan has the flowers here put
 ‘Jan likes to play here.’ ‘Jan has put the flowers here.’

Since lexical items used as adverbial phrases have no characteristic morphological features either, there is hardly any reason for assuming a separate category of adverbs for Dutch; they can normally be analyzed as a noun, as *morgen* ‘tomorrow’ in (137a), an adjective, as *snel* ‘fast’ and *vaak* ‘often’ in (138), or a preposition, as *buiten* ‘outside’ in (139a), while many of the remaining cases are pro-forms. We therefore provisionally conclude that the category of adverbs does not exist (although we will keep using this notion for convenience); we refer the reader to Section N8.2, A8, and P1.2.4 for more relevant discussion. Nevertheless, the following two sections will occasionally point out forms for which it is not easy and perhaps even impossible to determine to what category they belong: the existence of these forms shows that the question as to whether we need a separate category of adverbs is still not fully answered.

8.3.2. VP adverbials

VP adverbials can be adjectival, prepositional, nominal or clausal, as was already illustrated for temporal adverbials in example (136) in the introduction to Section 8.3. It is not the case, however, that all semantic subtypes discussed in Section 8.2 are as versatile in this respect as temporal adverbials: the following subsections will discuss the restrictions on the manifestation of the various subtypes.

I. Process Adverbials

Manner adverbials are prototypically APs, although example (140a) shows that it is sometimes also possible to realize them as PPs. The (b)-examples show that there are two proforms that can be used as manner adverbs: deictic *zo* ‘in this way’ and interrogative *hoe* ‘how’.

- (140) a. Jan heeft het hek *zorgvuldig/met veel zorg* geschilderd. [manner]
 Jan has the gate carefully/with great care painted
 ‘Jan has painted the gate carefully/with great care.’
- b. Met veel zorg, *zo* heeft hij het hek geschilderd. [deictic]
 with great care so has he the gate painted
 ‘With great care, in this way he has painted the gate.’
- b'. *Hoe* heeft hij het hek geschilderd? Met veel zorg. [interrogative]
 how has he the gate painted with great care
 ‘How has he painted the gate? With great care.’

Adverbials indicating instrument or means are prototypically realized as a *met*-PP, as in (141a), although Section 8.2.1, sub I, has shown that other prepositions are occasionally used as well. The (b)-examples in (141) show that the pronominal counterpart of these adverbials is normally a pronominal PP like deictic *daarmee* ‘with that’ or interrogative/relative *waarmee* ‘with what’, but it is also possible to use the interrogative proform *hoe* ‘how’. Deictic *zo* seems occasionally to be possible as well but this is clearly a marked option.

- (141) a. Jan heeft het gat *met een schep/zand* gevuld. [instrument/means]
 Jan has the hole with a shovel/sand filled
 ‘Jan has filled the hole with a shovel/sand.’
- b. Jan heeft het gat *daarmee* gevuld. [deictic]
 Jan has the hole with.that filled
 ‘Jan has filled the hole with that.’
- b'. *Waarmee/Hoe* heb je dat gat gevuld? Met een schep/zand. [interrogative]
 with.what/how have you that hole filled with a shovel/sand
 ‘With what/how have you filled that hole? With a shovel/sand.’

Volitional adverbials are again prototypically APs, although (142a) shows that they occasionally may surface as PPs as well. The (b)-examples show once more that deictic *zo* ‘in this way’ and interrogative *hoe* ‘how’ can be used as adverbial proforms.

- (142) a. Jan heeft zijn bekentenis *gedwongen/onder dwang* afgelegd. [volitional]
 Jan has his confession forced/under pressure prt.-reported
 ‘Jan has confessed under pressure.’
- b. Onder dwang, *zo* heeft Jan zijn bekentenis afgelegd. [deictic]
 under pressure so has Jan his confession prt.-reported
- b'. *Hoe* heeft Jan zijn bekentenis afgelegd? Onder dwang. [interrogative]
 how has Jan his confession prt.-reported under pressure

Domain adverbials such as *syntactisch* ‘syntactically’ in (143a) are APs. The (b)-examples show that deictic *zo* ‘in this way’ and interrogative *hoe* ‘how’ are used as adverbial proforms in this case.

- (143) a. Jan beschrijft de adverbia *syntactisch/morfologisch*. [domain]
 Jan describes the adverbs syntactically/morphologically
 ‘Jan is describing the adverbs syntactically/morphologically.’
- b. Syntactisch, *zo* beschrijft Jan de adverbia. [deictic]
 syntactically so describes Jan the adverbs
- b’. *Hoe* beschrijft Jan de adverbia, syntactisch of morfologisch? [interrogative]
 how describes Jan the adverbs syntactically or morphologically
 ‘How does Jan describe the adverbs: syntactically or morphologically?’

This subsection has shown that process adverbials are normally adjectival or prepositional in nature. The adverbial proforms corresponding with the adjectival forms are deictic *zo* ‘in this way’ and interrogative *hoe* ‘how’. These proforms can generally also be used to refer to or to question process adverbials in the form of a PP, although *daarmee* ‘with that’ and *waarmee* ‘with what’ are clearly the preferred forms for adverbial *met*-PPs.

II. Agentive adverbials

Agentive adverbials always have the form of a PP, such as the passive *door*-PP in (144a) or the comitative *met*-PP in (144b). There are no specialized proforms; pronominalization is done by replacing the nominal complement of the preposition by a pronoun.

- (144) a. Het pakket wordt *door Jan/hem* bezorgd. [agentive]
 the parcel is by Jan/him delivered
 ‘The parcel is delivered by Jan/him.’
- a’. *Door wie* wordt het pakket bezorgd?
 by whom is the parcel delivered
- b. Jan heeft *met Els/haar* het museum bezocht. [comitative]
 Jan has with Els/her the museum visited
 ‘Jan has visited the museum with Els/her.’
- b’. *Met wie* heeft Els het museum bezocht?
 with whom has Els the museum visited

III. Spatio-temporal adverbials

Locational and temporal adverbials may take various forms: temporal adverbials especially are quite free in this respect. The possible manifestations of these adverbials will be discussed in separate subsections.

A. Locational adverbials

Locational adverbial phrases are prototypically PPs. The prepositions in these adverbial phrases typically function as two-place predicates locating the event in a specific place. The adverbial phrase *in de tuin* ‘in the garden’ in (145a), for instance, expresses that event *e* of Jan playing takes place in the garden, while *onder de boom* ‘under the tree’ in (145b) expresses that it takes place under the tree;

this can be expressed in logical notation by, respectively, IN(e,garden) and UNDER(e,tree). We will not discuss here the various spatial relations expressible by prepositions, but refer the reader to Section P.1.3 for a detailed discussion of this. Observe that prepositional phrases like *buiten/binnen* ‘outside/inside’ and *boven/beneden* ‘upstairs/downstairs’ can be (pseudo-)intransitive and therefore surface as particles; we will not discuss this here but refer the reader to P1.2.4 for extensive discussion.

- (145) a. Jan heeft in the tuin gespeeld.
 Jan has in the garden played
 b. Jan heeft onder de boom gespeeld.
 Jan has under the tree played

The proforms associated with place adverbials are typically °R-words: see P5.1 for discussion. All forms in (146) can be used to replace the adverbial PPs in (145). It should be noticed, however, that these forms are not specifically used as adverbials, but can also be used as °complementives; referring to these R-words as adverbs would therefore not do justice to their actual use.

- (146) a. Referential: *er* ‘there’
 b. Demonstrative: *hier* ‘here’, *daar* ‘there’
 c. Interrogative/relative: *waar* ‘where’
 d. Quantificational: *overal* ‘everywhere’, *ergens* ‘somewhere’, *nergens* ‘nowhere’

A special proform-like element is the somewhat bookish form *elders* ‘elsewhere’, which is not part of the set of R-words. The fact that this form can also be used as the complement of a directional preposition such as *naar* suggests that it is actually nominal.

- (147) De piraat heeft de schat naar elders gebracht.
 the pirate has the treasure to somewhere/else taken
 ‘The pirate took the treasure to some other place.’

The R-words in (146) are also used in the formation of pronominal PPs, which can likewise be used as locational adverbials, so that we may find the two examples in (148) next to each other with virtually the same meaning. Again it would be wrong to call the pronominal PPs adverbs because they can also be used as complementives.

- (148) a. Jan heeft daar gespeeld. [daar = onder de boom]
 Jan has there played
 b. Jan heeft daaronder gespeeld. [daar = de boom]
 Jan has under.it played

B. Temporal adverbials (*punctual*)

Time adverbials are probably the most versatile adverbials when it comes to their categorial form. The examples in (149), repeated from the introduction to Section 8.3, show that they can be adjectival, prepositional, nominal or clausal. We will not

digress on these forms here as these are extensively discussed in Sections A8.2.1.4, P.1.3.2, N8.3.1, and P2.4.1.

- (149) a. Jan gaat erg vroeg weg. [adjective phrase]
 Jan goes very early away
 ‘Jan is leaving very early.’
- b. Jan gaat voor zonsopgang weg. [prepositional phrase]
 Jan goes before sunrise away
- c. Jan gaat volgende week weg. [noun phrase]
 Jan goes next week away
- d. Jan gaat weg voordat de zon opkomt. [clause]
 Jan goes away before the sun prt.-rises

The examples in (150) show that the interrogative proform *wanneer* ‘when’ is used in questions, while *dat* is used in relative clauses; in the latter case, it is often also possible to use a pronominal PP.

- (150) a. Wanneer gaat Jan weg? [interrogative]
 when goes Jan away
 ‘When is Jan leaving?’
- b. Els denkt aan de tijd dat/waarin ze in Utrecht werkte. [relative]
 Els thinks of the time that/where.in she in Utrecht worked
 ‘Els is thinking of the time when she worked in Utrecht.’

There are various specialized deictic forms which locate eventuality *k* expressed by the clause with respect to some syntactically specified or contextually determined time, which we will loosely refer to as ANCHOR TIME *t*: (151) shows that *k* can be (virtually) simultaneous with *t*, or be anterior or posterior to it.

- (151) a. Simultaneous ($k \approx t$): *direct* ‘at once’, *nu/nou* ‘now’, *onmiddellijk* ‘immediately’, etc.
- b. Anterior ($k < t$): *net* ‘only just’, *pas* ‘only just’, *toen* ‘then’, *zoëven/zojuist* ‘just now’, *vroeger* ‘in earlier times’, etc.
- c. Posterior ($k > t$): *aanstands* ‘presently’, *binnenkort* ‘before long’, *dadelijk* ‘in a moment’, *dan* ‘then’, *gauw* ‘soon’, *spoedig* ‘soon’, *straks* ‘later’, etc.

The discussion of the deictic forms in (151) takes as its point of departure the claim from binary tense theory that present-tense interval *i* includes speech time *n*, while past-tense interval *i* includes a virtual speech-time-in-the-past *n'*, where *n'* precedes *n*; cf. Section 1.5.1. Furthermore, the discussion encompasses the conclusion from Section 1.5.4 that the default interpretation of the present/past tense is that the so-called present *j* of eventuality *k* also includes *n/n'*, and that *k* is located at *n/n'* in the simple present/past while it precedes *n/n'* in the present/past perfect. That these default readings can be overridden by, e.g., adverbial modification shows that we are dealing with pragmatics, not semantics. The default readings can be observed most easily in the simple-present tense: without an indication to the contrary, (152a) is interpreted such that eventuality *k* of Jan reading the book occurs at *n*. This default reading is overridden by temporal

adverbials such as *morgen* ‘tomorrow’ in (152b), which locates *j* in a position following *n*, as a result of which eventuality *k* is also located after *n*.

- (152) a. dat Jan het boek leest. [default: *j* includes *n*]
 that Jan the book reads
 ‘that Jan is reading the book.’
 b. dat Jan morgen (waarschijnlijk) het boek leest. [*j* follows *n*]
 that Jan tomorrow probably the book reads
 ‘that Jan will (probably) read the book tomorrow.’

Similar effects can be observed in the examples in the present-perfect tense in (153). Without an indication to the contrary, (153a) will be interpreted such that eventuality *k* of Jan reading the book was completed before *n* so that the resulting state of Jan having read the book occurs at *n*. Again, the temporal clause adverbial *morgen* ‘tomorrow’ overrides this default reading and locates the present *j* of *k* in a position following *n*; as a result, (153b) cannot be used to express that eventuality *k* was completed before *n* so that the resulting state can only occur after *n*. We refer the reader to Section 8.2.3 for a more detailed summary and further discussion.

- (153) a. dat Jan het boek heeft gelezen. [default: *j* precedes *n*]
 that Jan the book has read
 ‘that Jan has read the book.’
 b. dat Jan morgen (waarschijnlijk) het boek heeft gelezen. [*j* follows *n*]
 that Jan tomorrow probably the book has read
 ‘that Jan (probably) will have read the book tomorrow.’

The mechanisms determining the default and non-default readings of the present/past tenses outlined above also play a role in the interpretation of the deictic adverbial forms in (151). We start by illustrating this for the forms in (151a), which express that eventuality *k* occurs more or less simultaneously with anchor time *t*. The default reading of the simple-present example in (154a) is that eventuality *k* occurs more or less simultaneously with speech time *n*. We therefore expect that its past tense counterpart in (154b) expresses that eventuality *k* occurs more or less simultaneously with virtual speech-time-in-the-past *n'*, but this is only partly borne out: while *direct* ‘directly’ and *onmiddellijk* ‘immediately’ indeed meet this expectation, *nu* ‘now’ does not. This contrast suggests that we should distinguish between tense-sensitive and speaker-oriented adverbials: while tense-sensitive adverbials like *direct* and *onmiddellijk* locate *k* relative to *n* or *n'* depending on the tense of the clause, the speaker-oriented adverbial *nu* always locates *k* relative to *n*.

- (154) a. Jan vertrekt *direct/onmiddellijk/nu*. [*k* occurs approximately at *n*]
 Jan leaves at.once/immediately/now
 ‘Jan is leaving at once/immediately/now.’
 b. Jan vertrok *direct/onmiddellijk/*nu*. [*k* occurs approximately at *n'*]
 Jan left at.once/immediately/now
 ‘Jan left at once/immediately.’

The readings of the examples in (154), according to which eventuality *k* is located approximately at *n/n'* are default readings, which can again be overridden by the

use of temporal adverbials that shift anchor time t to some position on the time axis other than n/n' . This is illustrated by the examples in (155), in which eventuality k expressed by the matrix clause is located at approximately the same position on the time axis as eventuality k' expressed by the adverbial clause: the events of Jan leaving and Marie entering occur more or less simultaneously. The interpretative effect of this is clearest in the present-tense example (155a): because Marie's entering follows n , Jan's leaving will also be located after n . As a result, the speaker-oriented adverbial *nu* 'now' also gives rise to an infelicitous result in (155a) unless, perhaps, the entering of Marie is expected to occur approximately at speech time n , too. From the resulting contrast between (154a) and (155a), we can conclude that the distribution of *nu* is not determined by past/present-tense marking as such but by the location of anchor time t on the time axis. Example (155b) illustrates essentially the same thing for the past tense.

- (155) a. Wanneer Marie binnenkomt, vertrekt Jan direct/onmiddellijk/*nu.
 when Marie inside.comes leaves Jan at.once/immediately/now
 'When Marie enters, Jan will be leaving at once/immediately.'
 b. Toen Marie binnenkwam, vertrok Jan direct/onmiddellijk/*nu.
 when Marie inside.came left Jan at.once/immediately/now
 'When Marie entered, Jan left at once/immediately.'

Now consider the anterior adverbials in (151b), which express that eventuality k expressed by the clause is located before anchor time t : t is again taken by default as n/n' in simple-present/past tense clauses. The examples in (156) show that *net* 'only just' and *pas* 'only just' are clear cases of tense-sensitive adverbials: while k occurs immediately before n/n' in (156a), it is located before eventuality k' expressed by the adverbial clauses in the (b)-examples. The interpretative effect is again clearest in the present tense: because the event of Jan arriving follows n in (156b) the state of Jan being away is also located after n .

- (156) a. Peter is/was net weg. [k precedes n/n']
 Peter is/was just away
 'Peter has/had just left.'
 b. Peter is net weg als Jan aankomt. [k precedes t]
 Peter is just away when Jan prt.-arrives
 'Peter has just left when Jan arrives.'
 b'. Peter was net weg toen Jan binnen kwam. [k precedes t]
 Peter was just away when Jan came in
 'Peter had just left when Jan came in.'

The examples in (157) show again that we should make a distinction between tense-sensitive and speaker-oriented adverbials. Contrary to *net* in (156), the adverbials *zojuist* and *zoëven* in (157a) seem to be intrinsically anchored at speech time n : their interpretation is independent of the tense of the clause, as they simply locate eventuality k at some time just before n . That these adverbials cannot be used to locate k with respect to an anchor time other than n is clear from the fact illustrated in the (b)-examples that they cannot co-occur with adverbials introducing such an alternative anchor time t .

- (157) a. Jan is zojuist/zoëven vertrokken. [k precedes n]
 Jan is just.now left
 ‘Jan has just left.’
- b. Jan was zojuist/zoëven hier (*toen Peter vertrok). [k precedes n]
 Jan was just.now here when Peter left
 ‘Jan was here just now.’
- b'. *Jan is zojuist/zoëven hier (als Peter vertrekt). [k does not precede n]
 Jan is just.now here when Peter leaves

That speaker-oriented adverbials cannot co-occur with adverbials introducing an anchor time other than *n* also accounts for the fact that *zojuist/zoëven* cannot occur in clauses in the simple present, as, for pragmatic reasons, such clauses do not allow *k* to be located in the actualized part of the present-tense interval. These adverbials thus behave like nominal modifiers such as *gisteren* ‘yesterday’ and *verleden week* ‘last week’; this is illustrated in (158) for the speaker-oriented adverbial *toen* ‘then’.

- (158) a. Jan was toen/gisteren/verleden week hier. [simple past]
 Jan was then/yesterday/last week here
 ‘Jan was here then/yesterday/last week.’
- b. *Jan is toen/gisteren/verleden week hier. [simple present]
 Jan is then/yesterday/last week here

The posterior adverbials in (151c) are even more restricted in that they all seem to be anchored by speech time *n*: it is very hard to find or even construct examples in which they occur in past-tense clauses. These adverbials thus behave essentially the same as nominal modifiers such as *morgen* ‘tomorrow’ and *volgende week* ‘next week’.

- (159) a. Jan bezoekt Marie binnenkort/morgen/volgende week. [present tense]
 Jan visits Marie soon/tomorrow/next week
 ‘Jan will visit Marie soon/tomorrow/next week.’
- b. *Jan bezocht Marie binnenkort/morgen/volgende week. [past tense]
 Jan visited Marie soon/tomorrow/next week

Now that we have discussed the deictic adverbial forms in (151), we can continue with the discussion of the various specialized subordinators in (160) which are used to introduce temporal clauses. These subordinators can again be divided into three semantic groups by the way in which they locate eventuality *k* with respect to some anchor time *t*, that is, the time at which eventuality *k* introduced by the adverbial clause occurs: *k* can be simultaneous with *t/k*, or precede or follow it. We refer the reader to Section P2.4 for more information about the form of these subordinators.

- (160) a. Simultaneous ($k \approx t$): *als/wanneer* ‘when’, *terwijl* ‘while’, *toen* ‘when’, *zolang* ‘(for) as long as’, *nu* ‘now (that)’, *zodra/zo gauw (als)* ‘as soon as’
- b. Anterior ($k < t$): *alvorens* ‘before’, *eer(dat)* ‘before’, *tot(dat)* ‘until’, *voor(dat)* ‘before’
- c. Posterior ($k > t$): *na(dat)* ‘after’, *nu* ‘now (that)’, *zodra/zo gauw (als)* ‘as soon as’, *sinds/sedert* ‘since’, *toen* ‘when’

There are usually no restrictions on tense marking: the examples in (161a&b) show that all types of conjunctions can be used in present-tense and past-tense clauses. The relevant factor is merely the chronological order of the eventualities expressed by the matrix and the embedded clause. This may also account for the phenomenon that main and adverbial clauses must agree in present/past tense marking (the so-called SEQUENCE-OF-TENSE effect). The unacceptability of the (c)-examples in (161) may follow immediately from binary tense theory; by using non-agreeing tenses, the eventualities expressed by the main and the embedded clause are part of different tense intervals (namely, one in the present-tense interval and one in the past-tense interval), and this may make it impossible to linearize them. Note in passing that the adverbial clauses introduced by *nadat* sound somewhat marked but become perfectly natural in the perfect tense (*nadat hij gedanst heeft/had* ‘after he has/had danced’).

- (161) a. Jan speelt viool terwijl/voordat/[?]nadat hij danst. [present tense]
 Jan plays violin while/before/after he dances
 ‘Jan plays the violin while/before/after he dances.’
- b. Jan speelde viool terwijl/voordat/[?]nadat hij danste. [past tense]
 Jan played violin while/before/after he danced
 ‘Jan played the violin while/before/after he danced.’
- c. *Jan speelt viool terwijl/voordat/nadat hij danste. [no sequence-of-tense]
 Jan plays violin while/before/after he danced
- c’. *Jan speelde viool terwijl/voordat/nadat hij danst. [no sequence-of-tense]
 Jan played violin while/before/after he dances

The (a)-examples in (162) show that adverbial clauses introduced by *toen* ‘when’ are exceptional in that they can occur in past tense sentences only. Since the adverbial *nu* ‘now’ can only be used in present-tense clauses, we may expect something similar for adverbial clauses introduced by *nu* but the (b)-examples show that this is not borne out (although we should perhaps point out that examples such as (162b’) are only fully felicitous in narratives).

- (162) a. Toen Marie vertrok, kwam Jan binnen. [past tense]
 when Marie left came Jan inside
 ‘When Marie left, Jan came in.’
- a’. *Toen Marie vertrekt, komt Jan binnen. [present tense]
 when Marie leaves comes Jan inside
- b. Nu hij afgestudeerd is, kan hij gaan werken. [present tense]
 now.that he prt-graduated is can he go work
 ‘Now that he has graduated, he can start working.’
- b’. Nu hij afgestudeerd was, kon hij gaan werken. [past tense]
 now.that he prt-graduated was could he go work
 ‘Now that he was graduated, he could start working.’

A number of temporal subordinators are listed as simultaneous as well as posterior in (160). Haeseryn et al. (1997: section 10.3.3) noted that the interpretation of these elements is determined by the temporal properties of the adverbial clause. The examples in (163) show that the simultaneous reading arises when the adverbial

clause is in simple present/past tense, while the posterior reading arises if the clause is in perfect tense.

- (163) a. Zodra/Toen zij Peter zag, liep Els weg. [simultaneous]
 as.soon.as/when she Peter saw walked Els away
 ‘As soon as/When she saw Peter, Els walked away.’
- a’. Zodra/Toen zij Peter gezien had, liep ze weg. [posterior]
 as.soon.as/when she Peter seen had walked she away
 ‘As soon as/When she had seen Peter, she walked away.’
- b. Nu Marie Plato leest, vindt ze lezen weer leuk. [simultaneous]
 now Marie Plato reads finds she reading again fun
 ‘Now that Marie reads Plato, she considers reading fun again.’
- b’. Nu Marie Plato gelezen heeft, vindt ze lezen weer leuk. [posterior]
 now Marie Plato read has finds she reading again fun
 ‘Now that Marie has read Plato, she considers reading fun again.’

C. Temporal adverbials (durational and frequentative)

Durational adverbials can be nominal, adjectival or prepositional.

- (164) a. Jan heeft [_{NP} de hele dag] gewerkt. [nominal]
 Jan has the whole day worked
 ‘Jan has worked all day.’
- b. Jan heeft [_{AP} (drie uur) lang] gewerkt. [adjectival]
 Jan has three hours long worked
 ‘Jan has worked for three hours.’
- c. Jan heeft [_{PP} gedurende de vergadering] geslapen. [prepositional]
 Jan has during the meeting slept
 ‘Jan has slept during the meeting.’

There are many forms expressing frequency: *nooit* ‘never’, *eens* ‘one time’, *soms* ‘sometimes’, *vaak* ‘often’, *meestal/doorgaans/telkens* ‘generally’, *altijd* ‘always’. It is often difficult to determine the categorial status of these forms: we can only say for certain that *vaak* ‘often’ and *veel* ‘a lot’ are adjectives given that they can also occur in comparative and superlative form: *vaak* - *vaker* - *het vaakst*; *veel* - *meer* - *het meest*). Note in passing that it is not obvious that these forms can indeed be used as VP adverbials: because examples such as (165a) do not easily allow the PRONOUN *doet dat* + ADVERB paraphrase but do allow the scope paraphrase, we are probably dealing with clause adverbials.

- (165) a. Jan lacht vaak/soms.
 Jan laughs often/sometimes
 ‘Jan laughs often/sometimes.’
- b. Jan lacht en hij doet dat [?]vaak/*soms.
 Jan laughs and he does that often/sometimes
- b’. Het is vaak/soms zo dat Jan lacht.
 it is often/sometimes the.case that Jan laughs

The examples in (166) show that there are clear cases in which nominal phrases are used as VP adverbials: these adverbials are normally formed by means of the noun

keer/maal ‘time(s)’ preceded by a cardinal numeral *n*. The examples in (166b&c) show that (166a) can easily be paraphrased by means of a *PRONOUN* *doet dat* + *ADVERB* clause, while it does not allow the scope paraphrase.

- (166) a. Jan belt (waarschijnlijk) drie keer.
 Jan rings probably three times
 ‘Jan (probably) rings three times.’
 b. Jan belt (waarschijnlijk) en hij doet dat drie keer.
 Jan rings probably and he does that three times
 b’. Het is waarschijnlijk <*drie keer> zo dat Jan <drie keer> belt.
 it is probably three times the.case that Jan rings

IV. Contingency: cause, reason, purpose, result, concession

Contingency adverbials prototypically are clauses introduced by one of the subordinators in (167); some of the subordinators are morphologically complex and we refer the reader to Section P2.4.1 for more information about their formation.

- (167) a. Cause and reason: *omdat* ‘because’, *doordat* ‘because’, *aangezien* ‘since’
 b. Purpose and result: *opdat* ‘so that’, *om* ‘in order to’, *zodat* ‘so that’
 c. Concessive: *ondanks dat* ‘despite that’

Some concrete examples of adverbial contingency clauses are provided in (168). Contingency adverbials may also take the form of a PP: causes can be expressed by *door*-PPs, purposes/results by *voor*-PPs, reasons by *vanwege*-PPs, and concessions by *ondanks*-PPs. To avoid repetition, we refer the reader to Section 8.2.1, sub IV, for PP-examples.

- (168) a. De computer werkt niet *doordat de harde schijf vol is*. [cause]
 the computer works not because the hard disc full is
 ‘The computer doesn’t work because the hard disc is full.’
 b. Jan zingt *omdat hij vrolijk is*. [reason]
 Jan sings because he merry is
 ‘Jan is singing because he’s merry.’
 c. Jan ruimt zijn kamer op *zodat Els daar kan werken*. [purpose/result]
 Jan clears his room prt. so.that Els there can work
 ‘Jan is clearing up his room so that Els can work there.’
 d. Jan heeft de griep *ondanks dat hij ingeënt is*. [concession]
 Jan has the flue despite that he prt.-vaccinated has.been
 ‘Jan has the flue despite the fact that he has been vaccinated.’

Interrogative and deictic contingency adverbials generally have the form of a pronominalized PP: *waardoor/daardoor* ‘as a result of what/that’, *waarom/daarom* ‘for which/that reason’ *waartoe/daartoe* ‘to what/that purpose’, *waarvoor/daarvoor* ‘for which/that reason’. These forms may feel somewhat lexicalized, but their PP origin is still undeniable: this is especially clear in the case of causes, as these appear in the form of a regular PP if the cause is [+HUMAN] such as *door wie/hem* ‘by who/him’. Another fact illustrating this is that adverbials of concession do not appear in the form of a pronominalized PP due to the fact that *ondanks* ‘in spite of’

never allows R-pronominalization; the interrogative form is *ondanks wat* ‘in spite of what’, while the deictic form is the lexicalized form *desondanks* ‘in spite of that’.

V. *Predicate-degree*: *erg* ‘very’; *een beetje* ‘a bit’

We can be brief on predicate-degree adverbials because Section 8.2.1, sub V, has already shown that a subset of the degree adverbs may also be used to modify verbal predicates: prototypical cases are *erg* ‘very’ and *een beetje* ‘a bit’. Occasionally, degree adverbials may also occur in the form of a clause. These cases are all idiomatic, as can be seen in (169): the first two examples have a resultative ring about them, while the third is clearly based on a metaphor. For detailed discussion of degree modifiers we refer the reader to Klein (1997).

- (169) a. Hij liegt *dat hij barst*.
 he lies that he cracks
 ‘He lies till he is black in the face.’
- b. Het regent *dat het giet*.
 it rains that it pours
 ‘It’s raining cats and dogs.’
- c. Hij liegt *alsof het gedrukt staat*.
 he lies as.if it printed is
 ‘He lies till he is black in the face.’

8.3.3. Clause adverbials

Section 8.3.2 has shown that most VP adverbials can surface in various forms: they can generally appear in an adjectival or prepositional form, and in some cases they can even be nominal or clausal. Since VP adverbials are typically phrasal, they can be formed productively. This also holds true for locational, temporal and contingency clause adverbials: they do not differ in essential ways from their counterparts functioning as VP adverbials. However, many clause adverbs are quite restricted when it comes to form, as is clear from the fact that in many cases they constitute a closed class of lexical elements, and it is therefore not surprising that precisely these elements are often considered to belong to a category of adverbs. Consider again the subclasses of clause adverbials in (170), taken from Section 8.2.2.

- (170) a. Polarity: negation (*niet* ‘not’); affirmation (*wel*)
 b. Focus particles: *alleen* ‘only’, *ook* ‘too’, *zelfs* ‘even’, etc.
 c. Aspectual: habitual; iterative; frequentative; continuative; etc.
 d. Clause-degree (*bijna* ‘nearly’; *amper* ‘hardly’, etc.)
 e. Propositional modal (*waarschijnlijk* ‘probably’; *blijkbaar* ‘apparently’)
 f. Subject-oriented (*stom genoeg* ‘stupidly’, *wijselijk* ‘wisely’, etc.)
 g. Subjective: factive (*helaas* ‘unfortunately’); non-factive
 h. Point-of-view (*volgens Els* ‘according to Els’)
 i. Spatio-temporal: place; time
 j. Contingency: cause; reason; condition; concession
 k. Domain (*juridisch gezien* ‘legally’, *moreel gezien* ‘morally’, etc.)
 l. Conjunctive (*echter* ‘however’, *derhalve* ‘therefore’, etc.)
 m. Speech-act related (*eerlijk gezegd* ‘honestly’, etc.)

POLARITY adverbials clearly constitute a closed class; it only contains the negative element *niet* ‘not’ and the affirmative element *wel*. These are normally considered adverbs, as it is not so easy to find decisive arguments to place them into one of the four major lexical categories. The same holds for the FOCUS PARTICLES in (170b): they constitute a relatively small set, and again it is difficult, if not impossible, to show that they belong to one of the major lexical categories. The categorial status of some of the ASPECTUAL adverbs is not difficult to detect: habitual *gewoonlijk* ‘usually’ and frequentative *vaak* ‘often’ are clearly adjectival, while *drie maal* ‘three times’ is clearly nominal. However, there are also many cases for which the category is less easy to determine; specific examples are continuative *nog* (*steeds*) ‘still’, terminative *niet meer* ‘no longer’, iterative *weer* ‘again’, and *al* ‘already’.

CLAUSE-DEGREE adverbials again constitute a more or less closed class: *bijna* ‘nearly’, *amper* ‘hardly’, *haast* ‘nearly’. Some of these elements can also be used as degree modifiers of adjectives but it is again difficult to determine whether they belong to one of the major lexical classes. This is easier for adverbials expressing PROPOSITIONAL MODALITY, which are recognizable as adjectives because of their morphological form in many cases: they are often derived by suffixes like *-(e)lijk* and *-baar*, and can sometimes be preceded by the negative prefix *on-*.

- (171) a. Epistemic adverbials: *gegarandeerd* ‘certainly’, *misschien* ‘maybe’, *mogelijk* ‘possibly’, *natuurlijk* ‘naturally/of course’, *noodzakelijk(erwijs)* ‘necessarily’, *ongetwijfeld* ‘undoubtedly’, *vermoedelijk* ‘supposedly’, *waarschijnlijk* ‘probably’, *zeker* ‘certainly’, etc.
 b. Evidential adverbials: *blijkbaar* ‘evidently’, *duidelijk* ‘clearly’, *evident* ‘evidently’, *kennelijk* ‘obviously’, *klaarblijkelijk* ‘apparently’, *ogenschijnlijk* ‘apparently’, *onmistakbaar* ‘unmistakably’, *schijnbaar* ‘seemingly’, *vermoedelijk* ‘probably’, *zichtbaar* ‘visibly/evidently’, etc.

It should be noted, however, that the adjectives in (171) often exhibit restricted behavior when they are used adverbially. For instance, the examples in (172) show that while it is easily possible to question *waarschijnlijk* if used as complementive, this is not possible when it is used adverbially. It does not seem to be the case that this restriction is syntactic in nature, however: modal adverbials are often considered speaker-oriented in the sense that they provide the speaker’s evaluation, and it is therefore not likely that the speaker will question such a modal.

- (172) a. Dit is zeer waarschijnlijk. a'. Hoe waarschijnlijk is dit?
 this is very likely how likely is this
 b. Jan gaat zeer waarschijnlijk weg. b'. *Hoe waarschijnlijk gaat Jan weg?
 Jan goes very probably away how probably goes Jan away
 ‘Jan is quite probably leaving.’

It is less easy to explain that the adverbially used adjectives exhibit restrictions on modification that are not found in their attributively/predicatively used counterparts. For instance, while the primeless examples in (172) show that *waarschijnlijk* can be modified by the intensifier *zeer* ‘very’ regardless of its syntactic function, the intensifier *erg* ‘very’ or the downtoner *vrij* ‘fairly’ in the (a)-examples in (173) give rise to marked results when *waarschijnlijk* is adverbial. The (b)-examples show that

similar observations can be made with respect to comparative formation. The (c)-examples show that the adverbially used adjective is also more restricted than its attributively/predicatively used counterpart in that it does not allow *on-* prefixation.

- (173) a. Dit is erg/vrij waarschijnlijk.
 this is very/fairly probable
 a'. Jan gaat ^{??}erg/vrij waarschijnlijk weg.
 Jan goes very/fairly probably away
 b. Dit is waarschijnlijker (dan dat).
 this is more.probable than that
 b'. *Jan gaat waarschijnlijker weg (dan Peter).
 Jan goes more.probably away than Peter
 c. Dit is onwaarschijnlijk.
 this is improbable
 c'. *Jan gaat onwaarschijnlijk weg.
 Jan goes improbably away

A special case worth mentioning in passing is *soms*, which is normally used as a frequency adverbial but also occurs as an epistemic modal in questions.

- (174) Bent u *soms* ziek?
 are you perhaps ill
 'Are you ill, perhaps?'

SUBJECT-ORIENTED adverbials are clearly adjectival, but are nevertheless severely restricted in form: they are normally followed by the modifying element *genoeg* 'enough', formed by the unproductive deadjectival suffix *-elijk*, or involve other less productive formations like *domweg* 'stupidly' and *botweg* 'bluntly/rudely'; see Diepeveen (2012) for relevant discussion of these deadjectival forms (as well as some of the other complex adverbial forms mentioned later in this section).

- (175) a. Jan ging *dom* (**genoeg*) niet naar het feest.
 Jan went stupid enough not to the party
 'Jan stupidly didn't go to the party.'
 b. Jan ging *wijselijk*/^{??}*wijs* niet naar het feest.
 Jan went wisely/wise not to the party
 'Jan wisely didn't go to the party.'

SUBJECTIVE adverbials are probably also adjectival in nature, as is clear from the fact that *gelukkig* 'fortunately' and *vanzelfsprekend* 'obviously/self-evidently' are run-of-the-mill adjectives. This stance is further supported by the fact that these adverbials are sometimes modified by the element *genoeg* or formed by means of the deadjectival suffixes *-erwijs* and *-lijk*: cf. *jammer genoeg* 'regrettably', *begrijpelijk(er)wijs* 'understandably', and *hopelijk* 'hopefully'. It is, however, difficult to demonstrate this for the form *helaas* 'unfortunately'. Note that these adverbials are speaker-oriented in that they provided the speaker's evaluation, and it is therefore understandable that these adverbials cannot be questioned.

POINT-OF-VIEW adverbials are prototypically PPs headed by *volgens* ‘according to’; other cases are the PP *naar mijn mening* ‘in my opinion’ and the formulaic case-marked form *mijns inziens* ‘in my view’. We can also be brief about the SPATIO-TEMPORAL clause adverbials as they exhibit the same freedom in form as their counterparts functioning as VP adverbials; we can therefore refer the reader to the discussion in Section 8.3.2, sub III. More or less the same holds for the CONTINGENCY adverbials; we only have to add to the discussion in Section 8.3.2, sub IV, that conditional adverbials are typically expressed by a clause introduced by a subordinator such as *indien* ‘in the event of’, *mits* ‘provided that’, or *tenzij* ‘unless’. Note in passing that conditional clauses introduced by *mits/tenzij* can only be used in the right periphery of the clause. Occasionally, we also find (deictic) conditional PPs: cf. *Onder deze voorwaarde mag hij komen* ‘He may come on this condition’.

- (176) a. *Indien hij wil komen, moet hij me opbellen.*
 if he wants come must he me prt.-call
 ‘If he wants to come, he should call me.’
 b. *Hij mag komen mits hij het me tijdig zegt.*
 he may come provided he it me in.time tells
 ‘He can come provided he tells me in time.’

The prototypical case of a conditional clause is probably a clause introduced by *als* ‘if’. It should be noted, however, that there is reason to believe that such conditional clauses are at least sometimes in extra-sentential position and should therefore not be analyzed as adverbials. This is quite clear from (177a), in which the first position of the main clause is filled by the resumptive proform *dan* ‘then’. Example (177b) further shows that such conditional clauses are special in that they alternate with V1-clauses; we will not digress on this point here but refer the reader to Section 10.3.2 for an extensive discussion of examples such as (177) as well as various related constructions.

- (177) a. *Als het morgen regent, dan ga ik naar de bioscoop.*
 if it tomorrow rains then go I to the cinema
 ‘If it rains tomorrow, I’ll go to the cinema.’
 b. *Regent het morgen, dan ga ik naar de bioscoop.*
 rains it tomorrow then go I to the cinema
 ‘If it rains tomorrow, I’ll go to the cinema.’

Section 8.2.2, sub XI, has already shown that DOMAIN adverbials are normally adjectival, although it is also quite common to use phrases headed by a past/passive participle. This is illustrated again in (178).

- (178) a. *Theoretisch (gezien) is dat inderdaad te verwachten.*
 theoretically seen is that indeed to expect
 ‘Theoretically (seen), that is indeed to be expected.’
 b. *Juridisch (gesproken) heeft hij gelijk.*
 legally spoken has he correct
 ‘Legally (speaking), he’s right.’

SPEECH-ACT RELATED adverbials such as *eerlijk gezegd* ‘honestly’ are generally expressed by a phrase consisting of a participle verb modified by a manner adverb; omission of the past/passive participle will give rise to an unacceptable result.

- (179) Eerlijk (*gezegd) begrijp ik dat niet.
 honestly said understand I that not
 ‘Honestly speaking, I don’t understand it.’

Finally, CONJUNCTIVE adverbials like *echter* ‘however’ and *derhalve* ‘therefore’ again seem to make up a more or less closed set of elements; see Section 8.2.2, sub XII, for a representative sample of such adverbials.

This subsection has provided a brief review of the restrictions on the form of clause adverbials; we have shown that with the exception of the spatio-temporal and contingency adverbials, clause adverbials exhibit less variation in form than VP adverbials. Furthermore, clause adverbials seem to be subject to various idiosyncratic restrictions and tend to be part of lexically closed classes, which has motivated earlier claims in the literature that a separate category of adverbs should be recognized; see Section 8.3.1 for discussion.

8.4. The unmarked order of adverbial modifiers

This section discusses the unmarked order of adverbial phrases. Establishing this order is not an easy task since the placement of adverbials exhibits a certain amount of freedom; adverbials are like most clausal constituents in that they may undergo various kinds of movement. Subsection I reviews a number of movement processes that may affect the surface order of adverbials, so as to restrict the discussion in such a way that we eliminate their interference as much as possible. Because it is relatively uncontroversial that VP adverbials follow clause adverbials in the unmarked order, we will be able to split our investigation into two parts: Subsections II and III discuss the unmarked word order of various subtypes of VP adverbials and clause adverbials, respectively. For want of sufficiently detailed research, the results in this section should be seen as preliminary, as will also be clear from the fact that we will have to leave various questions open for the moment.

I. Movement operations affecting adverbials

This subsection will show that adverbials can undergo various kinds of movement, which complicates our investigation of the unmarked word order of adverbials considerably. We can curb the interference of movement, however, by investigating the order of adverbials in the °middle field of the clause only, thus eliminating the effects of *wh*-movement and extraposition discussed in Subsections A and B. This reduction leaves us with movement operations affecting the word order in the middle field, such as focus movement and weak proform shift; these movement operations will be briefly addressed in Subsections C and D.

A. Wh-movement (wh-question formation and topicalization)

Most adverbials are like other clausal constituents in that they can be moved into clause-initial position under certain conditions. This holds especially for adverbial phrases that can be questioned, as shown in (180) for three kinds of VP adverbials.

- (180) a. Hoe heb je geslapen? Erg goed! [manner]
 how have you slept very well
 ‘How did you sleep? Very well!’
- b. Waarmee heb je dat gat gevuld? Met zand. [means]
 with.what have you that hole filled with sand
 ‘With what have you filled that hole? With sand.’
- c. Met wie heb je gedanst? Met Jan. [comitative]
 with who have you danced with Jan
 ‘Who have you danced with? With Jan.’

It will be clear that this sort of movement may affect the relative word order of adverbials when more than one adverbial phrase is present. This is illustrated in (181) for temporal and comitative adverbials; although we will see that there is reason for assuming that temporal adverbials precede comitative adverbials in the unmarked order, *wh*-movement can easily reverse this order.

- (181) a. Jan heeft gisteren met Peter/'m gedanst.
 Jan has yesterday with Peter/him danced
 ‘Jan danced with Peter/him yesterday.’
- b. Met wie heeft Jan gisteren gedanst?
 with whom has Jan yesterday danced
 ‘With whom did Jan dance yesterday?’

Many adverbials that cannot be questioned can still be placed in sentence-initial position by topicalization. This holds, e.g., for modal adverbs; although Section 8.3.3 has shown that they cannot be questioned, the examples in (182) show that topicalization can change the unmarked order of the temporal clause adverbial *morgen* ‘tomorrow’ and the adverb *waarschijnlijk* ‘probably’.

- (182) a. Jan gaat morgen waarschijnlijk al om drie uur weg.
 Jan goes tomorrow probably already at 3 o'clock away
 ‘Jan will probably leave tomorrow at three o'clock already.’
- b. Waarschijnlijk gaat Jan morgen al om drie uur weg.
 probably goes Jan tomorrow already at 3 o'clock away

Note in passing that there are additional restrictions on *wh*-movement; the examples in (183) show, for instance, that while temporal VP adverbials may cross temporal clause adverbials in questions, this is more difficult in topicalization constructions. Since this kind of intervention effect has not been studied in detail, we leave the issue to future research.

- (183) a. Hoe laat gaat Jan morgen weg? Om drie uur.
 how late goes Jan tomorrow away at 3 o'clock
 ‘When will Jan leave tomorrow? At 3 o'clock.’
- b. ??Om drie uur gaat Jan morgen weg.
 at 3 o'clock goes Jan tomorrow away

For our present purpose, it suffices to say that the effects of *wh*-movement can be easily eliminated by restricting our attention to the relative order of adverbials in

the middle field of the clause; for a detailed discussion of *wh*-movement, we refer the reader to Section 11.3.

B. Extraposition

Another way of affecting the unmarked order of adverbials is by extraposition, which is especially common for adverbials of the category PP or clause. We will see later that there are grounds for assuming that contingency adverbials such as *vanwege het mooie weer* ‘because of the nice weather’ in (184a) precede comitative adverbials such as *met Els* ‘with Els’ in the unmarked order. Nevertheless, extraposition of the contingency adverbial can easily reverse this order, as shown in (184b). In fact, (184c) shows that simultaneous extraposition of the two adverbials also requires the order to be inverted, a phenomenon that has become known as the MIRROR EFFECT; cf. Koster (1974).

- (184) a. Jan is vanwege het mooie weer met Els gaan wandelen.
 Jan is because.of the nice weather with Els go walk
 ‘Jan has gone walking with Els because of the nice weather.’
- b. Jan is met Els gaan wandelen vanwege het mooie weer.
 Jan is with Els go walk because.of the nice weather
- c. Jan is gaan wandelen met Els vanwege het mooie weer.
 Jan is go walk with Els because.of the nice weather

For our present goal, it again suffices to say that the interference of extraposition can be easily eliminated by restricting our attention to the relative order of adverbials in the middle field of the clause; for a detailed discussion of extraposition including the mirror effect, we refer the reader to Chapter 12.

C. Focus movement

Even if we restrict our investigation to the middle field of the clause, we still have to deal with movement operations affecting the word order in this domain of the clause. One such movement operation is focus movement, which may move a contrastively focused phrase into a position preceding the negative clause adverb *niet* ‘not’. This is illustrated in (185), where focus accent is indicated by small caps.

- (185) a. Jan heeft niet met Marie gedanst.
 Jan has not with Marie danced
 ‘Jan hasn’t danced with Marie.’
- b. Jan heeft met MARIE niet gedanst (maar wel met ELS).
 Jan has with Marie not danced but AFF with Els
 ‘Jan hasn’t danced with MARIE (but he has with ELS).’

One way of excluding focus movement is by restricting our investigation to sentences with a neutral (non-contrastive) intonation pattern. With prepositional adverbial phrases it is often possible to exclude focus movement by using a weak pronoun as the complement of the preposition (or, alternatively, the weak pronominal PP *ermee* ‘with it’), as is illustrated in (186). For more information about focus movement, we refer the reader to Section 13.3.2.

- (186) Jan heeft <*met 'r> niet <met 'r> gedanst.
 Jan has with her not danced
 'Jan hasn't danced with her.'

D. Weak proform shift

Weak proforms strongly prefer placement in the left periphery of the middle field of the clause, regardless of their syntactic function. That this also holds for adverbial phrases is illustrated by means of the locational adverbs in (187): while placing the adverbial PP *in Leiden* in a position preceding the modal adverb *waarschijnlijk* 'probably' leads to a severely degraded result, the corresponding weak locational proform *er* must precede it.

- (187) a. Jan woont <*?, in Leiden> waarschijnlijk al jaren <in Leiden>.
 Jan lives in Leiden probably already years
 'Jan has probably been living in Leiden for years.'
 b. Jan woont <er> waarschijnlijk <*er> al jaren.
 Jan lives there probably already years
 'Jan has probably lived there for years.'

For our present purpose, it suffices to say that the effect of weak proform shift can be eliminated by simply excluding weak proforms from our investigation; for more discussion of weak proform shift, we refer the reader to Section 13.4.

E. Conclusion

This subsection has shown that the investigation of the unmarked order of adverbials is complicated by the fact that most adverbials are like other clausal constituents in that they can be moved under certain conditions. In order to eliminate the effects of movement as much as possible, we will restrict our investigation in the following subsections to the relative order of adverbials in the middle field of the clause. Furthermore, we will only discuss sentences with a neutral intonation pattern and avoid the use of weak adverbial proforms.

II. VP adverbials

This subsection discusses the unmarked order of the VP adverbials in (188). Since Cinque's (1999) seminal study on adverbial placement, it has often been claimed that the order of VP adverbials is essentially free. Schweikert (2005) and Cinque (2006) dismissed this claim, however, and argued that VP adverbials have a rigid underlying order. This section will show that this claim is indeed correct, although we will end up with somewhat different conclusions about the unmarked order of VP adverbials than the order proposed by Schweikert.

- (188) • VP adverbials
- a. Process: manner; instrument; means; volition; domain
 - b. Agentive: passive *door*-PP; comitative *met*-PP
 - c. Spatio-temporal: place; time
 - d. Contingency: cause, reason, purpose, result, concession
 - e. Predicate-degree: *erg* 'very'; *een beetje* 'a bit'

A. Process adverbials

We will investigate the unmarked order of the process adverbial by considering the placement of the various subtypes relative to adjectival manner adverbials such as *zorgvuldig* ‘carefully’. Although it is not difficult to find instrument/means adverbials to the left of manner adverbs, as illustrated in the primeless examples in (189), there is cause for assuming that this order is the result of focus movement: the primed examples show that their pronominalized counterpart *ermee* ‘with it’ cannot precede the manner adverb but has to follow it.

- (189) a. Jan heeft de ring *<met een kwast>* *zorgvuldig* *<met een kwast>* gereinigd.
 Jan has the ring with a brush carefully cleaned
 ‘Jan has cleaned the ring carefully with a brush.’
- a'. Jan heeft de ring *<*ermee>* *zorgvuldig* *<ermee>* gereinigd.
 Jan has the ring with.it carefully cleaned
 ‘Jan has cleaned the ring carefully with it.’
- b. Jan heeft *<met zand>* *zorgvuldig* het gat *<met zand>* gevuld.
 Jan has with sand carefully the hole filled
 ‘Jan has filled the hole carefully with sand.’
- b'. Jan heeft *<*ermee>* *zorgvuldig* het gat *<ermee>* gevuld.
 Jan has with.it carefully the hole filled
 ‘Jan has filled the hole carefully with it.’

Observe that pronominal PPs are preferably split, as in *Jan heeft er de ring zorgvuldig mee gereinigd* and *Jan heeft er zorgvuldig het gat mee gevuld*, but this is not relevant here. Since instrument and means adverbials do not easily co-occur, we will not discuss their relative order here.

Example (190a) shows that manner adverbs tend to precede domain adverbials under a non-contrastive intonation pattern: a Google search (11/3/2015) has shown that the order *medisch–grondig/zorgvuldig* occurred only 5 times, while the order *grondig/zorgvuldig–medisch* resulted in 50 hits. This finding is consistent with the fact that domain adverbials tend to follow instrumental PPs such as *met medicijnen* ‘with medicines’ in example (190b). Recall that the judgments given only hold under a non-contrastive intonation pattern: assigning focus accent to *medisch* much improves the marked order.

- (190) a. Jan is *<??medisch>* *grondig/zorgvuldig* *<medisch>* onderzocht.
 Jan has.been medically thoroughly/carefully examined
 ‘Jan has been thoroughly/carefully examined medically.’
- b. HIV kan *<??medisch>* *met medicijnen* *<medisch>* behandeld worden.
 HIV can medically with medicines treated be
 ‘HIV can be medically treated with medicines.’

Example (191a) finally shows that volition adverbials precede manner adverbs. By transitivity we can conclude that they will also precede the other process adverbials; that this conclusion is indeed correct is shown in (191b) for a means adverbial.

- (191) a. dat Jan zich <vrijwillig> intensief <*&u>vrijwillig> inzet voor de club.
 that Jan REFL voluntarily intensively labors for the club
 ‘that Jan voluntarily dedicates himself to the club intensively.’
 b. dat Jan het gat <?met zand> vrijwillig <met zand> vulde.
 that Jan the hole with sand voluntarily filled
 ‘that Jan voluntarily filled the hole with sand.’

The examples in this subsection thus suggest that the unmarked order of process adverbials is as follows: volition > manner > instrument/means > domain.

B. Agentive adverbials

The passive construction in (192b) clearly shows that passive *door*-phrases precede comitative *met*-phrases: inverting the order results in a severely degraded result.

- (192) a. dat Marie het artikel met Jan besprak.
 that Marie the article with Jan discussed
 ‘that Marie discussed the article with Jan.’
 b. dat het artikel <*door Marie*> met Jan <*&i>door Marie> besproken werd.
 that the article by Marie with Jan discussed was
 ‘that the article was discussed with Jan by Marie.’

Although it is not difficult to find agentive *door*-phrases to the left of manner adverbs, there is evidence that this order is the result of focus movement: example (193a) shows that the *door*-phrase must follow the manner adverb if the nominal complement of the preposition *door* is a weak pronoun. Since comitative *met*-PPs must follow agentive *door*-PPs, we expect by transitivity that they also follow manner adverbials in the unmarked order: example (193b) shows that this expectation is indeed borne out.

- (193) a. dat het gat <*door Jan*/*'m> zorgvuldig <*door Jan*/'m> gevuld werd.
 that the hole by Jan/him carefully filled was
 ‘that the hole was carefully filled by Jan/him.’
 b. dat Marie het probleem <*met Jan*/*'m> grondig <*met Jan*/'m> besprak.
 that Marie the problem with Jan/him thoroughly discussed
 ‘that Marie discussed the problem with Jan/him thoroughly.’

Example (194a) shows that comitative *met*-PPs precede instrument/means adverbials in the unmarked order: inverting the order gives rise to a degraded result regardless of the form of the nominal complement of the preposition *met*. Since comitative *met*-PPs follow agentive *door*-PPs in the unmarked order, we expect by transitivity that *door*-phrases also precede instrument/means adverbials; example (194b) shows that this expectation is also borne out.

- (194) a. dat Jan het gat met Marie/'r met zand vulde.
 that Jan the hole with Marie with sand filled
 ‘that Jan filled the hole with sand with Marie/her.’
 b. dat het gat *door Jan*/'m met zand gevuld werd.
 that the hole by Jan/him with sand filled was
 ‘that the hole was filled with sand by Jan/him.’

The examples in this subsection have established that in the unmarked case agentive adverbials are located between the manner and the instrument/means adverbials, while agentive *door*-PPs precede comitative *met*-PPs. We therefore conclude that the unmarked order of process and agentive adverbials is as follows: volition > manner > agentive > comitative > instrument/means > domain.

C. Spatio-temporal adverbials

In the middle field of the clause, temporal VP adverbials precede locational VP adverbials, and they both seem most comfortable in a position preceding the manner adverbs, although it is not easy to show conclusively that this is their unmarked position.

- (195) a. dat Jan waarschijnlijk om drie uur in het park gaat wandelen.
 that Jan probably at 3 o'clock in the park goes walk
 'that Jan will probably go walking in the park at 3 o'clock.'
- b. dat Jan waarschijnlijk om drie uur zachtjes wegsliipt.
 that Jan probably at 3 o'clock quietly away-slips
 'that Jan probably slips away quietly at 3 o'clock.'
- c. dat Jan waarschijnlijk in het park intensief wil trainen.
 that Jan probably in the park intensively wants train
 'that Jan probably wants to train intensively in the park.'

It is also difficult to establish the unmarked order of the spatio-temporal and volitional adverbials such as *vrijwillig* 'voluntarily' and *graag* 'gladly', as the latter can easily appear in the positions indicated by "✓" and only marginally appear in the position indicated by the question mark.

- (196) Jan gaat waarschijnlijk <✓> om drie uur <✓> in het park <?> wandelen.
 Jan goes probably at 3 o'clock in the park walk
 'Jan will probably go walking gladly in the park at three o'clock.'

We assume provisionally that the volitional adverbs are base-generated above the temporal adverbials and that the alternate orders are derived by leftward movement of the spatio-temporal adverbials. If true, this gives rise to the following unmarked order of VP adverbials: volition > temporal > locational > manner > agentive > comitative > instrument/means > domain.

D. Contingency adverbials

The examples in (197) show that contingency adverbials precede time adverbials; inverting this order gives rise to an infelicitous result. It is not easy to establish whether the various subtypes of contingency adverbs exhibit an unmarked order, as they do not easily co-occur; we will therefore not digress on this issue.

- (197) a. dat Jan waarschijnlijk door de file te laat in Utrecht zal zijn.
 that Jan probably by the traffic.jam too late in Utrecht will be
 'that Jan will probably be in Utrecht too late due to the traffic jam.'
- b. dat Jan waarschijnlijk vanwege het vakantieverkeer vroeg vertrekt.
 that Jan probably because.of the holiday.traffic early leaves
 'that Jan will probably leave early because of the holiday traffic.'

- c. dat Jan waarschijnlijk ondanks de file op tijd in Utrecht zal zijn.
 that Jan probably despite the traffic jam in time in Utrecht will be
 ‘that Jan will probably be in Utrecht in time despite the traffic jam.’

Example (198) shows that the contingency adverbials also preferably precede the volition adverbials.

- (198) dat de minister <?vrijwillig> vanwege het schandaal <vrijwillig> aftrad.
 that the minister voluntarily because of the scandal resigned
 ‘that the minister resigned voluntarily because of the scandal.’

This means that so far we have established the following unmarked order of VP adverbials: contingency > volition > temporal > locational > manner > agentive > comitative > instrument/means > domain.

E. Predicate-degree adverbials

VP adverbials such as *erg* in (199) normally follow the locational VP adverbials. Although it is not difficult to find agentive *door*-phrases to the left of predicate-degree adverbials, there is reason for assuming that this is the result of focus movement: Example (199a) shows that the *door*-phrase must follow the degree adverbial if the nominal complement of the preposition *door* is a weak pronoun.

- (199) a. Marie wordt waarschijnlijk <?erg> in Utrecht <erg> bewonderd
 Marie is probably greatly in Utrecht admired
 ‘Marie is probably admired greatly in Utrecht.’
 b. Marie wordt <door Peter/*'m> erg <door Peter/'m> bewonderd.
 Marie is by Peter/him greatly admired
 ‘Marie is greatly admired by Peter/him.’

Because manner and degree adverbials do not seem to co-occur, the examples in (199) make the picture complete by showing that the predicate-degree adverbs are located between the locational and the agentive adverbials in the unmarked case.

F. Conclusion

The discussion above has shown that VP adverbials exhibit the unmarked word order in (200). Since the relative order of VP adverbials has not received much attention in the literature so far, we have to leave it to future research to investigate whether this linear hierarchy can stand closer scrutiny.

- (200) **Unmarked word order of VP adverbials:**
 contingency > volition > temporal > locational > manner/predicate-degree >
 agentive > comitative > instrument/means > domain.

III. Clause adverbials

This subsection discusses the unmarked word order of the set of clause adverbials in (201), which were also taken as our point of departure in Section 8.2.2. It should be pointed out that this set of clause adverbials is not identical to the set of adverbials that Cinque (1999) locates in the functional domain, as some of these were shown to function as VP adverbials according to the adverbial tests introduced

in Section 8.1; this holds, e.g., for volition adverbials like *vrijwillig* ‘voluntarily’ and *opzettelijk* ‘deliberately’. The main conclusion of our discussion will be, however, that the unmarked order found in Dutch shows a considerable similarity to what is expected on the basis of the Cinque’s cross-linguistic structural hierarchy of adverbials in the functional domain of the clause. His structural, top-down order more or less coincides with the unmarked linear, left-right order in the middle field of the clause.

- (201) a. Polarity: negation (*niet* ‘not’); affirmation (*wel*)
 b. Focus particles (*alleen* ‘only’, *ook* ‘too’, *zelfs* ‘even’, etc.)
 c. Aspectual: habitual; iterative; frequentative; continuative; etc.
 d. Clause-degree (*bijna* ‘nearly’; *amper* ‘hardly’, etc.)
 e. Propositional modal (*waarschijnlijk* ‘probably’, *blijkbaar* ‘apparently’, etc.)
 f. Subject-oriented (*stom genoeg* ‘stupidly’, *wijselijk* ‘wisely’, etc.)
 g. Subjective: factive (e.g., *helaas* ‘unfortunately’); non-factive
 h. Point-of-view (*volgens Els* ‘according to Els’)
 i. Spatio-temporal: place; time
 j. Contingency: cause; reason; condition; concession
 k. Domain (*juridisch gezien* ‘legally’, *moreel gezien* ‘morally’, etc.)
 l. Conjunctive (*echter* ‘however’, *derhalve* ‘therefore’, etc.)
 m. Speech-act related (*eerlijk gezegd* ‘honestly’, etc.)

In order to facilitate the discussion, the adverbials in (201) are already listed in the order that more or less reflects their unmarked linear order in the middle field of the clause, although it is not always easy to demonstrate this because of co-occurrence restrictions. For this reason, we restrict ourselves to a limited subset of clear cases; a more detailed discussion is not possible at this stage for want of sufficiently rich empirical research. We will also divide the clause adverbial types into several larger subgroups. Subsection A starts with the adverbials in (201a-e), which we will refer to as SCOPE-BEARING adverbials, as these can be seen as operators over the proposition expressed by the lexical domain of the verb. Subsection B discusses the adverbials in (201f-h), which we will refer to as EVALUATIVE adverbials as these are involved in providing a subjective evaluation of the proposition expressed by the clause. Subsection C addresses the spatio-temporal and the contingency adverbials in (201i&j) and Subsection D concludes with the remaining cases in (201k-m).

A. Scope-bearing adverbials

The polarity adverbials function as the demarcations *par excellence* of the boundary between the lexical and the functional domain: in non-contrastive contexts, they are followed by the VP adverbials and preceded by the clause adverbials. We illustrate this in (202) for the comitative VP adverbial *met* ‘with him’ and the epistemic clause adverbial *waarschijnlijk* ‘probably’.

- (202) dat Marie *waarschijnlijk* niet/wel met ‘m wil spelen.
 that Marie probably not/AFF with him wants play
 ‘that Marie probably wants/doesn’t want to play with him.’

Note in passing that there are robust reasons for assuming that at least the negative adverb *niet* is located in the specifier position of a functional projection NegP, which may also be the landing site of larger negative phrases in the clause; if so, it shows clearly that negation itself is part of the functional domain of the clause. We will not digress on this here but refer the reader to Section 13.3.1 for extensive discussion.

Example (203a) illustrates that focus particles such as *ook* ‘also’ are placed between the epistemic modals and the polarity adverbials. Example (203b) shows that contrastively focused phrases may occupy the same position as focus particles; for this reason, Section 13.3.2 argues that focus particles are part of a functional projection FocP. Note in passing that the negative adverb *niet* can easily substitute for affirmative *wel* in these examples.

- (203) a. dat Marie *waarschijnlijk ook wel* met 'm wil spelen.
 that Marie probably also AFF with him wants play
 ‘that Marie probably also wants to play with him.’
- b. dat Marie *waarschijnlijk ook met HEM wel* wil spelen.
 that Marie probably also with him AFF wants play
 ‘that Marie probably also wants to play with HIM.’

Aspectual adverbials precede the focus particles but follow the modal epistemic modals. We illustrate this for the habitual adverbial *gewoonlijk* ‘usually’; example (204a) shows that it must precede the focus particle *ook*, while the slightly awkward example in (204b) shows that it must follow the epistemic modal *waarschijnlijk*.

- (204) a. dat Marie *gewoonlijk ook wel* met 'm wil spelen.
 that Marie usually also AFF with him wants play
 ‘that Marie usually does want to play with him as well.’
- b. dat Marie *waarschijnlijk gewoonlijk wel* met 'm wil spelen.
 that Marie probably usually AFF with him wants play
 ‘that probably Marie usually does wants to play with him.’

Example (205a) shows that the clause-degree adverbial *bijna* can precede focus particles such as *ook*, but that it is not entirely impossible to have it after the focus particles. In many cases the second order is fully acceptable but this may be due to the fact that *bijna* can also be used as a non-clausal modifier; cf. *bijna leeg* ‘nearly empty’. The somewhat awkward construction in example (205b) shows that clause-degree adverbials follow the epistemic modals.

- (205) a. dat Marie <*bijna*> *ook* <²*bijna*> met 'm ging spelen.
 that Marie nearly also with him went play
 ‘that Marie nearly started to play with him as well.’
- b. dat Marie *waarschijnlijk bijna ook* met 'm ging spelen.
 that Marie probably nearly also with him went play
 ‘that Marie probably nearly also started to play with him.’

We conclude from the examples in (205) that clause-degree adverbials are located in between the epistemic modals and the focus particles but it is clear that this must be a preliminary conclusion: more research is needed to establish this more firmly.

Above it was already shown for the epistemic modals that propositional-modal adverbials precede negation, focal particles, frequentative adverbial and clause-degree adverbials. The fact that the epistemic modal *waarschijnlijk* ‘probably’ in the examples given above can easily be replaced by *blijkbaar* ‘evidently’ shows that this also holds for evidential modals. Since the epistemic and evidential modal adverbials do not easily co-occur, we will not speculate on their relative order.

The discussion above has shown that scope-bearing clause adverbials exhibit the unmarked word order in (206). Because relatively little research on Dutch has been done in this area, our conclusions should be considered provisional.

- (206) **Unmarked word order of scope-bearing clause adverbials:**
 propositional modal > clause-degree > aspectual > focus > negation

B. Evaluative adverbials

The placement of subject-oriented adverbials such as *wijselijk* ‘wisely’ with respect to the scope adverbials discussed in the previous subsection is not entirely clear. Example (207a) first provides a clear example showing that speaker-oriented adverbials must precede focus particles and negation; the asterisks indicate positions in which subject-oriented adverbials cannot occur. Example (207b) shows that subject-oriented adverbials can easily precede aspectual adverbials such as habitual *gewoonlijk*, but placing them after *gewoonlijk* is at least marginally possible. The slightly awkward (c)-examples, finally, show that for some speakers the relative order of the subject-oriented and propositional adverbials is essentially free; judgments seem to vary from speaker to speaker and from instance to instance.

- (207) a. dat Marie <wijselijk> ook <*> niet <*> met ’m wil spelen.
 that Marie wisely also not with him wants play
 ‘that Marie wisely doesn’t want to play with him either.’
- b. dat Marie <wijselijk> *gewoonlijk* <²wijselijk> niet met ’m wil spelen.
 that Marie wisely usually not with him wants play
 ‘that wisely Marie normally/often doesn’t want to play with him.’
- c. dat Marie wijselijk *waarschijnlijk* <#> niet met ’m wil spelen.
 that Marie wisely probably not with him wants play
 ‘that wisely Marie probably doesn’t want to play with him.’
- c’. dat Marie wijselijk *blijkbaar* <#> niet met ’m wil spelen.
 that Marie wisely evidently not with him wants play
 ‘that wisely Marie apparently doesn’t want to play with him.’

We provisionally conclude from (207) that speaker-oriented adverbials precede all scope adverbials with the exception of the propositional modal adverbials. That their ordering vis-a-vis propositional modals is not very strict may be related to the fact that at least the epistemic modals are also evaluative, in the sense that they too provide an assessment of the state-of-affairs expressed by the clause.

Subjective adverbials like *gelukkig* ‘fortunately’ and *helaas* ‘unfortunately’ are factive in the sense that they imply that the proposition is true; this accounts for the fact illustrated in (208) that they always give rise to an awkward result in combination with propositional adverbials, as these crucially do not presuppose the truth of the proposition.

- (208) a. ^sdat Jan <gelukkig> waarschijnlijk <gelukkig> vertrekt.
 that Jan fortunately probably leaves
- b. ^sdat Jan <helaas> waarschijnlijk <helaas> vertrekt.
 that Jan unfortunately probably leaves

Example (209) shows that non-factive subjective adverbials such as *naar ik vrees* ‘as I fear’ must precede the propositional modals such as *waarschijnlijk* ‘probably’ (unless *naar ik vrees* is preceded and followed by an intonation break, in which case we are dealing with an epenthetic construction). We therefore conclude that the subjective adverbials precede the propositional adverbials in the unmarked order.

- (209) dat Marie *naar ik vrees* waarschijnlijk niet met 'm wil spelen.
 that Marie as I fear probably not with him wants play
 ‘that I fear that Marie probably doesn’t want to play with him.’

Subjective adverbials and epistemic modals provide an assessment of the state-of-affairs referred to by the sentence. The default interpretation is that the assessment is the speaker’s but this interpretation can easily be overridden by contextual information. One way of doing this is by using a point-of-view adverbial such as *volgens Els* ‘according to Els’; cf. Section 8.2.2, sub VIII. The examples in (210) show that such adverbials precede the subjective and epistemic modal adverbials: this might be a matter of scope, given that the interpretation of the latter depends on the former, but this is probably not the full story because subsection C will show that they also precede spatio-temporal and contingency adverbials.

- (210) a. Jan komt <volgens Els> zeker <^{??}volgens Els> op visite. [epistemic]
 Jan comes according.to Els certainly on visit
- b. Jan bleef <volgens Els> wijselijk <^{??}volgens Els> thuis. [subject-oriented]
 Jan stayed according.to Els wisely at home
- c. Jan is <volgens Els> gelukkig <^{??}volgens Els> ontslagen. [subjective]
 Jan is according.to Els fortunately fired

The discussion in this subsection has shown that we can extend the word-order generalization in (206) to the one in (211). Our conclusions should again be considered as preliminary, for the reason indicated in the previous subsection.

- (211) **Unmarked word order of scope-bearing and evaluative clause adverbials:**
 point-of-view > subjective > subject-oriented/propositional modal > clause-degree > aspectual > focus > negation

C. Spatio-temporal and contingency adverbials

The examples in (212) show that clausal spatio-temporal adverbials can easily precede the propositional modals. That spatio-temporal adverbials cannot follow the propositional adverbials is sometimes difficult to demonstrate because the resulting strings are often acceptable under an alternative analysis: for instance, *morgenvroeg* in *dat Jan waarschijnlijk morgenvroeg vertrekt* ‘that Jan will probably leave early tomorrow’ clearly functions as a one-word VP adverbial. We refer to Section 8.2

for an extensive discussion on determining the actual status of spatio-temporal adverbials as VP or as clause adverbials.

- (212) a. dat Jan morgen *waarschijnlijk* vroeg vertrekt.
 that Jan tomorrow probably early leaves
 ‘that Jan will probably leave early tomorrow.’
 b. dat Jan in Utrecht *waarschijnlijk* bij zijn tante logeert.
 that Jan in Utrecht probably with his aunt stays
 ‘that Jan will probably stay with his aunt in Utrecht.’

The examples in (213) show that clausal spatio-temporal adverbials can also precede subject-oriented adverbs such as *wijselijk* ‘wisely’ and subjective adverbials such as *helaas* ‘unfortunately’, although the reverse order seems at least marginally possible, too.

- (213) a. dat Jan <morgen> *helaas/wijselijk* <^(?)morgen> niet komt.
 that Jan tomorrow unfortunately/wisely not comes
 ‘that Jan unfortunately/wisely won’t come tomorrow.’
 b. dat Jan <in Utrecht> *helaas/wijselijk* <^(?)in Utrecht> niet overnacht.
 that Jan in Utrecht unfortunately/wisely not stays.overnight
 ‘that Jan unfortunately/wisely won’t spend the night in Utrecht.’

Point-of-view adverbials such as *volgens Els* ‘according to Els’, on the other hand, preferably precede the spatio-temporal adverbials; this illustrated in (214).

- (214) a. dat Jan <^{??}morgen> *volgens Els* <morgen> niet komt.
 that Jan tomorrow according.to Els not comes
 ‘that according to Els Jan won’t come tomorrow.’
 b. dat Jan <^{??}in Utrecht> *volgens Els* <in U.> *waarschijnlijk* overnacht.
 that Jan in Utrecht according.to Els probably stays.overnight
 ‘that according to Els Jan will probably spend the night in Utrecht.’

Contingency adverbials can precede or follow the clausal spatio-temporal adverbials; we illustrate this in (215) for the reason adverbial *wegens ziekte* ‘because of illness’ only. It seems that the order in which they precede the spatio-temporal adverbials is somewhat more natural but the contrast is not sharp, so we will leave it for later to determine the unmarked order more precisely. Example (215c) further shows that contingency adverbials prefer to precede subject-oriented adverbials.

- (215) a. dat Els <morgen> vanwege ziekte <morgen> *waarschijnlijk* niet zingt.
 that Els tomorrow because.of illness probably not sings
 ‘that Els probably won’t sing tomorrow because of illness.’
 b. dat Els <in Utrecht> vanwege ziekte <in U.> *waarschijnlijk* niet zingt.
 that Els in Utrecht because.of illness probably not sings
 ‘that Els probably won’t sing in Utrecht because of illness.’
 c. dat Els morgen <^{??}*wijselijk*> vanwege ziekte <*wijselijk*> niet zingt.
 that Els tomorrow wisely because.of illness not sings
 ‘that Els wisely won’t sing tomorrow because of illness.’

We provisionally conclude on the basis of the examples in this subsection that the spatio-temporal and contingency adverbials are located between the point-of-view and the subjective adverbials, although there is still unclarity about the unmarked order of the spatio-temporal and the subjective/subject-oriented adverbials.

- (216) **Unmarked word order of clause adverbials:** point-of-view > contingency/spatio-temporal > subjective > subject-oriented/ propositional modal > clause-degree > aspectual > focus > negation

D. Remaining cases

Domain adverbials such as *juridisch gezien* ‘legally speaking/from a legal point of view’ in (217) are relatively high in the functional domain in the clause. Because they restrict the application of the complete clause, there is a strong tendency to place them in sentence-initial position, but they may also occur in the middle field of the clause.

- (217) a. *Juridisch gezien* heeft Jan waarschijnlijk gelijk.
 legally seen has Jan probably right
 ‘Legally speaking, Jan is probably correct.’
 b. Jan heeft *juridisch gezien* waarschijnlijk gelijk.
 Jan has legally seen probably right

Something similar holds for speech-act related adverbials such as *eerlijk gezegd* ‘honestly speaking’ in (218). Because they comment on the speech act as a whole, there is a strong tendency to place them in sentence-initial position but, again, they may occur in the middle field of the clause.

- (218) a. *Eerlijk gezegd* kan ik het niet geloven.
 honestly spoken can I it not believe
 ‘Honestly speaking, I cannot believe it.’
 b. Ik kan het *eerlijk gezegd* niet geloven.
 I can it honestly spoken not believe

It is, however, not easy to determine their unmarked position in the middle field of the clause more precisely: the examples in (219) show, for instance, that the domain and speech-act related adverbials can be placed before or after the clausal temporal adverbials. Judgments seem to differ from case to case and person to person, and both orders can be found on the internet.

- (219) a. Jan had *<juridisch gezien>* gisteren *<juridisch gezien>* gelijk.
 Jan had legally seen yesterday right
 ‘Legally speaking, Jan was right yesterday.’
 b. Ik kon het *<eerlijk gezegd>* gisteren *<eerlijk gezegd>* niet geloven.
 I could it honestly spoken yesterday not believe
 ‘Honestly speaking, I couldn’t believe it yesterday.’

An additional problem for determining the unmarked position of domain and speech-act adverbials more precisely is that they often occur as parentheticals. This is especially clear for the speech-act adverbial *eerlijk gezegd*, as the examples in

(220) show that it may also precede the first position of the sentence or be placed in clause-final position; the comma's indicate an intonation break.

- (220) a. *Eerlijk gezegd*, ik kan het niet geloven.
 honestly spoken I can it not believe
 b. Ik kan het niet geloven, *eerlijk gezegd*.
 I can it not believe honestly spoken

Similar problems arise for conjunctive adverbials such as *echter* 'however' in (221), which can be used at various positions in the sentence. The options available seem to differ from case to case.

- (221) a. *Echter*, Jan zal morgen waarschijnlijk vroeg vertrekken.
 however Jan will tomorrow probably early leave
 'However, Jan will probably leave early tomorrow.'
 b. Jan, *echter*, zal morgen waarschijnlijk vroeg vertrekken.
 c. Jan zal *echter* morgen waarschijnlijk vroeg vertrekken.
 d. Jan zal morgen *echter* waarschijnlijk vroeg vertrekken.

Because the word order problems pointed out above have not yet been investigated in greater depth, it seems premature to speculate on the precise unmarked position of these adverbials: we can only conclude that they are relatively high in the linear hierarchy in (216).

IV. Conclusion

This section has discussed the unmarked order of adverbial phrases. In order to eliminate the effects of movement as much as possible we restricted our attention to the order of adverbials in the middle field of the clause. Furthermore, we excluded sentences with contrastive accent and adverbial proforms. Our investigation has shown that both the VP adverbials as well as the clause adverbials are subject to ordering restrictions. The two linear hierarchies in (222) summarize our findings. We did not include the domain, speech-act related and conjunctive adverbials in these hierarchies: although it is clear that they are located high up in the hierarchy in (222a), it is difficult for various reasons to locate them more precisely.

- (222) • **Unmarked word order of adverbials in the middle field of the clause**
 a. *Clause adverbials*: point-of-view > contingency/spatio-temporal > subjective > subject-oriented/ propositional modal > clause-degree > aspectual > focus > negation
 b. *VP adverbials*: contingency > volition > temporal > locational > manner/predicate-degree > agentive > comitative > instrument/means > domain.

Because the ordering of clause adverbials has not been studied in very great detail so far in the literature on Dutch, the proposed ordering should be considered preliminary, pending further investigation. Cinque's (1999) typological work suggests, for example, that (222a) can be fine-tuned by adding more fine-grained distinctions. Other problems complicating the investigation are the (semantic) co-occurrence restrictions we occasionally find as well as the fact that sometimes more than one linear order is fully acceptable.

8.5. Obligatory adverbial phrases

Adverbial phrases differ from °arguments in that they are optional in the prototypical case. There are cases, however, in which a verb is obligatorily accompanied by an adverbial-like phrase. A typical instance is the verb *wonen* ‘to live’ in (223), which must be combined with a locational PP or an AP denoting a property of the accommodation or the surroundings where the subject of the clause lives.

- (223) a. Jan woont in Tilburg/in een comfortabel huis/in een mooie omgeving.
 Jan lives in Tilburg/in a comfortable house/in a nice surrounding
 ‘Jan lives in Tilburg/in a comfortable house/in nice surroundings.’
 b. Jan woont comfortabel/klein/gezellig.
 Jan lives comfortably/small/cozy
 b’. Jan woont mooi/landelijk.
 Jan lives beautifully/rurally

It is not immediately clear that the syntactic function of the PPs and APs is really adverbial. They are often called complements because the verb normally cannot occur without them, which takes the selectional property of the verb to be of a syntactic nature. However, this conclusion is perhaps too easy, given that the obligatory presence of a PP/AP may also be due to pragmatics: in accordance with Grice’s cooperative principle, the sentence *Jan woont* may be dismissed as uninformative because the proposition expressed by it is already presupposed to be true for all people. The same is true for examples with *geboren worden*: an example such as *Jan is geboren* is simply not informative; another similar case is *zich gedragen* ‘to behave’, which only occurs without an adverbial phrase in imperatives if the behavior of the addressee is inappropriate: *Gedraag je!* ‘Behave yourself!’.

- (224) a. Jan is geboren in 1970.
 Jan is born in 1970
 b. Jan is te vroeg geboren.
 Jan is too early born
 ‘Jan was born prematurely.’

The same may hold for verbs selecting measure phrases like *duren* ‘to last’, *kosten* ‘to cost’, *meten* ‘to measure’ and *wegen* ‘weigh’, which were discussed in Section 2.4. Example (225a) shows for *duren* that these verbs normally need an extra constituent that evidently does not function as argument; omitting the addition results in an uninformative sentence as performances always have some duration. That this account may be on the right track is suggested by examples such as (225a): the sentence *Het vriest* ‘It freezes’ is informative in itself and consequently does allow omission of the measure phrase.

- (225) a. De voorstelling duurt lang/drie uur/tot tien uur.
 the performance lasts long/three hours/until 10 o’clock
 b. Het vriest (streng/15 graden).
 it freezes severely/15 degrees

We conclude from the discussion above that adverbial phrases are always optional as far as syntax is concerned, but that there may be pragmatic reasons for obligatorily including an adverbial phrase with certain verbs.

8.6. Bibliographical notes

Adverbs/adverbials have figured prominently in the literature on semantics, but they have received relatively little attention in the syntactic literature. The discussion in this chapter has taken as its point of departure the division between clause adverbials and VP adverbials; cf. Jackendoff (1972), and also Kraak & Klooster (1972:ch.9) and Van den Hoek (1972). The semantic subdivision of these two main groups described in Section 8.2 more or less follows the divisions found in Quirk et al. (1985) and Huddleston & Pullum (2002). Although we diverge from Haeseryn et al. (1997) in that we deny the existence of a separate category of adverbs, this work has provided a solid empirical basis for our discussion in Section 8.3 of the categorial form of adverbial phrases. Although the linear order of adverbials phrases has received attention in the generative literature since Van den Hoek (1972) and Koster (1974), this has not led to greater insight in the nature of the restrictions that determine this order. The issue was put firmly on the research agenda with the publication of Cinque (1999/2006) and Schweikert (2005), who claimed (for all languages) that adverbials are base-generated in fixed structural positions in the clause. The syntactic approach was soon challenged by Ernst (2002), who claims that the distribution of adverbials is basically determined by semantic factors. The debate, which is still ongoing, has revived the interest in the distributional aspects of adverbials, as is clear from the articles collected by Artemis Alexiadou in *Lingua* 114/6 (theme issue: *Adverbs across frameworks*), which provide reviews of a number of selected recent approaches to this topic. More general introductions to the literature on adverbs and adverbial phrases are Delfitto (2006) and Maienborn & Schäfer (2011).

Syntax of Dutch will include the following volumes:

Nouns and Noun Phrases (volume 1): Hans Broekhuis & Evelien Keizer	[appeared in 2012]
Nouns and Noun Phrases (volume 2): Hans Broekhuis & Marcel den Dikken	[appeared in 2012]
Adjectives and Adjective Phrase Hans Broekhuis	[appeared in 2013]
Adpositions and Adpositional Phrases Hans Broekhuis	[appeared in 2013]
Verbs and Verb Phrases (volume 1) Hans Broekhuis, Norbert Corver & Riet Vos	[appeared in 2015]
Verbs and Verb Phrases (volume 2) Hans Broekhuis & Norbert Corver	[appeared in 2015]
Verbs and Verb Phrases (volume 3) Hans Broekhuis & Norbert Corver	[this volume]
Miscellaneous Topics Hans Broekhuis et al.	[in preparation]

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Such grammar works are, of necessity, quite voluminous. And compiling them is a huge task. Furthermore, no grammar can ever be complete. Instead new subdomains can always come under scientific scrutiny and lead to additional volumes. We therefore intend to build up these grammars incrementally, volume by volume.

The *Syntax of Dutch* already resulted in 7 volumes covering the noun phrase, the prepositional phrase, the adjective phrase, and the verb phrase, but other projects are also under way. In Hungary, a research group is working on a grammar of Hungarian. In Beijing efforts are being undertaken to set up a project to produce a Grammar of Mandarin, and plans for other languages are also being drawn up.

In view of the encyclopaedic nature of grammars, and in view of the size of the works, adequate search facilities must be provided in the form of good indices and extensive cross-referencing. Furthermore, frequent updating of such resources is imperative. The best way to achieve these goals is by making the grammar resources available in electronic format on a dedicated platform. Following current trends, the works will therefore appear in dual mode: as open access objects freely perusable by anyone interested, and as hard copy volumes to cater to those who cherish holding a real book in their hands. The scientific quality of these grammar resources will be jointly guaranteed by the series editors Henk van Riemsdijk and István Kenesei and the publishing house Amsterdam University Press.