Syntax of Dutch
Verbs and Verb Phrases

Hans Broekhuis

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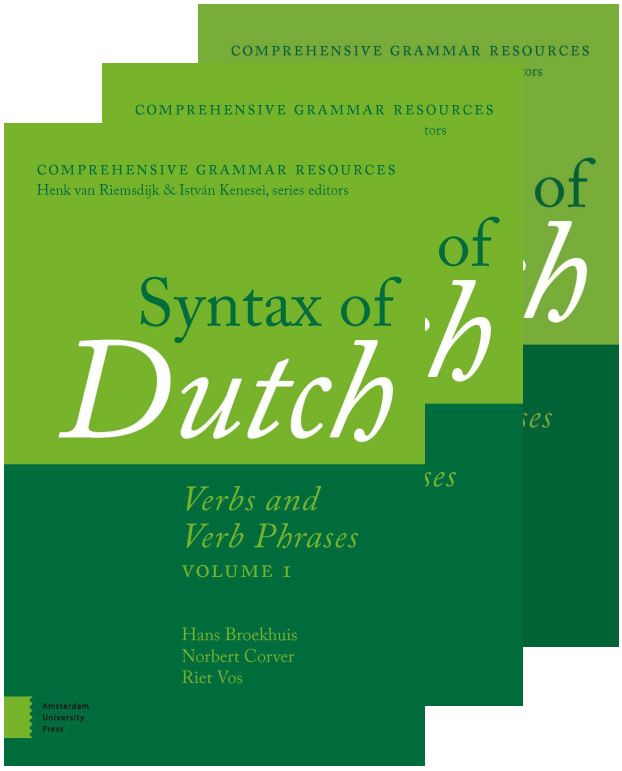

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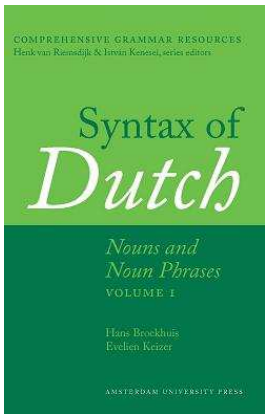

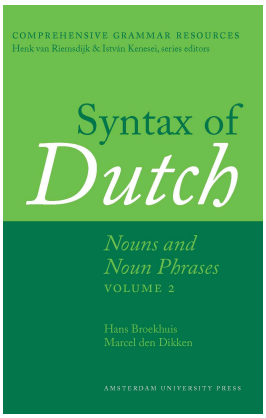

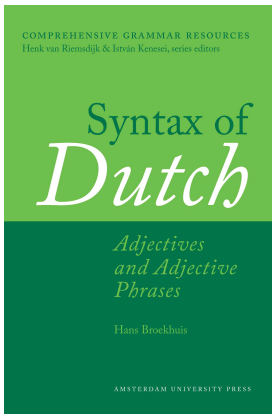

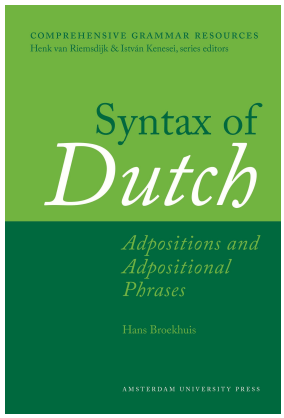

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Volume 1

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Main-clause external elements

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	Domain of discourse

Abbreviations used in both the main text and the examples

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
Aux_2-$Main_1$	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 Section 7.2, sub I, 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	1st, 2nd, 3rd person	pl	Plural
acc	Accusative	poss	Possessor
dat	Dative	pred	Predicate
ben	Beneficiary	rec	Recipient
nom	Nominative	sg	Singular

Abbreviations used in the glosses of the examples

AFF	Affirmative marker
COMP	Complementizer: *dat* 'that' in finite declarative clauses, *of* 'whether/if' in finite interrogative clauses, and *om* 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., *zich*; the long form *zichzelf* is usually translated as *himself/herself/itself*
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
$\Rightarrow$	Necessarily implies
$\not\Rightarrow$	Does not necessarily imply
XX ... YY	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*, acceptable with index *j*
$XX_{i/*j}$	Unacceptable with index *j*, acceptable with index *i*
$[_{XP}$ ...]	Constituent brackets of a constituent XP

Introduction

Verbs (V), nouns (N), adjectives (A) and prepositions (P) constitute the four major word classes. The present study deals with verbs and their °projections (verb phrases). It is organized as follows.

I. Characterization and classification (Chapter 1)

Section 1.1 provides a brief survey of some conspicuous syntactic, morphological and semantic characteristics of verbs. Section 1.2 reviews a number of semantic and syntactic classifications of verbs and proposes a partly novel classification bringing together some of these proposals; this classification will be the starting point of the more extensive discussion of nominal complementation in Chapter 2. Section 1.3 discusses verbal inflection while Sections 1.4 and 1.5 discuss a number of semantic notions related to verbs: tense, mood/modality and aspect.

II. Argument structures (Chapter 2)

Verbs can project in the sense that they take °arguments (Chapter 2 to Chapter 5) and that the resulting projections can be modified by a large set of adverbial phrases (Chapter 8). We will begin the discussion of °complementation by focusing on the °adicity of verbs, that is, the *number* and *type* of °arguments they can take. The traditional classification is normally based on the number of nominal °arguments that verbs take, that is, whether a verb is intransitive, transitive or ditransitive.

(1) a. Jan lacht. [intransitive]
Jan laughs
b. Jan leest een boek. [transitive]
Jan reads a book
c. Jan biedt Peter een baan aan. [ditransitive]
Jan offers Peter a job prt.

Chapter 2 provides evidence, however, that in order to arrive at a satisfactory classification not only the number but also the type of arguments should be taken into account: we have to distinguish between what have become known as UNERGATIVE and UNACCUSATIVE verbs, which exhibit systematic differences in syntactic behavior. Because the distinction is relatively new (it was first proposed in Perlmutter 1978, and has received wider recognition only after Burzio 1981/1986) but nevertheless plays an important role throughout this study, we will briefly introduce the distinction here.

Unaccusative verbs never take an accusative object. The subjects of these verbs maintain a similar semantic relation with the unaccusative verb as direct objects with transitive verbs; they are both assigned the °thematic role of theme. This is illustrated by the minimal pair in (2); the °nominative noun phrase *het glas* 'the glass' in the unaccusative construction (2b) maintains the same relation with the verb as the accusative noun phrase *het glas* in the transitive construction in (2a). It is therefore generally assumed that the subject in (2b) originates in the regular

direct object position, but is not assigned °accusative case by the verb, so that it must be promoted to subject, for which reason we will call the subject of an unaccusative verb a °DO-subject. The fact that (2b) has a transitive alternant is an incidental property of the verb *breken* 'to break'. Some verbs, such as *arriveren* 'to arrive', only occur in an unaccusative frame.

(2) a. Jan breekt het glas. [transitive]
Jan breaks the glass
a′. *Jan arriveert het boek.
Jan arrives the book
b. Het glas breekt. [unaccusative]
the glass breaks
b′. Het boek arriveert.
the book arrives

Hoekstra (1984a) has argued that regular intransitive verbs and unaccusative verbs have three distinguishing properties: (a) intransitives take the perfect auxiliary *hebben* 'to have', whereas unaccusatives take the auxiliary *zijn* 'to be'; (b) the past/passive participle of unaccusatives can be used attributively to modify a °head noun that corresponds to the subject of the verbal construction, whereas this is not possible with intransitive verbs; (c) the impersonal °passive is possible with intransitive verbs only. These properties are illustrated in (3) by means of the intransitive verb *lachen* 'to laugh' and the unaccusative *arriveren* 'to arrive'.

(3)
• Intransitive
a. Jan heeft/*is gelachen.
Jan has/is laughed
a′. *de gelachen jongen
the laughed boy
a″. Er werd gelachen.
there was laughed
• Unaccusative
b. Jan is/*heeft gearriveerd.
Jan is/has arrived
b′. de gearriveerde jongen
the arrived boy
b″. *Er werd gearriveerd.
there was arrived

Mulder & Wehrmann (1989), however, argued that only a subset of the unaccusative verbs exhibits all the properties in (3). Locational verbs like *hangen* in (4), for example, enter into a similar alternation as the verb *breken* in (2), but nevertheless the verb in (4b) does not fully exhibit the behavior of the verb *arriveren*, as is clear from the fact that it takes the auxiliary *hebben* in the perfect tense. It has been suggested that this might be due to the fact that there is an aspectual difference between the verbs *arriveren* and *hangen*: the former is °telic whereas the latter is not.

(4) a. Jan hangt de jas in de kast. [transitive]
Jan hangs the coat into the wardrobe
b. De jas hangt in de kast. [intransitive]
the coat hangs in the wardrobe

The examples in (5) show that we can make a similar distinction for the °dyadic verbs. A verb like *bevallen* 'to please' in the (b)-examples behaves like an unaccusative verb in the sense that it selects the auxiliary *zijn* and cannot be passivized. Since the object would appear with °dative case in languages with morphological case (cf. the German verb *gefallen* 'to please'), such verbs have become known as nominative-dative (NOM-DAT) verbs. A verb like *onderzoeken* 'to examine' in the (a)-examples behaves like a traditional transitive verb in that it

selects the auxiliary *hebben* and can be passivized while in a language with morphological case the object would be assigned accusative case (cf. the German verb *besuchen* 'to visit').

(5) a. De dokter heeft/*is Marie gisteren onderzocht.
the physician has/*is Marie yesterday examined
a′. Marie is gisteren (door de dokter) onderzocht.
Marie has.been yesterday by the physician examined
b. De nieuwe voorzitter is/*heeft mij goed bevallen.
the new chairman is/has me well pleased
b′. *Ik ben goed bevallen (door de nieuwe voorzitter).
I have.been well pleased by the new chairman

Given that unaccusative verbs have a DO-subject, that is, a subject that occupies an underlying object position, we correctly predict that unaccusative triadic verbs do not exist. Consequently, if the distinction between what is nowadays known as unergative (verbs that *in principle* can assign accusative case) and unaccusative verbs is indeed on the right track, we have to extend the traditional classification of verbs at least as in Figure 1. Sections 1.2 and 2.1 will argue that there are reasons to extend the classification in Figure 1 even further, but we will not digress on this here.

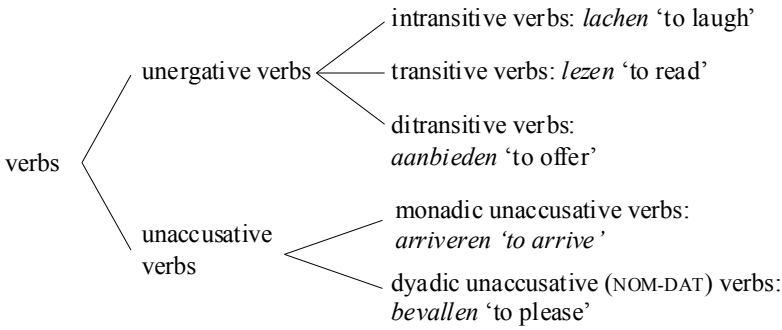

Figure 1: Classification of verbs taking nominal arguments

Section 2.2 discusses verbs taking various types of predicative complements. Examples are the copulas, the verb *vinden* 'to consider' and a large set of verbs that may combine with a resultative phrase.

(6) a. Jan is aardig. [copular construction]
Jan is nice
b. Ik vind Jan aardig. [*vinden*-construction]
I consider Jan nice
c. Jan slaat Peter dood. [resultative construction]
Jan hits Peter dead

We will also show that verbs entering the resultative construction may shift from one verb class to another by (apparently) changing their adicity, as illustrated in the (a)-examples in (7), or their selectional properties, as in the (b)-examples.

(7) a. Jan loopt (*het gras). [adicity]
Jan walks the grass
a′. Jan loopt *(het gras) plat.
Jan walks the grass flat
b. Jan veegt de vloer/$bezem. [selection]
Jan brushes the floor/broom
b′. Jan veegt de bezem/$vloer kapot.
Jan brushes the broom/floor broken

Sections 2.3 and 2.4 discuss verbs taking PP-complements, like *wachten* 'to wait' in (8a). and the somewhat more special cases such as *wegen* 'to weigh' in (8b) that take an obligatory adjectival phrase. The discussion of complements in the form of a clause will be postponed to Chapter 5.

(8) a. Jan wacht op vader. [PP-complements]
Jan waits for father
b. Jan weegt veel te zwaar. [AP-complements]
Jan weighs much too heavy

Section 2.5 concludes by discussing another number of more special verb types like inherently reflexive verbs and so-called object experiencer verbs.

(9) a. Jan vergist zich. [inherently reflexive verb]
Jan be.mistaken REFL
b. Die opmerking irriteert Jan/hem. [object experiencer verb]
that remark annoys Jan/him

III. Verb frame alternations (Chapter 3)

The previous subsection has already shown that it is not always possible to say that a specific verb categorically belongs to a single class: examples (2) and (4), for example, demonstrate that the verbs *breken* 'to break' and *hangen* 'to hang' can be used both as a transitive and as an unaccusative verb. And the examples in (7) show that the class of the verb may apparently also depend on other elements in the clause. This phenomenon that verbs may be the head of more of one type of syntactic frame is known as VERB FRAME ALTERNATION will be discussed in Chapter 3. Another familiar type of alternation, known as DATIVE SHIFT, is illustrated in (10).

(10) a. Marie geeft het boek aan Peter. [dative shift]
Marie gives the book to Peter
b. Marie geeft Peter het boek.
Marie gives Peter the book

We will take a broad view of the term verb frame alternation and include voice alternations such as the alternation between active and passive clauses, illustrated in the (a)-examples in (11), as well as alternations that are the result of derivational morphology, such as the so-called LOCATIVE ALTERNATION in the (b)-examples in (11), which is triggered by the affixation by the prefix *be-*.

(11) a. Jan leest het boek. [passivization]
Jan reads the book
a′. Het boek wordt door Jan gelezen.
the book is by Jan read
b. Jan plakt een foto op zijn computer. [locative alternation]
Jan pastes a picture on his computer
b′. Jan beplakt zijn computer met foto's.
Jan BE-pastes his computer with pictures

IV. Clausal/verbal complements (Chapter 4 to Chapter 7)

These chapters in a sense continue the discussion in Chapter 2 on argument structure by discussing cases in which verbs take a verbal dependent, that is, a clause or a smaller (extended) projection of some other verb. The reason not to discuss this type of complementation in Chapter 2 is that it does not essentially alter the syntactic verb classification developed there: for example, many of the verbs taking an internal °argument have the option of choosing between a nominal and a clausal complement. The reason for devoting a separate chapter to clausal/verbal arguments is that such arguments exhibit many special properties and introduce a number of complicating factors that have been investigated extensively in the literature. Even a brief discussion of these special properties and complicating factors would have seriously hampered the main line of argumentation in Chapter 2, and it is therefore better to discuss these properties in their own right.

A. Selection of clauses and verb phrases (Chapter 4)

We start our discussion of clausal/verbal complements by reviewing a number of central issues pertaining to the types of verbal dependents that can be distinguished and thus provides the necessary background for the more detailed discussions in Chapter 5 to Chapter 7.

B. Argument and complementive clauses (Chapter 5)

Chapter 5 provides an exhaustive discussion of dependent clauses functioning as arguments or °complementives. Section 5.1 starts with finite argument clauses; we will discuss subject, direct object, and prepositional clauses. This section also includes a discussion of fragment clauses and *wh*-extraction.

(12) a. dat duidelijk is [dat Marie de nieuwe voorzitter wordt]. [subject]
that clear is that Marie the new chairman becomes
'that it is clear that Marie will be the new Chair.'
b. dat Jan niet gemeld heeft [dat hij weg zou zijn]. [direct object]
that Jan not reported has that he away would be
'that Jan hasn't reported that he'd be away.'
c. dat Peter erover klaagt [dat het regent]. [prepositional object]
that Peter about.it complains that it rains
'that Jan is complaining about it that it is raining.'

A typical example of fragment clauses is given in (13b); constructions like these are arguably derived by a partial deletion of the phonetic contents of a finite clause, which is indicated here by means of strikethrough.

(13) a. Jan heeft gisteren iemand bezocht. [speaker A]
Jan has yesterday someone visited
'Jan visited someone yesterday.'
b. Kan je me ook zeggen wie ~~Jan gisteren bezocht heeft~~? [speaker B]
can you me also tell who Jan yesterday visited has
'Can you tell me who (Jan visited yesterday)?'

Wh-extraction is illustrated in (14b) by means of *wh*-movement of the direct object of the complement clause. In constructions like these the *wh*-phrase arguably originates in the same position as the direct object *dit boek* in (14a), that is, the embedded clause in (14b) contains an interpretative gap, which we have indicated by means of a horizontal line.

(14) a. Ik denk [$_{\text{CLAUSE}}$ dat Marie dit boek morgen zal kopen].
I think that Marie this book tomorrow will buy
b. Wat denk je [$_{\text{CLAUSE}}$ dat Marie __ morgen zal kopen]?
what think you that Marie tomorrow will buy
'What do you think that Marie will buy tomorrow?'

Section 5.2 discusses three types of formally different types of infinitival clauses: *Om* + *te*-infinitivals, *te*-infinitivals and bare infinitivals. The examples in (15) are control constructions, which are characterized by the fact that they typically have an implicit (phonetically empty) subject pronoun, which is normally represented as PRO. It seems that the construal of PRO, which is normally referred to as control, is subject to a set of context-sensitive conditions. In certain specific environments PRO is obligatorily controlled in the sense that it has an (i) overt, (ii) unique, (iii) local and (iv) °c-commanding antecedent, whereas in other environments it need not satisfy these four criteria.

(15) a. Jan beloofde [om PRO het boek naar Els te sturen]. [*om* + *te*-infinitival]
Jan promised COMP the book to Els to send
'Jan promised to send the book to Els.'
b. Jan beweerde [PRO het boek naar Els te sturen]. [*te*-infinitival]
Jan claimed the book to Els to send
'Jan claimed to send the book to Els.'
c. Jan wilde [PRO het boek naar Els sturen]. [bare infinitival]
Jan wanted the book to Els send
'Jan wanted to send the book to Els.'

In addition to the control infinitivals in (15) there are also °subject raising and *accusativus-cum-infinitivo* infinitivals. An example of the first type is given in (16b). The fact that the °matrix verb *schijnen* in (16a) is unable to take a referential subject such as *Jan* suggests that the same holds for the verb *schijnen* in (16b). This has led to the hypothesis that the noun phrase *Jan* in (16b) is base-generated as the subject of the infinitival clause and subsequently raised to the subject position of

the matrix clause, in a similar way as the underlying object of a passive clause is promoted to subject. Subject raising is restricted to *te*-infinitivals and bare infinitivals and we will show that this can be accounted for by appealing to a generally assumed locality restriction on this type of passive-like movement.

(16) a. Het schijnt [dat *Jan* een nieuwe auto koopt].
it seems that Jan a new car buys
'It seems that Jan is buying a new car.'
b. *Jan*$_i$ schijnt [t_i een nieuwe auto te kopen].
Jan seems a new car to buy
'Jan seems to be buying a new car.'

Accusativus-cum-infinitivo (lit.: accusative with infinitive) constructions are characterized by the fact that the subject of infinitival clause is phonetically expressed by an accusative noun phrase. In Dutch, this construction occurs with bare infinitivals headed by a causative or a perception verb only; cf. example (17).

(17) a. Marie liet [hem$_{acc}$ dansen].
Marie make/let him dance
'Marie made him dance.'
b. Els hoorde [hen$_{acc}$ een liedje zingen].
Els heard them a song sing
'Els heard them sing a song.'

Section 5.3 concludes with a discussion of °complementives, that is, clauses that function as secondary predicates; examples of cases that are sometimes analyzed as complementives are the copular constructions in (18).

(18) a. Een feit is [dat hij te lui is].
a fact is that he too lazy is
'A fact is that he's too lazy.'
b. dat boek is moeilijk [(om) te lezen].
that book is hard/not COMP to read
'that book is hard to read.'

Because the complementive use of clauses is extremely rare, it seems advisable to not immediately commit ourselves to the suggested complementive analysis. Closer scrutiny will in fact reveal that at least in some cases there is reason for doubting this analysis: it seems plausible, for instance, that example (18b) should be analyzed as a construction with a complementive AP modified by an infinitival clause.

C. Complements of non-main verbs (Chapter 6)

Non-main verbs differ from main verbs in that they do not denote states of affairs, but express additional (e.g., aspectual) information about the state of affairs denoted by the main verb. This implies that non-main verbs do not have an argument structure and are thus not able to semantically select a clausal/verbal complement. Nevertheless, the use of the term SELECTION is also apt in this case since non-main verbs impose selection restrictions on the verb they are accompanied by: the examples in (19) show that perfect auxiliaries like *hebben* 'to have' select past

participles, semi-aspectual verbs like *zitten* 'to sit' select *te*-infinitives, and aspectual verbs like *gaan* 'to go' select bare infinitives. Chapter 6 will review a number of characteristic properties of non-main verbs and will discuss the three subtypes illustrated in (19).

(19) a. Jan heeft dat boek *gelezen*. [perfect auxiliary]
Jan has that book read
'Jan has read that book.'
b. Jan zit dat boek *te lezen*. [semi-aspectual verb]
Jan sits that book to read
'Jan is reading that book.'
c. Jan gaat dat boek *kopen*. [aspectual verb]
Jan goes that book buy
'Jan is going to buy that book.'

D. Verb clustering (Chapter 7)

Verb clustering is probably one of the most discussed issues in the syntactic literature on Dutch and German, and the topic is certainly complex enough to devote a separate chapter to it. °Verb clustering refers to the phenomenon that verbs that are in a selection relation tend to group together in the right periphery of the clause (with the exception of finite verbs in main clauses, which must occur in second position). This phenomenon is illustrated in (20) by the embedded counterparts of the main clauses in (19).

(20) a. dat Jan dat boek *heeft gelezen*. [perfect auxiliary]
that Jan that book has read
'that Jan has read that book.'
b. dat Jan dat boek *zit te lezen*. [semi-aspectual verb]
that Jan that book sits to read
'that Jan is reading that book.'
c. dat Jan dat boek *gaat kopen*. [aspectual verb]
that Jan that book goes buy
'that Jan is going to buy that book.'

The examples in (20) show that verb clusters may arise if a non-main verb selects a past/passive participle, a *te*-infinitive, or a bare infinitive as its complement. Verb clusters may actually consist of more than two verbs as is shown in (21) by means of the perfect-tense counterparts of (20b&c).

(21) a. dat Jan dat boek *heeft zitten te lezen*.
that Jan that book has sit to read
'that Jan has been reading that book.'
b. dat Jan dat boek *is gaan kopen*.
that Jan that book is go buy
'that Jan has gone to buy that book.'

Furthermore, verb clustering is not restricted to non-main verbs: it is also possible with main verbs selecting a *te*-infinitival or a bare infinitival (but not with main verbs selecting an *om* + *te*-infinitival). Example (22) provides some examples on

the basis of the (b)-examples in (16) and (17), repeated here in a slightly different form for convenience.

(22) a. Jan schijnt een nieuwe auto te kopen.
Jan seems a new car to buy
'Jan seems to be buying a new car.'
a′. dat Jan een nieuwe auto *schijnt te kopen*.
that Jan a new car seems to buy
b. Els hoorde hen een liedje zingen.
Els heard them a song sing
'Els heard them sing a song.'
b′. dat Els hen een liedje *hoorde zingen*.
that Els them a song heard sing

In the examples in (20) and (22) verb clustering is obligatory but this does not hold true across-the-board. In some examples, verb clustering is (or seems) optional and in other cases it is forbidden:

(23) a. dat Jan <dat boek> probeerde <dat boek> te lezen.
that Jan that book tried to read
'that Jan tried to read that book.'
b. dat Jan Marie <??dat boek> aanbood <dat boek> te lezen.
that Jan Marie that book prt.-offered to read
'that Jan offered to Marie to read that book.'

Some descriptions of verb clustering take it more or les for granted that any string of verbs (or rather: verb-like elements) in clause-final position can be analyzed as a verb cluster. Section 5.2.2 and Chapter 6 show that many of such cases should in fact receive a different analysis: we may be dealing with, e.g., deverbal adjectives or nominalizations. These findings are important since this will enable us to present a much simpler description of verb clustering than is found in more descriptive grammars such as Haeseryn et al. (1997). Section 7.1 will therefore start by providing some diagnostics that may help us to identify genuine verb clusters. Sections 7.2 and 7.3 discuss the intricate relation between the hierarchical and the linear order of verb clusters. Section 7.4 concludes with a discussion of the permeation of verb clusters by clausal constituents, a phenomenon that is especially pervasive in the variety of Standard Dutch spoken in Flanders.

V. Modification (Chapter 8)

This chapter will discuss adverbial modification of the clause/verbal projection. Section 8.1 will discuss the various semantic types of adverbial clause: the basic distinction is the one between adverbial phrases modifying the VP, like manner and certain spatio-temporal °modifiers, and adverbial phrases modifying some larger part of the clause, like negation and modal modifiers. Section 8.2 will discuss the categorial status of adverbial phrase and show that there are often various options. temporal modifier, for example, can be APs (*vroeg* 'early), PPs (na de wedstrijd 'after the game', NPs (*de hele wedstrijd* 'during the whole game') and clauses (*nadat Ajax verloren had* 'after Ajax had lost the game'). Section 8.3 concludes

with word order restrictions related to adverbial clauses. These involves word order restrictions can be related to the semantic type of the adverbial modifiers (e.g., clausal modifiers precede VP-modifiers in the °middle field of the clause), but also to their categorial type (e.g. adverbial clauses tend to occur in extraposed position).

VI. Word Order (Chapter 9 to Chapter 13)

This chapter discusses the word order in the clause. Chapter 9 starts by providing a bird's eye view of the overall, internal organization of the clause by characterizing the positions in which the verbs normally occur (the so-called second and clause-final position), by defining specific topological fields in the clause that often enter the description (clause-initial position, middle field, postverbal position), as well as the major movement operations affecting the word order in the clause (*wh*-movement, °extraposition, various forms of "scrambling", etc). Readers who are not familiar with Dutch syntax may find it profitable to read this chapter as a general introduction to the syntax of Dutch: it presents a number of issues pertaining to Dutch which the reader will encounter throughout this study. Chapter 10 to Chapter 13 will provide a more exhaustive discussion of the various issues introduced in Chapter 9.

VII. Clause-external elements (Chapter 14)

We conclude our study of verbs and verb phrases with a discussion of elements that can be assumed to be external to the sentence in the sense defined in Chapter 9. The clearest cases are those elements that precede the sentence-initial position like discourse particles, vocatives and left-dislocated elements.

(24) a. *Hé*, [$_{\text{SENTENCE}}$ wat doe jij daar]? [discourse particle]
hey what do you there
'Hey, what are you doing there?'

b. *Jan*, [$_{\text{SENTENCE}}$ kom alsjeblieft even hier]! [vocative]
Jan come please for.a.moment here
'Jan, please, come here for a moment!'

c. *Marie*$_i$, [$_{\text{SENTENCE}}$ ik heb haar$_i$ niet gezien]. [left-dislocated element]
Marie I have here not seen
'Marie, I haven't seen her.'

Clause-external elements at the right edge of the sentence are more difficult to indentify, next to discourse particles and vocative, we find at least right right-dislocated elements and afterthoughts.

(25) a. [$_{\text{SENTENCE}}$ Ik heb haar$_i$ niet gezien], *Marie*$_i$. [right-dislocated element]
I have here not seen
'I haven't seen her, Marie.'

b. [$_{\text{SENTENCE}}$ Ik heb Marie$_i$ niet gezien]; mijn zuster$_i$. [afterthought]
I have Marie not seen my sister
'I haven't seen Marie—my sister.'

VIII. Syntactic uses of verbal projections

In the volumes on noun phrases, adjective phrases and adpositional phrases we included a separate discussion of the syntactic uses of these phrases, that is, their uses as arguments, modifiers and predicates. This does not seem to make sense in the case of verb phrase. The use of clauses as arguments and complementives is discussed in Chapter 5, and their adverbial use is discussed in Section 8.2.6. Clauses can also be used as modifiers of nouns; such relative clauses are extensively discussed in Section N3.3. Furthermore there is an extensive discussion on the attributive and predicative use of past/passive participles and so-called modal infinitives in Section A9. In short, since the addition of a separate discussion of the syntactic uses of verb phrases would simply lead to unwanted redundancy, we do not include such a discussion here but simply refer the reader to the sections mentioned above for relevant discussion.

Chapter 1
Characterization and classification

The examples in (226) and (227) perhaps suggest that in certain cases the past-tense form *had* should be considered a genuine past subjunctive form. The other examples in this subsection, on the other hand, strongly suggest that with other verbs it is not just the past tense that trigger the irrealis meaning but that certain modal and contextual information is also relevant: Section 1.5.4 will argue that in many cases pragmatic considerations can indeed be used to account for such readings, which suggests that Dutch does not have an abstract past subjunctive that is morphologically identical to the past.

1.5. Tense, epistemic modality and aspect

This section discusses the notions of tense, modality and aspect as encoded in the Dutch verbal system by means of inflection and non-main verbs, and will show how these means may interact and thus give rise to a wide range of interpretational effects. Section 1.5.1 will begin with a discussion of the traditional view on the Dutch tense system, which basically follows a proposal by Te Winkel (1866) that distinguishes eight different tenses on the basis of three binary oppositions: present—past, perfect—imperfect, and future—non-future; see also Haeseryn et al. (1997:111-3).

(228) a. Present versus past
b. Future versus non-future
c. Imperfect versus perfect

By means of the three oppositions in (228) we define the eight tenses given in Table 8. The labels in the cells are the ones that we will use in this study; the abbreviations between parentheses refer to the traditional Dutch terminology and are added for the convenience of the Dutch reader.

Table 8: The Dutch tense system according to Te Winkel (1866)

		PRESENT	PAST
NON-FUTURE	IMPERFECT	*simple present* (o.t.t.)	*simple past* (o.v.t.)
	PERFECT	*present perfect* (v.t.t.)	*past perfect* (v.v.t.)
FUTURE	IMPERFECT	*future* (o.t.t.t.)	*future in the past* (o.v.t.t.)
	PERFECT	*future perfect* (v.t.t.t.)	*future perfect in the past* (v.v.t.t.)

Section 1.5.2 discusses epistemic modal verbs like *moeten* ‘must’ and *kunnen* ‘may’ and argues that the distinction between the future and non-future tenses in Table 8, which is traditionally attributed to presence or absence of the verb *zullen* ‘will’, is in fact not overtly expressed by the Dutch verbal tense system but arises from pragmatic considerations as a side effect of the system of epistemic modality. From this, we will conclude that the Dutch verbal tense system encodes just two of the three binary oppositions by morphological and syntactic means, namely present—past and perfect—imperfect; the opposition future—non-future is expressed by other means. In short. the Dutch verbal system expresses overtly no more than four of the eight tenses in Table 8. Section 1.5.3 continues with a brief discussion of aspectual verbs like the inchoative verb *beginnen* ‘to begin’. Section 1.5.4 concludes by showing how the future interpretation as well as a wide range of non-

temporal interpretations of the four tenses can be made to follow from the interaction between the temporal and modal information encoded in the sentence and the pragmatic principle known as the °maxim of quantity (cf. the °cooperative principle in Grice 1975), which prohibits the speaker from making his utterances more, or less, informative than is required in the given context.

1.5.1. Tense

This section discusses the binary tense system originally proposed by Te Winkel (1866) and briefly outlined above, which is based on three binary oppositions: present versus past, imperfect versus perfect, and non-future versus future. Te Winkel was not so much concerned with the properties ascribed to time in physics or in philosophy, which heavily influenced the currently dominant view that follows Reichenbach's (1947) seminal work, which is based on two ternary oppositions: (i) past—present—future and (ii) anterior-simultaneous-posterior. Instead, Te Winkel had a (surprisingly modern) mentalistic view on the study of language, and was mainly interested in the properties of time as encoded in the tense systems found in natural language. Verkuyl (2008:ch.1) compared the two systems and argued that Te Winkel's system is more successful in describing the universal properties of tense than the Reichenbachian systems for reasons that we will review after we have discussed the details of Te Winkel/Verkuyl's binary approach.

I. Binary tense theory: time from a linguistic perspective

Verkuyl (2008) refers to Te Winkel's (1866) proposal as the binary tense system, given that the crucial distinctions proposed by Te Winkel can be expressed by means of the three binary features in (229).

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

The three binary features in (229) define eight different tenses, which are illustrated in Table 9 by means of examples in the first person singular form.

Table 9: The Dutch tense system according to Verkuyl (2008)

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

The features in (229) are in need of some further explication, which will be given in the following subsections. For clarity of presentation, we will focus on the temporal interpretations cross-linguistically attributed to the tenses in Table 9 and postpone discussion of the more special temporal and the non-temporal aspects of their interpretations in Dutch to, respectively, Section 1.5.2 and Section 1.5.4.

A. The present tense interval

Binary Tense theory crucially differs from the Reichenbachian approaches in that it does not identify the notion of present with the notion of speech time. Keeping the notions of speech time and present strictly apart turns out to offer important advantages. For example, it allows us to treat tense as part of a developing discourse: shifting of the speech time does not necessarily lead to shifting of the present. In a binary system, the present tense can be seen as not referring to the speech time *n* but to some larger temporal domain *i* that *includes n*. The basic idea is that the use of the present-tense form signals that the speaker is speaking about eventualities as occurring in his or her present even though these eventualities need not occur at the point of speech itself. This can be illustrated by the fact that a speaker could utter an example such as (230a) on Tuesday to express that he is dedicating the whole week (that is, the stretch of time from Monday till Sunday) to writing the section on the tense system mentioned in (230a). It is also evident from the fact that this example can be followed in discourse by the utterances in (230b-d), which subdivide the present tense interval evoked by the adverbial phrase *deze week* 'this week' in (230a) into smaller subparts.

(230) a. Ik werk deze week aan de paragraaf over het tempussysteem. [present]
I work this week on the section about the tense system
'This week, I'm working on the section on the tense system.'

b. Gisteren heb ik de algemene opbouw vastgesteld. [present perfect]
yesterday have I the overall organization prt.-determined
'Yesterday, I determined the overall organization.'

c. Vandaag schrijf ik de inleiding. [simple present]
today write I the introduction
'Today, I'm writing the introduction.'

d. Daarna zal ik de acht temporele vormen beschrijven. [future]
after.that will I the eight tense forms describe
'After that, I will describe the eight tense forms.'

e. Ik zal het zaterdag wel voltooid hebben. [future perfect]
I will it Saturday prt. completed have
'I probably will have finished it on Saturday.'

The sequence of utterances in (230) thus shows that what counts as the present for the speaker/hearer constitutes a temporal domain that consists of several subdomains, each of them denoted by a temporal adverbial phrase that locates the four eventualities expressed by (230b-e) more precisely within the interval denoted by *deze week* 'this week' in (230a). Following Verkuyl (2008) the global structure of a present domain is depicted in Figure 6, in which the dotted line represents the time line, *n* stands for the SPEECH TIME, and *i* for the time interval that is construed

as the PRESENT FOR THE SPEAKER/HEARER. The role of the rightward shifting speech time *n* is to split the present *i* into an actualized part i_a (the present preceding *n*) and a non-actualized part $i_\diamond$ (the present following *n*).

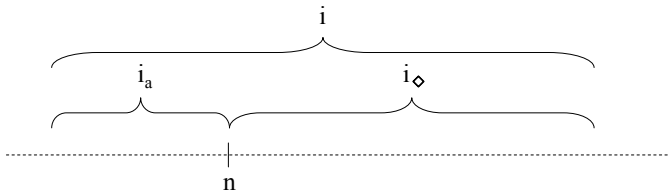

Figure 6: The present tense interval i

It is important to realize that present tense interval *i* is contextually determined. In the discourse chunk in (230), it may seem as if the present *i* is defined by the adverbial phrase *deze week* 'this week', but (231) shows that the present tense interval can readily be stretched by embedding (230a) in a larger story in the present tense.

(231) We werken nu al jaren aan een grammatica van het Nederlands.
we work now already for.years on a grammar of the Dutch
De eerste delen zijn al afgerond en we beginnen nu
the first parts are already prt.-finished and we start now
aan het deel over het werkwoord. Deze week werk ik aan de paragraaf
with the part on the verb this week work I on the section
over het temporele systeem. [continue as in (230b-d)]
about the temporal system
'We have been working for years on a grammar of Dutch. The first volumes are already finished and we are beginning now with the part on verbs. This week I'm working on the section on the tense system. [....]'

Example (232) in fact shows that we can stretch the present tense interval *i* indefinitely, given that this sentence involves an eternal or perhaps even everlasting present.

(232) Sinds de oerknal breidt het heelal zich in alle richtingen uit en
since the Big Bang expands the universe REFL in all directions prt. and
waarschijnlijk zal dat voortduren tot het einde der tijden.
probably will that continue until the end the$_{gen}$ times
'Since the Big Bang the universe is expanding in all directions and probably that will continue until the end of time.'

Ultimately, it is the shared extra-linguistic knowledge of the speaker and the hearer that determines what counts as the present tense interval, and, consequently, which eventualities can be discussed by using present-tense forms. This was already pointed out by Janssen (1983) by means of examples such as (233); the extent of the presumed present tense interval is determined (i) by the difference between the lifespan of, respectively, planets and human individuals, and (ii) by the fact that "being a stutterer" and "being ill" are normally construed as, respectively, an °individual-level and a stage-level predicate.

(233) a. De aarde is rond.
the earth is round
b. Jan is een stotteraar.
Jan is a stutterer
c. Jan is ziek.
Jan is ill

Following Verkuyl (2008), we can define Te Winkel's binary oppositions by means of the indices *i* and *n*, which were introduced previously, and the indices *j* and *k*, which pertain to the temporal location of the °eventuality (state of affairs) denoted by the main verb, or, rather, the lexical °projection of this verb. We have already mentioned that the defining property of the present domain is that it includes speech time *n*, which is expressed in (234a) by means of the connector "○". Verkuyl assumes that the present differs from the past in that past tense interval *i* precedes speech time *n*, as indicated in (234b); we will see in Subsection C, however, that there are reasons not to follow this assumption.

(234) • The feature [±PAST] (to be revised)
a. Present: i ○ n [*i* includes speech time *n*]
b. Past: i < n [*i* precedes speech time *n*]

The index *j* will be taken as the temporal domain in which eventuality *k* is located. In other words, every eventuality *k* has not only its running time, but it has also its own present *j*, which may vary depending on the way we talk about it. In the examples in (230), for example, the location of the present *j* of *k* is indicated by means of adverbial phrases; in example (230d), for example, the adverbial phrase *daarna* restricts *j* to the time interval following Tuesday, and the semantic representation of (230d) is therefore as schematically indicated in Figure 7, in which the line below *k* indicates the actual running time of the eventuality.

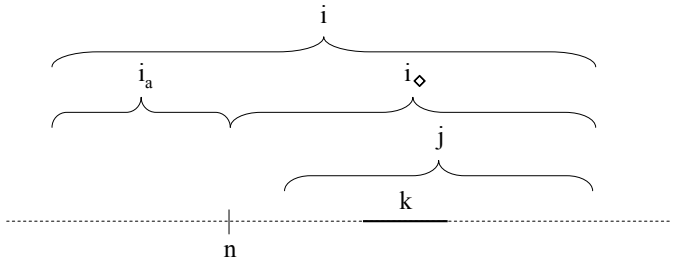

Figure 7: Eventuality k *and its present* j

It is important to note that, due to the use of the present-tense form in (230d), the notion of future is to be reduced to the relation of posteriority *within the present domain*. The difference between non-future and future is that in the former case the present *j* of eventuality *k* can synchronize with any subpart of *i*, whereas in the latter case it cannot synchronize with any subpart of the actualized part of the present, that is, it must be situated in the non-actualized part $i_\diamond$ of what counts as the present for the speaker/hearer. This is expressed in (235) by means of the connectors "≈" and "<".

(235) • The feature [±POSTERIOR]

a. Non-future: i ≈ j [*i* and *j* synchronize]

b. Future: i_a < j [i_a precedes *j*]

The difference between imperfect and perfect tense pertains to the relation between eventuality *k* and its present *j*. In the latter case *k* is presented as completed within *j*, whereas in the former case it is left indeterminate whether or not *k* is completed within *j*. Or, to say it somewhat differently, the perfect presents *k* as a discrete, bounded unit, whereas the imperfect does not. This is expressed in (236) by means of the connectors "$\preceq$" and "$\prec$".

(236) • The feature [±PERFECT]

a. imperfect: k $\preceq$ j [*k* need not be completed within *j*]

b. Perfect: k $\prec$ j [*k* is completed within *j*]

B. The four present tenses defined by Binary Tense Theory

The following subsections will show that the four present tenses in Table 9 in the introduction to this subsection differ with respect to (i) the location of eventuality *k* denoted by the lexical projection of the main verb within present-tense interval *i*, and (ii) whether or not it is presented as completed within its own present-tense interval *j*. Recall that we will focus on the temporal interpretations cross-linguistically attributed to the tenses in Table 9 and postpone the discussion of the more special temporal and the non-temporal aspects of their interpretations in Dutch to Section 1.5.4.

1. Simple present

The simple present expresses that eventuality *k* takes place during present-tense interval *i*. This can be represented by means of Figure 8, in which index *j* is taken to be synchronous to the present *i* of the speaker/hearer (*j* = *i*) by default. The continuous part of the line below *k* indicates that the preferred reading of an example such as *Ik wandel* 'I am walking' is that eventuality *k* overlaps with the moment of speech *n*.

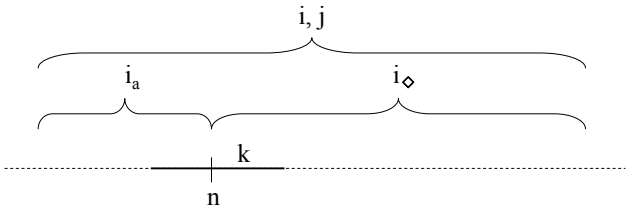

*Figure 8: Simple present (*Ik wandel *'I am walking')*

In many languages, including Dutch, the implication that *k* holds at the moment of speech *n* can readily be canceled by means of, e.g., adverbial modification: the simple present example (237) with the adverbial phrase *morgen* 'tomorrow' can be used to refer to some future eventuality *k*.

(237) Ik wandel morgen.
I walk tomorrow
'I'll walk tomorrow.'

This is, of course, to be expected on the basis of the definition of present in (234a), which states that the present-tense interval *i* must include speech time *n*, but does not impose any restrictions on *j* or *k*. Although we will briefly return to this issue in Subsection 5, we will postpone a more thorough discussion of this to Section 1.5.4, where we will show that this use of the simple present is a characteristic property of languages that do not express the future within the verbal tense system but by other means, such as adverbials.

2. Present perfect

The default reading of the present perfect is that eventuality *k* takes place before speech time *n*, that is, eventuality *k* is located in the actualized part of the present tense interval i_a ($j = i_a$). In addition, the present perfect presents eventuality *k* as a discrete, bounded unit that is completed within time interval *j* that therefore cannot be continued after *n*; this is represented in Figure 9 by means of the short vertical line after the continuous line below *k*.

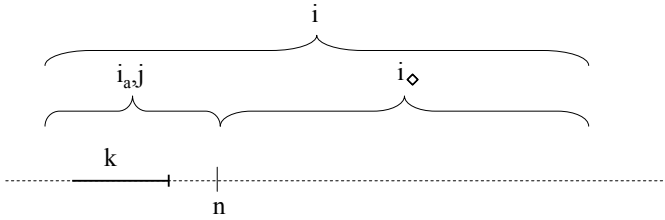

*Figure 9: Present perfect (*Ik heb gewandeld *'I have walked')*

A sentence like *Ik heb gisteren gewandeld* 'I walked yesterday' can now be fully understood: since neither the definition of present in (234a) nor the definition of perfect in (236b) imposes any restriction on the location of *j* (or *k*) with respect to *n*, the adverb *gisteren* 'yesterday' may be analyzed as an identifier of *j* on the assumption that yesterday is part of a larger present-tense interval *i* that includes speech time *n*. This explains the possibility of using the present-tense form *heeft* 'has' together with an adverbial phrase referring to a time interval preceding *n*.

In many languages, including Dutch, the implication that *k* takes place before speech time *n* can readily be canceled by means of, e.g., adverbial modification: the present perfect example (238) with the adverb *morgen* 'tomorrow' can be used to refer to some future eventuality *k*. Again, this is to be expected given that neither the definition of present in (234a) nor the definition of perfect in (236b) imposes any restriction on the location of *j* (or *k*) with respect to *n*; we will return to this issue in Section 1.5.4.

(238) Ik heb je paper morgen zeker gelezen.
I have your paper tomorrow certainly read
'I'll certainly have read your paper by tomorrow.'

In the literature there is extensive discussion about whether perfect-tense constructions should be considered temporal or aspectual in nature. The position that individual linguists take often depends on the specific tense and aspectual theory they endorse. Since the characterization of the perfect tense in the binary (and the Reichenbachian) tense theory does not appeal to the internal temporal structure of the event, this allows us to adopt a non-aspectual view of the perfect tense. The non-aspectual view may also be supported by the fact that the use of the perfect tense does not affect the way in which the internal structuring of eventuality *k* is presented; it is rather the interaction of perfect tense and °Aktionsart (inner aspect) that should be held responsible for that. This will become clear when we consider the contrast between the °atelic (states and activities) and °telic (accomplishments and achievements) eventualities in (239). We refer the reader to Section 1.2.3 for a discussion of the different kinds of Aktionsart.

(239) a. Jan heeft zijn hele leven van Marie gehouden. [state]
Jan has always of Marie loved
'Jan has loved Marie always.'

b. Jan heeft vanmorgen aan zijn dissertatie gewerkt. [activity]
Jan has this.morning on his dissertation worked
'Jan has worked on his PhD thesis all morning.'

c. Jan is vanmorgen uit Amsterdam vertrokken. [achievement]
Jan is this.morning from Amsterdam left
'Jan left Amsterdam this morning.'

d. Jan heeft de brief vanmorgen geschreven. [accomplishment]
Jan has the letter this.morning written
'Jan wrote the letter this morning.'

All examples in (239) present the eventualities as autonomous units that (under the default reading) are completed at or before speech time *n*. This does not imply, however, that eventualities cannot be continued or resumed after *n*. This is in fact quite natural in the case of atelic verbs: an example such as (239a) does not entail that Jan will not love Marie after speech time *n* as is clear from the fact that it can readily be followed by ... *en hij zal dat wel altijd blijven doen* 'and he will probably continue to do so forever'. Likewise, example (239b) does not imply that Jan will not continue his work on his thesis after speech time *n* as is clear from the fact that (239b) can readily be followed by ... *en hij zal daar vanmiddag mee doorgaan* '... and he will continue doing that in the afternoon'. The telic events in (239c&d), on the other hand, do imply that the events have reached their implied endpoint and can therefore not be continued after speech time *n*. The examples in (239) thus show that the internal temporal structure of the eventualities is not affected by the perfect tense but determined by the Aktionsart of the verbs/verbal projections in question. From this we conclude that the perfect is not aspectual in nature but part of the tense system; see Verkuyl (2008:20-27) for a more detailed discussion.

3. Future

The future expresses that eventuality *k* takes place after speech time *n*, that is, eventuality *k* is located in the non-actualized part of the present tense interval ($j = i_{\diamond}$).

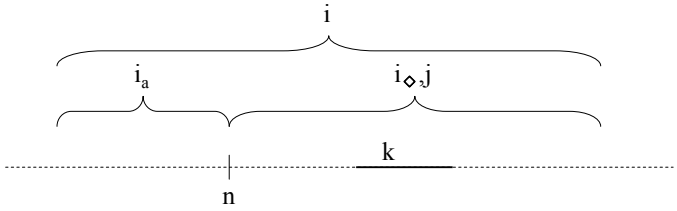

*Figure 10: Future (*Ik zal wandelen *'I will walk')*

The implication of Figure 10 is that eventuality *k* cannot take place during i_a, but example (240) shows that this implication can be readily cancelled in languages like Dutch. In fact, this will be one of the reasons to deny that *willen* functions as a future auxiliary in Dutch. We will return to this in Sections 1.5.2 and 1.5.4.

(240) Jan zal je paper lezen. Misschien heeft hij het al gedaan.
Jan will your paper read maybe has he it already done
'Jan will read your paper. Maybe he has already done it. '

4. Future perfect

The interpretation of the future perfect is similar to that of the future, but differs in two ways: (i) it is not necessary that the eventuality *k* has started after *n* and (ii) it is implied that the state of affairs is completed before the time span $i_{\diamond}$ has come to an end.

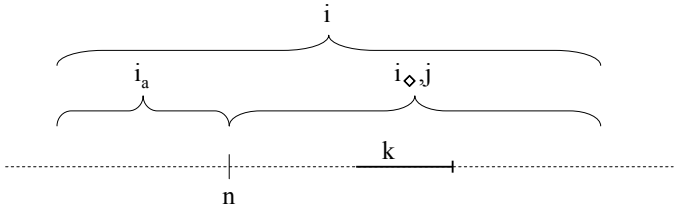

*Figure 11: Future perfect (*Ik zal hebben gewandeld *'I will have walked')*

The implication of Figure 11 is again that eventuality *k* cannot take place during i_a, but example (241) shows that this implication can be readily cancelled in languages like Dutch by means of, e.g., adverbial modification. We will put this non-future reading aside for the moment but return to it in Sections 1.5.2 and 1.5.4.

(241) Jan zal je paper ondertussen waarschijnlijk wel gelezen hebben.
Jan will your paper by.now probably PRT read have
'Jan will probably have read your paper by now.'

The main difference between the future and the future perfect is that in the former the focus is on the progression of the eventuality (without taking into account its completion), whereas in the latter the focus is on the completion of the

eventuality *k* in *j*. This difference is often somewhat subtle in the case of states and activities but transparent in the case of telic events. Whereas the future tense in example (242a) expresses that the process of melting will start or take place after speech time *n*, the future perfect example in (242b) simply expresses that the completion of the melting process will take place in some *j* that is positioned in $i_{\diamond}$; the future perfect leaves entirely open whether the melting process started before, after or at *n*.

(242) a. Het ijs zal vanavond smelten.
the ice will tonight melt
'The ice will melt tonight.'
b. Het ijs zal vanavond gesmolten zijn.
the ice will tonight melted be
'The ice will have melted tonight.'

In (243), similar examples are given with the accomplishment *die brief schrijven*: (243a) places the entire eventuality after the time *n*, whereas (243b) does not seem to make any claim about the starting point of the eventuality but simply expresses that the eventuality will be completed after *n* (but within $i_{\diamond}$).

(243) a. Jan zal vanavond die brief schrijven.
Jan will tonight that letter write
'Jan will write that letter tonight.'
b. Jan zal vanavond die brief geschreven hebben.
Jan will tonight that letter written have
'Jan will have written that letter by tonight.'

For the moment, we will ignore the difference between future and future perfect with respect to the starting point of the state of affairs, but we will return to this in Section 1.5.2, where we will challenge the claim that *zullen* is a future auxiliary.

5. The need to distinguish i and j

In the tense representations given in the previous subsections, we made a distinction between the present *i* of the speaker/hearer, on the one hand, and the present *j* of eventuality *k*, on the other. Although the latter is always included in the former, it can readily be shown that the distinction need be made. This may not be so clear in examples such as (244a), in which *j* seems to synchronize with the entire present tense interval *i* of the speaker/hearer. Adverbial phrases of time, however, may cause *j* to synchronize to a subpart of *i*: the adverb *vandaag* 'today' in (244b) refers to a subpart of *i* that includes *n*, and *morgen* 'tomorrow' in (244c) refers to a subpart of *i* situated in $i_{\diamond}$.

(244) a. We zijn thuis.
we are at.home
'We are at home.'
b. We zijn vandaag thuis.
we are today at.home
c. We zijn morgen thuis.
we are tomorrow at.home

That it is *j* and not the present tense interval *i* that is affected by adverbial modification is also clear from the fact that it is possible to have present-tense examples such as (245), in which the two adverbial phrases refer to two subdomains within *i*.

(245) We zijn vandaag thuis en morgen in Utrecht.
we are today at.home and tomorrow in Utrecht

Entailments are furthermore computed on the basis of *j* and not the present tense interval *i*. Example (244b), in which *j* synchronizes with a subpart of *i* that includes *n*, does not say anything about the whereabouts of the speaker yesterday or tomorrow, even when these time intervals are construed as part of present tense interval *i*. That entailments are computed on the basis of *j* and not *i* is even clearer in example (244c), in which *j* synchronizes with (a subpart of) i_o; this example does not say anything about the whereabouts of the speaker at speech time *n*, which clearly shows that the state of affairs does not have to hold during the complete present tense interval *i*. It is only in cases such as (244a), without a temporal modifier, that we conclude (by default) that the state of affairs holds for the complete present tense interval *i*.

C. The past tense interval

The examples in (246) show that, like the present tense, the past tense involves some larger time interval, which can be divided into smaller subdomains. A speaker can utter an example such as (246a) to report on Els' activities during the past-tense interval evoked by the adverbial phrase *vorige week* 'last week'. This utterance can be followed in discourse by the utterances in (246b-d), which subdivide this past-tense interval into smaller subparts in a fashion completely parallel to the way in which the present-tense examples in (230b-d) subdivide the present tense interval evoked by the adverbial phrase *deze week* 'this week' in (230a).

(246) a. Els werkte vorige week aan de paragraaf over het temporele systeem. [past]
Els worked last week on the section about the tense system
'Last week, Els was working on the section on the tense system.'

b. Op maandag had ze de algemene opbouw vastgesteld. [past perfect]
on Monday had she the overall organization prt.-determined
'On Monday, she had determined the overall organization.'

c. Op dinsdag schreef ze de inleiding. [simple past]
on Tuesday wrote she the introduction
'On Tuesday, she wrote the introduction.'

d. Daarna zou ze de acht temporele vormen beschrijven. [future in past]
after.that would she the eight tense forms describe
'After that, she would describe the eight tense forms.'

e. Ze zou het zaterdag wel voltooid hebben. [future perfect in past]
she would it Saturday PRT completed have
'She probably would have finished it on Saturday.'

The striking parallelism between the four present-tense forms and the four past-tense forms makes it possible to assume that the mental representations of the past

tenses are similar to the ones for the present tenses except for *n*. To account for the striking parallelism between the four present tenses and the four past tenses, we will assume that the past tenses are defined by means of a virtual "speech-time-in-the past", which we will refer to as *n′*. To make this a bit more concrete, assume that the speaker of the discourse chunk in (246) is telling about a conversation he has had with Els. We may then identify *n′* with the moment that the conversation took place; the speaker is repeating the information provided by Els from the perspective of that specific point in time. This leads to the representation in Figure 12, in which the dotted line represents the time line, index *i* stands for the time interval that is construed as the past (that is, the *then*-present) for the speaker/hearer, i_a for the actualized part of the past at *n′*, and $i_\diamond$ for the non-actualized part of the past at *n′*.

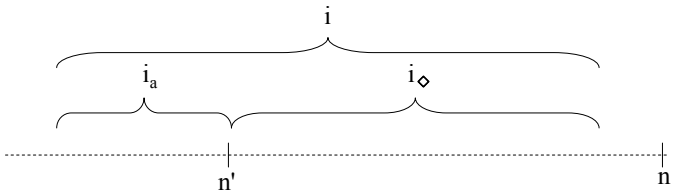

Figure 12: The past-tense interval i

In what follows we will show that the four past tenses in Table 9 differ with respect to the way in which they locate the eventuality *k* in past-tense interval *i*. Before we start doing this, we want to point out that the present proposal diverges in one crucial respect from the proposal in Verkuyl (2008). In Figure 12, we placed speech time *n* external to *i* and Verkuyl indeed claims that this is a defining property of the past-tense interval *i*, as is clear from his definition of present and past tense given in Subsection A, which is repeated here as (247).

(247) • The feature [±PAST] (to be revised)
  a. Present: i ○ n [*i* includes speech time *n*]
  b. Past: i < n [*i* precedes speech time *n*]

The idea that the past-tense interval must precede speech time *n* does not seem to follow from anything in the system. There is, for example, no *a priori* reason for rejecting the idea that, like the present tense interval, the past-tense interval can be stretched indefinitely, and is thus able to include speech time *n*. In the subsections below, we will in fact provide empirical evidence that inclusion of *n* is possible. For example, the future in the past and future perfect in the past examples in (248) show that eventuality *k* can readily be placed after speech time *n*.

(248) a. Marie zou morgen vertrekken.
  Marie would tomorrow leave
  'Marie would leave tomorrow.'
  b. Marie zou oma morgen bezocht hebben.
  Marie would grandma tomorrow visited have
  'Marie would have visited Grandma tomorrow.'

In order to formally account for the acceptability of examples such as (248), Broekhuis & Verkuyl (in prep.) adapted the definition in (247b) as in (249b). Note

that the examples in (248) also have a modal meaning component; we will ignore this for the moment but return to it in Section 1.5.2.

(249) • The feature [±PAST] (adapted version)
a. Present: i ○ n [*i* includes speech time *n*]
b. Past: i ○ n′ [*i* includes virtual speech-time-in-the-past *n′*]

The definitions in (249) leave the core of the binary tense system unaffected given that they maintain the asymmetry between the present and the past but now on the basis of an opposition between the *now*-present (characterized by the inclusion of *n*) and the *then*-present (characterized by the inclusion of *n′*). The *now*-present could be seen as the time interval that is immediately accessible to and directly relevant for the speaker/hearer-in-the-present, whereas the *then*-present should rather be seen as the time interval accessible to and relevant for some speaker/hearer-in-the-past; see Janssen (1983:324ff.) and Boogaart & Janssen (2007) for a review of a number of descriptions in cognitive terms of the distinction between past and present that may prove useful for sharpening the characterization of the *now*- and *then*-present proposed here. The definition of past in (249b) is also preferred to the one in (247b) for theoretical reasons: first, it formally accounts for the parallel architecture of the present and the past and, second, it solves the problem that *n′* did not play an explicit role in the definition of the three binary oppositions given in Subsection A, and was therefore left undefined.

D. The four past tenses defined by Binary Tense Theory

The following subsections will show that the four past tenses in Table 9 in the introduction to this subsection differ with respect to (i) the location of eventuality *k* denoted by the lexical projection of the main verb within present-tense interval *i*, and (ii) whether or not it is presented as completed within its own past-tense interval *j*. Recall that we will focus on the temporal interpretations cross-linguistically attributed to the tenses in Table 9 and postpone the discussion of the more special temporal and the non-temporal aspects of their interpretations in Dutch to Section 1.5.4.

1. Simple past

The simple past expresses that eventuality *k* takes place during past-tense interval *i*. This can be expressed by means of Figure 13, in which the continuous line below *k* refers to the time interval during which the eventuality holds. The continuous line below *k* indicates that the default reading of an example such as *Ik wandelde* 'I was walking' is that eventuality *k* takes place at *n′*.

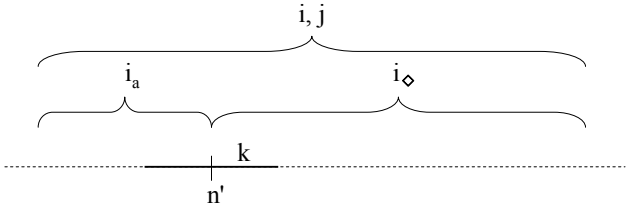

*Figure 13: Simple past (*Ik wandelde *'I was walking')*

By stating that $j = i$, Figure 13 also expresses that the simple past does not have any implications for the time preceding or following the relevant past-tense interval *i*: the eventuality *k* may or may not hold before/after *i*. Thus, an example such as (250) does not say anything about the speaker's feelings on the day before yesterday or today. This also implies that the simple past cannot shed any light on the issue of whether speech time *n* can be included in past-tense interval *i*.

(250) Ik was gisteren erg gelukkig.
I was yesterday very happy
'I was very happy yesterday.'

2. Past perfect

The default reading of the past perfect is that eventuality *k* takes place before *n′*, that is, *k* is located in the actualized past-tense interval i_a ($j = i_a$). In addition, the past perfect presents the eventuality as a discrete, bounded unit that is completed within time interval *j*, that is, cannot be continued after *n′*; this is again represented by means of the short vertical line after the continuous line below *k*. Given that *k* precedes *n′* and *n′* precedes *n*, *k* also precedes *n*, which implies that examples of this type cannot shed any light on whether speech time *n* can be included in the past-tense interval *i*.

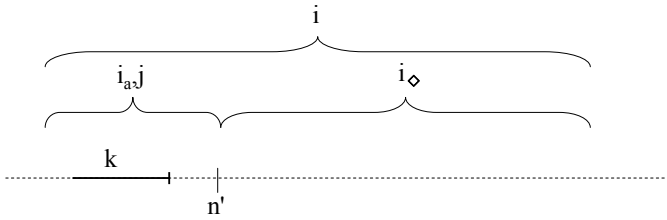

*Figure 14: Past perfect (*Ik had gewandeld *'I had walked')*

3. Future in the past

The future in the past expresses that the eventuality *k* takes place after *n′*, that is, *k* is located in the non-actualized part of the past-tense interval ($j = i_\diamond$).

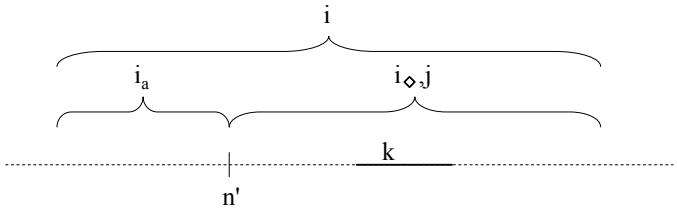

*Figure 15: Future in the past (*Ik zou wandelen *'I would walk')*

The future in the past examples in (251b&c) show that speech time *n* can be included in the past-tense interval. We have already seen above that this refutes the definition of past in (247b) and supports the revised definition in (249b).

(251) a. Els zou gisteren wandelen.
Els would yesterday walk
b. Els zou vandaag wandelen.
Els would today walk
c. Els zou morgen wandelen.
Els would tomorrow walk

4. Future perfect in the past

The interpretation of the future perfect in the past is similar to that of the future in the past, but requires that the state of affairs be completed within time span $i_{\diamond}$.

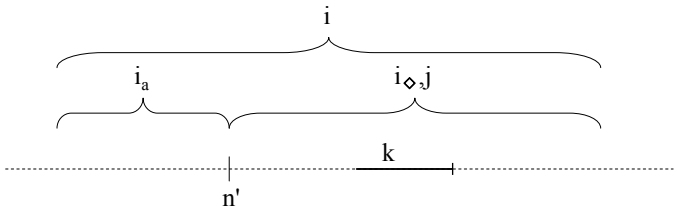

*Figure 16: Future perfect in past (*Ik zou hebben gewandeld *'I would have walked')*

The difference between the future in the past and the future perfect in the past is parallel to the difference between the future and the future perfect discussed in Subsection A: in future in the past examples such as (252a) the focus is on the progression of the eventuality, which is placed in its entirety after *n'*, whereas in future perfect in the past examples such as (252b) the focus is on the completion of the eventuality and no particular claim is made concerning the starting point of the event.

(252) a. Het ijs zou gisteren smelten.
the ice would yesterday melt
'The ice would melt yesterday.'
b. Het ijs zou gisteren gesmolten zijn.
the ice will yesterday melted be
'The ice would have melted yesterday.'

Similar examples with the achievement *die brief schrijven* are given in (253): the future in the past in (253a) locates the entire eventuality after *n'*, whereas the future perfect in the past in (253b) does not seem to make any claim about the starting point of the eventuality but simply expresses that the eventuality will be completed after *n'* (but within $i_{\diamond}$).

(253) a. Jan zou gisteren die brief schrijven.
Jan would yesterday that letter write
'Jan would write that letter yesterday.'
b. Jan zou gisteren die brief geschreven hebben.
Jan would yesterday that letter written have
'Jan would have written that letter yesterday.'

The examples in (254) with the adverbial phrase *morgen* 'tomorrow' show that the future perfect in the past provides evidence in favor of the claim that speech time *n* can be included in the past-tense interval. We have already seen that this refutes the definition of past in (247b) and supports the revised definition in (249b).

(254) a. Het ijs zou morgen gesmolten zijn.
the ice will tomorrow melted be
'The ice would have melted tonight.'
b. Jan zou morgen die brief geschreven hebben.
Jan would tomorrow that letter written have
'Jan would have written a letter tomorrow.'

E. The choice between present and past: a matter of perspective

So far, we have discussed the three binary features in (255) assumed within Te Winkel/Verkuyl's binary tense theory: these features define four present and four past tenses, which were exemplified in Table 9.

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

Subsections A and C discussed the default interpretations assigned to these present and past tenses by Verkuyl (2008). We also discussed Verkuyl's formalizations of the features in (255) and saw that there was reason to somewhat adapt the definition of [+PAST]. This resulted in the set of definitions in (256).

(256) a. Present: i ○ n [*i* includes speech time *n*]
a′. Past: i ○ n′ [*i* includes virtual speech-time-in-the-past *n*′]
b. Imperfect: k $\preceq$ j [*k* need not be completed within *j*]
b′. Perfect: k $\prec$ j [*k* is completed within *j*]
c. Non-future: i ≈ j [*i* and *j* synchronize]
c′. Future: i_a < j [i_a precedes *j*]

An important finding of the previous subsections is that in principle the present and past interval can be indefinite, with the result that the past-tense interval may include speech time *n*. This means that the present and the past do not refer to mutually exclusive temporal domains and, consequently, that it should be possible to discuss eventualities both as part of the past and as part of the present domain. This subsection provides evidence in favor of this position and will argue that the choice between the two options is a matter of perspective, that is, whether the eventuality is viewed from the perspective of speech time *n* or the virtual speech time in the past *n*′.

1. Supratemporality

The use of adverbial phrases of time in sentences with a past tense may introduce a so-called SUPRATEMPORAL ambiguity; cf. Verkuyl (2008:118-123). This ambiguity is especially visible when the adverbial phrase occupies the first position of the sentence, as in (257).

(257) a. Om vijf uur ging Marie weg.
at 5 o'clock went Marie away
'Marie would leave at 5 o'clock.'
b. Een uur geleden had Marie nog zwart haar.
an hour ago had Marie still black hair
'An hour ago Marie still had black hair.'

The two sentences in (257) have a run-of-the-mill "real event" interpretation in the sense that the sentence is about Marie's departure or about Marie having black hair at the time indicated by the adverbial phrase; in such cases the adverbial phrase functions as a regular temporal modifier of the time interval *j* that includes eventuality *k*. There is, however, also a supratemporal interpretation in which the eventuality itself does not play any particular role apart from being the topic of discussion. Under this interpretation, the speaker of (257a) expresses that his most recent information about Marie's departure goes back to five o'clock. This means that the adverbial phrase *om vijf uur* 'at five o'clock' thus does not pertain to the location of the eventuality on the time axis but to the speaker: "according to my information at five o'clock, the situation was such that Marie would be leaving". In a similar way, (257b) may be interpreted as a correction of a mistake signaled by the speaker in, e.g., a manuscript; the sentence is not about the character Marie but about information about the character Marie: "An hour ago, I read that Marie is black-haired (but now it is mentioned that Jan is fond of her auburn hair)".

Past-tense clauses are compatible with future eventualities on a supratemporal reading. Consider a situation in which the speaker is discussing Els' plans for some time interval after speech time *n*. He may then compare the information available at two different moments in time: sentence (258a), for example, compares the information that the speaker had yesterday with the information that he has just received. The first conjunct of (258a) also illustrates that past-tense clauses with a supratemporal reading are compatible with locating the eventuality *k* after speech time; the speaker's talk is located in the speaker's future. Example (258b) in fact shows that it is even possible to make the future location of *k* explicit by means of a second adverbial phrase like *morgen* 'tomorrow', particularly when adding the particle *nog* right behind *gisteren* 'yesterday'; see Boogaart & Janssen (2007) for similar examples.

(258) a. Gisteren zou Els mijn lezing bijwonen, maar nu gaat ze op vakantie.
yesterday would Els my talk attend but now goes she on holiday
'As of yesterday, the plan was that Els would attend my lecture but now I've information that she'll be going on holiday.'
b. Gisteren (nog) zou Els morgen mijn lezing bijwonen,
yesterday PRT would Els tomorrow my lecture attend
maar nu gaat ze op vakantie.
but now goes she on holiday
'As of yesterday, the plan was that Els would attend my talk tomorrow but now I've information that she'll be going on holiday.'

That the past tense in the first conjunct of the examples in (258) is compatible with locating the eventuality after speech time *n* and that the adverbs *gisteren* 'yesterday'

and *morgen* 'tomorrow' can be used in a single clause is exceptional. However, that this is possible need not surprise us when we realize that speech time *n* can be included in the past-tense interval. As is illustrated in Figure 17 for example (258b), the first conjuncts in sentences such as (258) give rise to completely coherent interpretations. The notation used aims at expressing that the adverbial phrase *gisteren* is a supra-temporal modifier of the virtual speech-time-in-the past *n'*, whereas the adverbial phrase *morgen* 'tomorrow' functions as a regular temporal modifier of *j*.

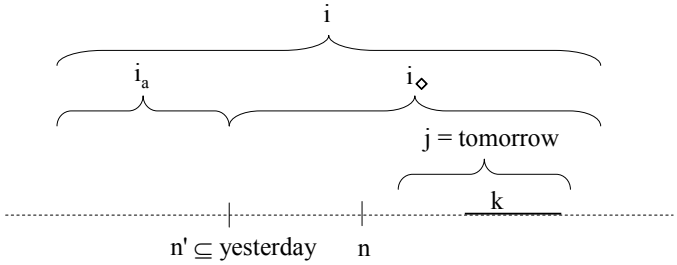

Figure 17: Supratemporal interpretation of future in the past

2. Sequence of tense

The claim that speech time *n* may be included in the past-tense interval also has important consequences for the description of the so-called SEQUENCE OF TENSE phenomenon, that is, the fact that the tense of a dependent clause can be adapted to concord with the past tense of the °matrix clause. Sequence of tense is illustrated by means of the two examples in (259): example (259a) is unacceptable if we interpret the adverb *morgen* 'tomorrow' as a temporal modifier of the eventuality *k*, whereas example (259b) is fully acceptable in that case.

(259) a. $^{\$}$Jan vertrok morgen.
Jan left tomorrow
'Jan was leaving tomorrow.'
b. Els zei [dat Jan morgen vertrok].
Els said that Jan tomorrow left
'Els said that Jan was leaving tomorrow.'

The unacceptability of (259a) is normally taken to represent the normal case: past tense is incompatible with adverbial phrases like *morgen* that situate the eventuality after speech time *n*, and therefore (259a) cannot be interpreted as a modifier of the *then*-present *j* of the eventuality *k*; on this view, the sequence-of-tense example in (259b) is unexpected and must therefore considered to be a special case. If we assume that speech time *n* can be included in the past-tense interval, on he other hand, the acceptability of (259b) is expected without further ado; the eventualities in the main and the embedded clause are both viewed as belonging to past-tense interval *i*, which happens to also contain speech time *n*. The real problem on this view is the unacceptability of example (259a) given that the system predicts this example to be possible in the intended reading as well.

The claim that the past-tense interval may include speech time *n* may also account for the contrast between the two examples in (260). In (260a) the

eventualities are both considered to be part of the past-tense interval, and as a result of this we cannot determine from this example whether the speaker believes that Els is still pregnant at speech time *n*; this may or may not be the case. In (260b), on the other hand, the eventuality of Els being pregnant is presented as being part of the present time domain, and the speaker therefore does imply that Els is still expecting at speech time *n*; see Hornstein (1990: Section 4.1) for similar intuitions.

(260) a. Jan zei [dat Els zwanger was].
Jan said that Els pregnant was
'Jan said that Els was pregnant.'
b. Jan zei [dat Els zwanger is].
Jan said that Els pregnant is
'Jan said that Els is pregnant.'

This contrast in interpretation can also be demonstrated by means of the examples in (261). Because sequence-of-tense constructions do not imply that the eventuality expressed by the embedded clause still endures at speech time *n*, the continuation in (261a) is fully natural; it is suggested that Marie has given birth and hence is a mother by now. In (261b), on the other hand, the continuation gives rise to a semantic anomaly given that the use of the present in the embedded clause strongly suggests that the speaker believes that Marie is still pregnant.

(261) a. Jan zei [dat Els zwanger was]; ze zal ondertussen wel moeder zijn.
Jan said that Els pregnant was she will by.now PRT mother be
'Jan said that Els was pregnant; she'll probably be a mother by now.'
b. $Jan zei [dat Els zwanger is]; ze zal ondertussen wel moeder zijn.
Jan said that Els pregnant is she will by.now PRT mother be
'Jan said that Els is pregnant; she'll probably be a mother by now.'

A similar account can be given for the observation in Kiparsky & Kiparsky (1970:162-3), which is illustrated in (262), that for some speakers factive and non-factive constructions differ in that the former normally have optional sequence of tense, whereas the latter (often) have obligatory sequence of tense. The reason for this is again that the use of the present tense suggests that the speaker believes that the eventuality expressed by the embedded clause holds at speech time *n*. We used a percentage sign in (262b) to indicate that some speakers at least marginally accept the use of the present tense in non-factive constructions like this.

(262) a. De oude Grieken wisten al [dat de wereld rond was/is].
the old Greeks knew already that the world round was/is
'The old Greeks knew already that the world is round.'
b. De kerk beweerde lang [dat de wereld plat was/%is].
the church claimed long that the world flat was/is
'The church claimed for a long time that the World was flat.'

3. Past-tense examples with the future adverbs like morgen *'tomorrow'*

The discussion in the previous subsection has shown that the claim that the past-tense interval may include speech time *n* correctly predicts that sequence of tense is not required, and may even be impossible if the right conditions are met. As we

noticed earlier in our discussion of the examples in (259), this in a sense reverses the traditional problem; it is not the sequence-of-tense example in (259b) that constitutes a problem but the fact that in simple clauses such as (259a), the past tense blocks the use of adverbial phrases like *morgen* 'tomorrow' that locate the eventuality after speech time *n*.

It should be noted, however, that under specific conditions past tense actually can be combined with adverbs like *morgen*. This holds, for instance, for the question in (263b), provided by Angeliek van Hout (p.c.). The two examples in (263) differ in their point of perspective: (263a) expresses that speaker assumes on the basis of his knowledge at speech time *n* that the addressee will come tomorrow, whereas (263b) expresses that the speaker assumes this on the basis of his knowledge at virtual speech-time-in-the-past *n′*. Some speakers report that (263b) feels somewhat more polite than (263a), which may be related to this difference in perspective; by using (263b), the speaker explicitly leaves open the possibility that his information is outdated, and, consequently, that the conclusion that he draws from this information is wrong.

(263) a. Je komt morgen toch?
you come tomorrow PRT
'You've the intention to come tomorrow, don't you?'
b. Je kwam morgen toch?
you came tomorrow prt
'You had the intention to come tomorrow, didn't you?'

Past tenses can also be combined with the adverb *morgen* in questions such as (264b). The difference again involves a difference in perspective. By using question (264a), the speaker is simply inquiring after some information available at *n*; he has the expectation that there will be a visitor tomorrow and he wants to know who that visitor is. Example (264b) is used when the speaker is aware of the fact that he had information about the identity of the visitor at some virtual speech-time-in-the-past *n′*, but does not remember that information (which is typically signaled by the string *ook al weer*).

(264) a. Wie komt er morgen?
who comes there tomorrow
'Who is coming tomorrow?'
b. Wie kwam morgen ook al weer?
who came tomorrow OOK AL WEER
'Please, tell me again who will come tomorrow?'

Yet another example, taken from Boogaart & Janssen (2007: 809), is given in (265). Example (265a) simply states the speaker's intention to leave tomorrow, whereas example (265b) leaves open the possibility that there are reasons that were not known at some virtual speech-time-in-the-past *n′* that may forestall the implementation of the speaker's intention to leave.

(265) a. Ik vertrek morgen.
I leave tomorrow
'I'll leave tomorrow.'
b. Ik vertrok morgen graag.
I left tomorrow gladly
'I'd've liked to leave tomorrow.'

A final example that seems closely related to the one in (265b) and which is also taken in a slightly adapted from Boogaart & Janssen is given in (266b). Examples like that can be used as objections to some order/request by showing that it is inconsistent with some earlier obligation or plan.

(266) a. Je moet morgen thuis blijven.
you have.to tomorrow at.home stay
'You have to stay at home tomorrow.'
b. Maar ik vertrok morgen naar Budapest!
but I left tomorrow to Budapest
'But I was supposed to leave for Budapest tomorrow.'

The examples in (263) to (266) show that there is no inherent prohibition on combining past tenses with adverbs like *morgen* 'tomorrow', and thus show that there is no need to build such a prohibition into tense theory. Of course, this still leaves us with the unacceptability of simple declarative clauses like *Jan kwam morgen* 'Jan came tomorrow', but Section 1.5.4 will solve this problem by arguing that this example is excluded not because it is semantically incoherent but for pragmatic reasons: Grice's °maxim of quantity prefers the use of the simple present/future in cases like this.

4. Present-tense examples with past adverbs like gisteren *'yesterday'*

The previous subsection has shown that it is possible to combine past tenses with adverbs referring to time intervals following speech time *n*. Similarly, it seems possible to combine present tenses with adverbs like *gisteren* 'yesterday' that refer to time intervals preceding speech time *n*. Subsection A2 has already discussed this for present perfect constructions such as (267) and has shown that this is fully allowed by our definitions in (256); since neither the definition of present in (256a) nor the definition of perfect in (256b) imposes any restriction on the location of *j* (or *k*) with respect to *n*, the adverbial *gisteren* 'yesterday' may be analyzed as an identifier of *j* on the assumption that the time interval referred to by *gisteren* is part of a larger present-tense interval *i* that includes speech time *n*.

(267) a. Ik heb gisteren gewandeld.
I have yesterday walked
'I walked yesterday.'

In fact, we would expect for the same reason that it is also possible to combine adverbs like *gisteren* with the simple present: the definition of present in (256a) does not impose any restriction on the location of *j* (or *k*) with respect to *n*. This means that we expect examples such as (268c) to be possible alongside (268a&b).

Although the examples in (268a&b) are certainly more frequent, examples such as (268c) occur frequently in speech and can readily be found on the internet.

(268) a. Ik las gisteren/daarnet in de krant dat ...
I $\text{read}_{\text{past}}$ yesterday/just.now in the newspaper that
'Yesterday/A moment ago, I read in the newspaper that ....'
b. Ik heb gisteren/daarnet in de krant gelezen dat ...
I have yesterday/just.now in the newspaper $\text{read}_{\text{part}}$ that
'Yesterday/A moment ago, I read in the newspaper that ....'
c. Ik lees gisteren/daarnet in de krant dat ...
I $\text{read}_{\text{present}}$ yesterday/just.now in the newspaper that
'Yesterday/A moment ago, I was reading in the newspaper that ...'

The acceptability of examples such as (268c) need not surprise us and in fact need no special stipulation. The only thing we have to account for is why the frequency of such examples is relatively low: one reason that may come to mind is simply that examples of this type are blocked by the perfect-tense example in (268b) because the latter is more precise in that it presents the eventuality as completed.

Present-tense examples such as (268c) are especially common in narrative contexts as an alternative for the simple past, for which reason this use of the simple present is often referred to as the HISTORICAL PRESENT. The historical present is often said to result in a more vivid narrative style (see Haeseryn et al. 1997:120), which can be readily understood from the perspective of binary tense theory. First, it should be noted that the simple past is normally preferred in narrative contexts over the present perfect given that it presents the story not as a series of completed eventualities but as a series of ongoing events. However, since the simple past presents the story from the perspective of some virtual speech-time-in-the-past, it maintains a certain distance between the events discussed and the listener/reader. The vividness of the historical present is the result of the fact that the simple present removes this distance by presenting the story as part of the actual present tense interval of the listener/reader.

The historical present has become convention that is frequently used in the narration of historical events, even if the events are more likely construed as being part of some past-tense interval; see (269). Again, the goal of using the historical present is to bridge the gap between the narrated events and the reader by presenting these events as part of the reader's present-tense interval.

(269) a. In 1957 verscheen *Syntactic structures*, dat Chomsky beroemd zou maken.
in 1957 appeared *Syntactic structures* that Chomsky famous would make
'In 1957, *Syntactic Structures* appeared, which would make Chomsky famous.'
b. In 1957 verschijnt *Syntactic structures*, dat Chomsky beroemd zal maken.
in 1957 appears *Syntactic structures* that Chomsky famous will make
'In 1957, *Syntactic Structures* appears, which will make Chomsky famous.'

This use of the historical present is therefore not very special from a grammatical point of view given that it just involves the pretense that $n' = n$, and we will therefore not digress any further on this use. The conclusion that we can draw from the discussion above is that the stylistic effect of the so-called historical present

confirms our main claim that the choice between past and present tense is a matter of perspective.

5. Non-rigid designators

This subsection concludes our discussion of the choice between present and past by showing that tense determines not only the perspective on the eventuality expressed by the lexical °projection of the main verb but also affects the interpretation of so-called non-rigid designators like *de minister-president* 'the prime minister'; cf. Cremers (1980) and Janssen (1983). Non-rigid designators are noun phrases that do not have a fixed referent but referents that change over time; whereas the noun phrase *de minister-president* refers to Wim Kok in the period August 1994–July 2002, it refers to Jan Peter Balkenende in the period July 2002–February 2010.

That choice of tense may affect the interpretation of the noun phrase can be illustrated by means of the examples in (270). The interpretation of the present-tense example in (270a) depends on the actual speech time *n*; if uttered in 1996, it is a contention about Wim Kok, if uttered in 2008, it is a contention about Jan Peter Balkenende. Similarly, the interpretation of the past-tense example in (270b) depends on the location of the virtual speech-time-in-the past *n′*: in a discussion about the period 1994 to 2002, it will be interpreted as an assertion about Wim Kok, but in a discussion about the period 2002 to 2010, as an assertion about Jan Peter Balkenende. Crucially, example (270b) need not be construed as an assertion about the person who performs the function of prime minister at speech time *n*.

(270) a. De minister-president is een bekwaam bestuurder.
the prime.minister is an able governor
b. De minister-president was een bekwaam bestuurder.
the prime.minister was an able governor

The examples in (270) show that present/past tense fixes the reference of non-rigid designators; we select their reference at *n*/*n′*. Now, consider the examples in (271), in which the index *now* on the noun phrase is used to indicate that the intended referent is the one who performs the function of prime minister at speech time *n*. The number sign indicates that example (271a) is not very felicitous when one wants to express that the current prime minister had attended high school when he was young. This follows immediately from the claim that the reference of non-rigid designators is determined by tense; the past tense indicates that the description *de minister-president* can only refer to the person performing the function of prime minister at virtual speech-time-in-the-past *n′*. Example (271b), on the other hand, can felicitously express the intended meaning given that it simply presents the prime minister's school days as part of the present tense interval: the person referred to by the description *de minister-president* at speech time *n* is said to have attended high school during the actualized part of the present-tense interval.

(271) a. #De minister-president zat op het gymnasium.
the prime.minister$_{now}$ sat on the high.school
'The prime minister attended high school.'
b. De minister-president heeft op het gymnasium gezeten.
the prime.minister$_{now}$ has on the high.school sat
'The prime minister has attended high school.'

For completeness' sake, note that we do not claim that it is impossible to interpret a non-rigid designator from the perspective of speech time *n* in past tense sentences, but this is possible only if the description happens to refer to the same individual at *n* and *n′*. This is illustrated by the fact that the two examples in (272) are both perfectly acceptable.

(272) a. De minister-president was enkele dagen in Brussel.
the prime.minister$_{now}$ was some days in Brussels
'The prime minister was in Brussels for a couple of days.'
b. De minister-president is enkele dagen in Brussel geweest.
the prime.minister$_{now}$ is some days in Brussels been
'The prime minister has been in Brussels for a couple of days.'

The discussion above has shown that present/past tense not only determines the perspective from which the eventuality as a whole is observed, but also affects the interpretation of noun phrases that function as non-rigid designators.

Before closing this subsection, we want to mention that Cremers (1980:44) has claimed that the judgments on the examples above only hold if a non-rigid designators is used descriptively; he suggests that in certain contexts, such noun phrases can also be used as proper names. An example such as (273b), for example, can readily be used in a historical narrative to refer to Queen Wilhelmina or Queen Juliana, even if the story is told/written during the regency of Queen Beatrix.

(273) a. De koningin was zich voortdurend bewust van ...
the queen$_{past}$ was REFL continuously aware of
'The Queen was continuously aware of ....'
b. De koningin is zich voortdurend bewust van ...
the queen$_{past}$ is REFL continuously aware of
'The Queen is constantly aware of ...'

Since the previous subsection has already mentioned that historical narratives often use the historical present, an alternative approach to account for the interpretation in (273b) might be that it is this use of the present that affects the interpretation of non-rigid designators; the pretense that *n′* = *n* simply does not block the option of interpreting the non-rigid designator with respect to *n′*. We leave this issue for future research.

6. Conclusion

The previous subsections have shown that in Te Winkel/Verkuyl's binary tense system the present and past tenses are structured in a completely parallel way. The present subtenses are located in a present tense interval that includes speech time *n*,

whereas the past subtenses are located in a past-tense interval that includes a contextually determined virtual speech-time-in-the-past *n′*. The subtenses locate the eventuality with respect to *n*/*n′*.

II. A comparison with Reichenbach's approach

Subsection I has outlined Te Winkel/Verkuyl's binary tense system, which is based on three binary oppositions: present versus past, imperfect versus perfect, and non-future versus future. This subsection briefly discusses why we do not follow the currently dominant view based on Reichenbach's (1947); see Comrie (1985) or, within in the generative framework, Hornstein (1990) for extensive discussions of the Reichenbachian approach to tense. Reichenbach's proposal is based on the two ternary oppositions in (274): S stands for speech time, that is, the time at which the sentence is uttered; R stands for the so-called reference point, the function of which will be clarified in a moment; E stands for event time, that is, the time at which the eventuality denoted by lexical °projection of the main verb takes place. The comma and the em-dash "—" express, respectively, a relation of simultaneousness and a relation of precedence: (S,R) thus states that the speech time and the reference point share the same point on the time line and (S—R) that the speech time precedes the reference point.

(274) a. present (S,R), past (R—S), and future (S—R)
b. simultaneous (R,E), anterior (E—R), and posterior (R—E)

The crucial ingredient of Reichenbach's theory is the reference point R, since it would be impossible to define tenses like the past perfect, the future in the past or the future perfect without it. By means of the oppositions in (274), it is possible to define nine different tenses, which are depicted in Figure 18. Reichenbach's proposal is relatively successful in its descriptive adequacy; we have already seen in Subsection I that 7 out of the 9 predicted tenses can indeed be found in Dutch.

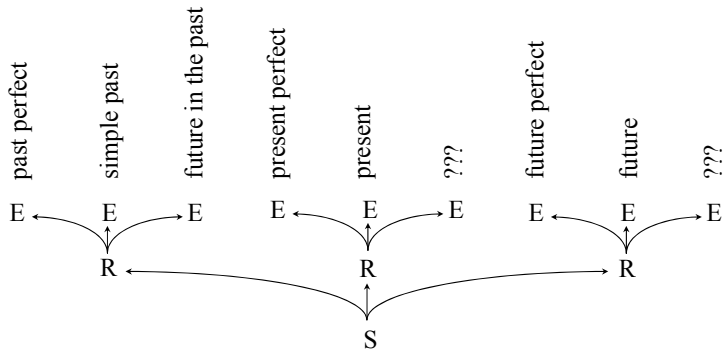

Figure 18: Reichenbach's tense system

There are, however, a number of serious problems as well. The most well-known problem for Reichenbach's proposal is that it is not able to account for the future perfect in the past: *Ik zou hebben gewandeld* 'I would have walked'. The reason for this is quite simple: Figure 18 shows that the perfect involves the anterior relation E—R whereas the future in the past involves the posterior relation R—E, and

combining the two would therefore lead to the contradiction that E must both precede and follow R. There are proposals that try to resolve this contradiction by the introduction of a *second* reference point R′ (cf., e.g., Prior 1967, Comrie 1985, Haeseryn et al. 1997:116), but this, of course, goes against the spirit of the proposal that the tense system can be described by postulating no more than three temporal points S, R, and E, on the basis of the two ternary oppositions in (274).

A second problem for Reichenbach's proposal is that there are in fact two different notions of future: one type is defined as future (S—R) and one as posteriority (R—E), and it remains to be seen whether there are systematic semantic differences between the two. It is important to note that it is impossible to drop one of these relations in favor of the other given that this would result in too few future tenses; if we drop the relation S—R, as in the left part of Figure 19, we will no longer be able to derive the future perfect as this would exclude the final triplet in Figure 18; if we drop the relation R—E, as in the right part of Figure 19, we will no longer be able to account for the future in the past as this would exclude the third option in each triplet. Figure 19 shows that both adaptations lead to a system with just six tense forms, which means two tenses too few.

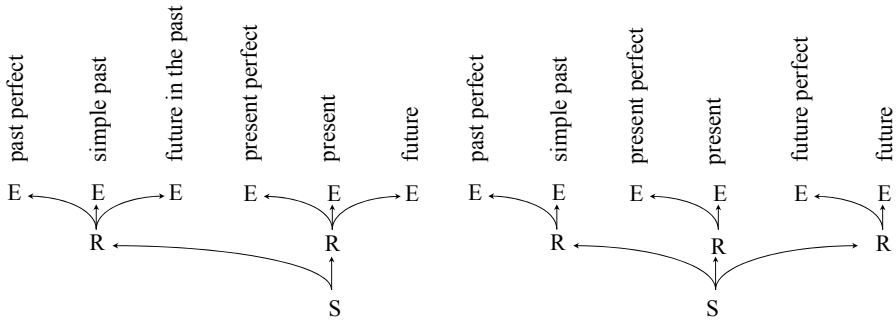

Figure 19: Adapted versions of Reichenbach's tense system

A third problem is that, at least in Dutch, the nine tenses defined in the Reichenbachian system cannot be compositionally derived. In the binary system the three oppositions are nicely matched by specific morphological or lexical units; [±PAST] can be expressed in Dutch by means of the tense marking on the finite verb; [±PERFECT] by means of the auxiliary or the past participle; and [±POSTERIOR] by means of the future auxiliary *zullen* (if that is indeed the correct analysis for Dutch). For the Reichenbachian approach this is impossible; although there are designated morphological/syntactic means to express the present/past (R,S and R—S), the future (R—S) and the perfect (E—R), it remains to be seen whether such means can be identified for the simultaneous relation (R,E) and the posteriority relation (R—E). This becomes especially apparent for the posteriority relation if we place the nine tenses defined in Figure 18 in the matrix in Table 10 and try to match these with the tense forms actually found in Dutch. The problem is that the matrix seems to define two (posteriority) tenses too many and it needs to be established whether these tenses can indeed be found in the languages of the world. The tense form that comes closest to the two gaps in Figure 18 is the one with the present-tense form of *zullen* 'will', which suggests that *zal lopen* 'will walk' must be taken

to be three-ways ambiguous in Reichenbach's system as is indicated by the three cells within the bold lines in Table 10, which is taken in a slightly adapted form from Verkuyl (2008).

Table 10: Reichenbach's tense system matched to the Dutch system

	PAST (R—S)	PRESENT (S,R)	FUTURE (S—R)
ANTERIOR (E—R)	past perfect *had gelopen* 'had walked'	present perfect *heeft gelopen* 'has walked'	future perfect *zal hebben gelopen* 'will have walked'
SIMULTANEOUS (R,E)	simple past *liep* 'walked'	simple present *loopt* 'walks'	future *zal lopen* 'will walk'
POSTERIOR (R—E)	future in past *zou lopen* 'would walk'	??? *zal lopen* 'will walk'	??? *zal lopen* 'will walk'

Table 10 also shows that Reichenbach's approach leads to the conclusion that the verb *zullen* 'will' expresses not only future (S—R) but also posteriority (R—E); see also Janssen (1983). This, in turn, predicts that the S—R—E relation should be expressed by means of *two* occurrences of *zullen*. The fact that **zal zullen wandelen* (lit.: will will walk) is excluded in Dutch therefore suggests that the posteriority (R—E) relation is not part of the tense system.

The discussion above has shown that there are a number of serious empirical problems with Reichenbach's tense system, which are all related to the postulated posteriority (R—E) relation: (i) posteriority is incompatible with anteriority and as a result the future perfect in the past cannot be derived; (ii) it is not clear how posteriority and future differ semantically; (iii) posteriority defines a number of future tenses the existence of which remains to be established. Since it seems impossible to solve these problems in a non-*ad hoc* way by replacing the posteriority relation by some other relation, we conclude that the binary tense system as described in Subsection I is superior to Reichenbach's proposal. For a more extensive critical discussion of Reichenbach's tense system on the basis of Dutch, we refer to Janssen (1983) and Verkuyl (2008).

III. Conclusion

This section discussed the tense system proposed by Te Winkel (1866), which distinguishes eight different tenses on the basis of the three binary oppositions in (275). This system is argued to be superior to the more commonly adopted Reichenbachian approach to the tense system.

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

Verkuyl (2008) referred to Te Winkel's system as the binary tense system and claimed that this system is universally (that is, in all languages) used for the cognitive representation of tense. This claim does not intend to imply, however, that all oppositions are morphologically or syntactically encoded in the verbal systems of all languages; some languages may have a poor tense system in the sense that

they lack the morphological or syntactic means to express one or more of the three oppositions in (275) in the verbal system and must therefore appeal to other means like adverbial phrases, aspectual markers, or even pragmatic information to make the desired distinctions; see Verkuyl (2008:ch.6) for some examples.

Although we have illustrated the properties of the binary tense system by means of Dutch examples, this does not imply that Dutch really expresses all three oppositions *in its verbal system* (although Verkuyl 2008 does take this to be the case without giving sufficient argument). Section 1.5.2 will show that there are reasons for assuming that the opposition [±POSTERIOR] is not overtly expressed in the Dutch verbal system: whatever the auxiliary *zullen* may mean, this meaning can be shown to be non-temporal in nature.

1.5.2. Epistemic modality

Modality is used as a cover term for various meanings that can be expressed by modal verbs and adverbs. Barbiers (1995:ch.5), for instance, has argued that example (276a) can have the four modal interpretations in (276b).

(276) a. Jan moet schaatsen.
Jan must skate
b. (i) Dispositional: Jan definitely wants to skate.
(ii) Directed deontic: Jan has the obligation to skate.
(iii) Non-directed deontic: It is required that Jan skate.
(iv) Epistemic: It must be the case that Jan skates.

The first three interpretations of (276b) can be seen as subcases of event modality and stand in opposition to interpretation (iv), which can be seen as a subcase of propositional modality. The main difference is that event modality expresses the view of the speaker on the moving forces that favor the *potential realization* of the event referred to by the proposition expressed by the lexical °projection of the embedded verb (obligation, volition, ability, etc). Epistemic modality, on the other hand, expresses the view of the speaker on the *truth* of this proposition (necessity, probability, likelihood, etc). The examples in (277) show that the two groups can readily be distinguished syntactically given that they exhibit different behavior in perfect-tense constructions that refer to eventualities preceding speech time *n*; dispositional/deontic modal verbs appear as non-finite forms in such constructions, whereas epistemic modal verbs normally appear as finite forms; note that this distinction this does not hold for perfect-tense constructions that refer to future eventualities, which can be four-fold ambiguous. We refer the reader to Section 5.2.3.2, sub III, for a more detailed discussion of the distinction between event and epistemic modality.

(277) a. Jan heeft gisteren moeten schaatsen. [event modality]
Jan has yesterday must skate
'Jan had to skate yesterday.'
b. Jan moet gisteren hebben geschaatst. [epistemic modality]
Jan must yesterday have skated
'It must be the case that Jan has skated yesterday.'

This section will focus on epistemic modality. Subsection I starts with a brief discussion of the epistemic modal verbs *moeten* 'must' and *kunnen* 'can'. Subsection II argues that the verb *zullen* behaves in all relevant respects as an epistemic modal verb and that the future reading normally attributed to this verb is due to pragmatics. Subsection III supports this conclusion by showing that we find the same pragmatic effects with other verb types.

I. The epistemic modal verbs moeten *'must' and* kunnen *'may'*

Epistemic modality is concerned with the mental representation of the world of the language user, who may imagine states of affairs different from what they are in the actual world, states of affairs as they will hold in the future, etc. Consider the examples in (278).

(278) a. Dat huis stort in.
that house collapses prt.
'It is the case that that house collapses.'
b. Dat huis moet instorten.
that house has.to prt.-collapse
'It must be the case that that house will collapse.'
c. Dat huis kan instorten.
that house may prt.-collapse
'It may be the case that that house will collapse.'

By uttering sentences like these the speaker provides his estimation on the basis of the information available to him of the likelihood that °eventuality *k* will actually occur. Under the default (non-future) reading of (278a), the speaker witnesses the collapse of the house. In the case of (278b) and (278c) there is no collapse at speech time *n*, but the speaker asserts something about the likelihood of a future collapse. By uttering (278b) or (278c), the speaker in a sense quantifies over a set of possible, that is, not (yet) actualized worlds: the modal verb *moeten* 'must' functions as a universal quantifier, which is used by the speaker to assert that the eventuality of that house collapsing will take place in all possible worlds; *kunnen* 'may', on the other hand, functions as an existential quantifier, which is used by the speaker to assert that this eventuality will take place in at least one possible world. Note in passing that the future reading triggered by the epistemic modal verbs need not be attributed to the modal verb itself given that example (278a) can also be used with a future reading; see Section 1.5.4 for more discussion of this.

We will represent the meaning of examples like (278b&c) by means of temporal diagrams of the sort in Figure 20, which are essentially the same as the ones introduced in Section 1.5.1 with the addition of possible worlds. Again, *n* stands for the speech time, *i* stands for the present of the speaker/hearer, i_a for the actualized and $i_\diamond$ for the non-actualized part of this present. The index *k* stands for the event denoted by the lexical projection of the embedded main verb and the continuous line below it for the actual running time of *k*. Index *j*, finally, represents the present of *k*, that is, the temporal domain within which *k* must be located. The possible worlds in Figure 20 may differ with respect to (i) whether eventuality *k* does or does not occur, as well as (ii) the precise location of eventuality *k* on the

time axis. Possible world representations like Figure 20 are, of course, simplifications in the sense that they select a number of possible worlds that suit our illustrative purposes from an in principle infinite set of possible worlds.

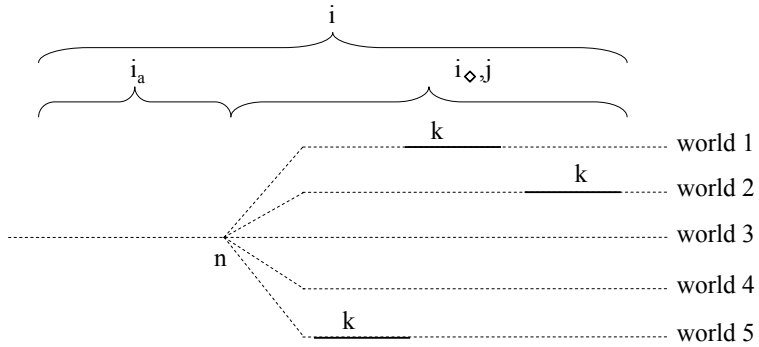

Figure 20: Epistemic modality and present tense

Figure 20 is a correct semantic representation of the assertion in example (278c) with existential *kunnen* given that there is at least one possible world in which the eventuality denoted by the lexical projection of the embedded main verb takes place, but it is an incorrect representation of the assertion in (278b) with universal *moeten* because the eventuality does not take place in possible worlds 3 and 4.

The examples in (279) show that epistemic modal verbs can readily occur in the past tense. The additions of the particle/adverbial phrase within parentheses will make these examples sound more natural in isolation, but they are also perfectly acceptable without them in a proper discourse.

(279) a. Dat huis moest (wel) instorten.
that house had. to PRT prt.-collapse
'It had to be the case that that house would collapse.'
b. Dat huis kon (elk moment) instorten.
that house might any moment prt.-collapse
'It might have been the case that that house would collapse any moment.'

Now consider the representation in Figure 21, in which *n′* stands for the virtual speech-time-in-the past that functions as the point of perspective, and *i* stands for the relevant past-tense interval. Figure 21 is a correct representation of the assertion in (279b) given that there are possible worlds in which eventuality *k* takes place, but an incorrect representation of the assertion in (279a) given that there are possible worlds in which eventuality *k* does not take place. Figure 21 is again a simplification; it selects a number of possible worlds that suit our illustrative purposes from an in principle infinite set of possible worlds. From now on our semantic representations will contain only the minimal selection of possible worlds that is needed to illustrate our point.

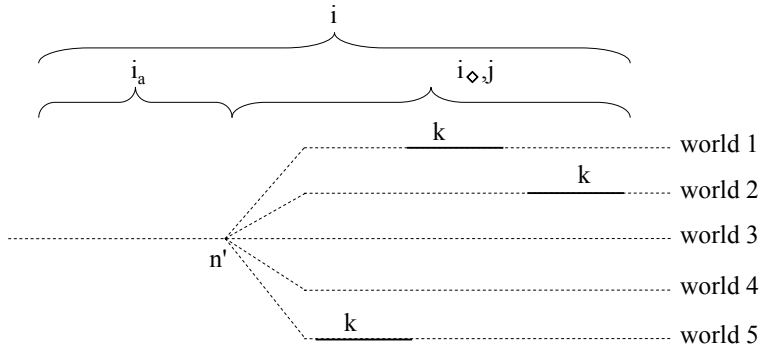

Figure 21: Epistemic modality and past tense

It must further be noted that examples such as (279) are normally used if speech time *n* is not included in the past-tense interval. Examples such as (279a) are used if eventuality *k* did take place before *n* in order to suggest that the occurrence of *k* was inevitable. Examples such as (279b), on the other hand, are especially used if eventuality *k* did not take place in the actual world in order to suggest that certain measures have prevented *k* from taking place, that we are dealing with a lucky escape, etc. We will return to these restrictions on the usage of the examples in (279) in Section 1.5.2, sub IIC, and confine ourselves here to noting that the epistemic modals differ in this respect from their deontic counterparts, which normally do not carry such implications: the past-tense construction with deontic *moeten* in (280), for example, may refer both to factual and counterfactual situations.

(280) Jan moest verleden week dat boek lezen, ...
Jan had. to last week that book read
'Jan had the obligation to read that book last week, ...'

a. ... maar hij heeft het niet gedaan. [counterfactual]
but he has it not done
'... but he didn't do it.'

b. ... en het is hem met veel moeite gelukt. [factual]
and it is him with much trouble succeeded
'... and he has managed to do it with much trouble.'

In Figure 20 and Figure 21, the splitting point into possible worlds (from now on: *split-off point*) starts at *n* or *n'*. This is, however, by no means necessary. Suppose the following context. There has been a storm last week and on Sunday the speaker inspected his weekend house and saw that it was seriously damaged. Since it will remain stormy this week the speaker has worries about what will happen to the house and on Tuesday he expresses these by means of the utterance in (281).

(281) Mijn huis moet deze week instorten.
my house has.to this week prt.-collapse
'It must be the case that my house will collapse this week.'

Given that the speaker does not know whether the house is still standing at *n*, the utterance refers to the situation depicted in Figure 22, in which the split-off point is situated at the moment that the speaker left the house on Sunday; the present *j* of eventuality *k*, which is specified by the adverbial phrase *deze week* 'this week', therefore starts on Monday and ends on Sunday next. In this situation it is immaterial whether eventuality *k* precedes, overlaps with or follows *n*.

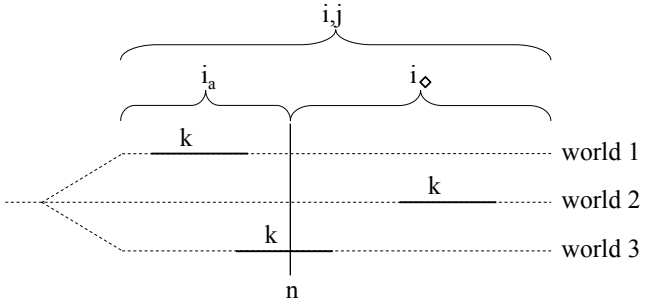

Figure 22: Epistemic modality and present tense (revised)

The fact that *k* can be located anywhere within time interval *j* is related to the fact that the speaker has a knowledge gap about his actual world; he simply does not know at *n* whether the house is still standing, that is, in which possible world he is actually living. In fact, this is made explicit in (282) by the addition of a sentence that explicitly states that the collapse may already have taken place at speech time *n*.

(282) Mijn huis moet deze week instorten. Mogelijk is het al gebeurd.
my house has.to this week prt.-collapse possibly is it already happened
'It must be the case that my house collapsed or will collapse this week.
Possibly it has already happened.'

The situation is quite different, however, when the knowledge of the speaker is up-to-date. Suppose that the speaker is at the house with someone on Tuesday and that he utters the sentence in (283).

(283) Dit huis moet deze week instorten.
this house has.to this week prt.-collapse
'It must be the case that this house will collapse this week.'

From this utterance we now will conclude that the house is still standing at speech time *n*, and infer from this that it is asserted that the collapsing of the house will take place in the non-actualized part of the present tense interval $i_{\diamond}$. This is, however, not a matter of semantics but of pragmatics. The infelicity of utterance (283) in a world in which the speaker already knows that the house has collapsed follows from Grice's (1975) °maxim of quantity given that the speaker could describe that situation more accurately by means of the perfect-tense construction in (284), which places the eventuality in the actualized part of the present tense interval i_a; see Section 1.5.4.2.

(284) Dit huis is deze week ingestort.
this house has this week prt.-collapsed
'This house has collapsed this week.'

The observations concerning (283) and (284) show that the simple present can only be used to refer to an eventuality preceding speech time *n* if the speaker is underinformed: if he has more specific information about the location of the eventuality, he will use the tense form that most aptly describes that location. As a result, example (282) does not primarily provide temporal information concerning the eventuality of a collapse but information about the necessity of this eventuality.

We conclude with an observation that is closely related to this. The past-tense counterpart of (281) can also be followed by a sentence that explicitly states that the collapse may already have taken place at speech time *n*. We assume here the same situation as for (282): the sentence uttered on Tuesday looks back to some virtual speech-time-in-the-past at which it was said that the house would collapse during the time interval referred to by the adverbial phrase *deze week* 'this week', that is, a time interval that includes speech time *n*. Given that the speaker is underinformed about the actual state of his house, what counts is not the actual eventuality of a collapse but the necessity of this eventuality.

(285) Mijn huis moest deze week instorten. Mogelijk is het al gebeurd.
my house had.to this week prt.-collapse possibly is it already happened
'It had to be the case that my house will collapse this week. Possibly it has already happened.'

The observations in (282) and (285) show that the use of an epistemic modal shifts the attention from the actual location of eventuality *k* within the interval *j* to epistemic information; the speaker primarily focuses on the necessity, probability, likelihood, etc. of the occurrence of eventuality *k* within *j*. Information about the precise location of *k* is of a secondary nature and dependent on contextual information that determines the split-off point of possible worlds as well as information about the knowledge state of the speaker. Our findings are summarized in (286).

(286) Temporal interpretation of epistemic modal, simple present/past constructions:
a. If the split-off point of the possible worlds is located at speech time *n*, eventuality *k* cannot be situated in the actualized part i_a of the present/past-tense interval because the maxim of quantity would then favor a present/past perfect-tense construction.
b. If the split-off point of the possible worlds precedes speech time *n*, the temporal interpretation depends on the knowledge state of the speaker:
(i) if the speaker is underinformed, that is, not able to immediately observe whether eventuality *k* has taken place, eventuality *k* can be situated before speech time *n*.
(ii) if the speaker is not underinformed, that is, able to immediately observe whether eventuality *k* has taken place, eventuality *k* cannot be situated before speech time *n*, because the maxim of quantity would then favor a present/past perfect-tense construction.

II. The verb zullen *'will': future auxiliary or epistemic modal?*

The binary tense system discussed in Section 1.5.1 takes *zullen* in examples such as (287a) as a future auxiliary. However, it is also claimed that *zullen* can be used as an epistemic modal verb in examples such as (287b); cf. Haeseryn et al. (1997:944). On this view there are two verbs *zullen*, one temporal, and the other modal.

(287) a. Marie zal dat boek morgen versturen. [temporal: future]
Marie will that book tomorrow send
'Marie will send that book tomorrow.'
b. Marie zal dat boek wel versturen. [modal: probability]
Marie will that book PRT send
'It is very likely that Marie will send that book.'

That *zullen* need not function as a future auxiliary is also clear from the fact that examples with *zullen* of the type in (288b) behave similar as examples with epistemic *moeten*/*kunnen* 'must/may' in (288a) in that they refer to an eventuality *k* that overlaps with speech time *n* as is clear from the use of the adverb *nu* 'now'.

(288) a. Het is vier uur. Marie moet/kan nu wel thuis zijn.
it is 4.00 p.m. Marie must/may now PRT at.home be
'It is 4.00 p.m. Marie must/may be at home now.'
b. Het is vier uur. Marie zal nu wel thuis zijn.
it is 4.00 p.m. Marie will now PRT at.home now
'It is 4.00 p.m. Marie will be at home now.'

The examples in (287) and (288) do not necessarily lead to the conclusion that *zullen* is homonymous. The fact discussed in Subsection I that epistemic verbs like *moeten*/*kunnen* can also be used in examples with a future interpretation in fact suggests that *zullen* functions as an epistemic modal throughout; see Janssen (1983/1989), and also Erb (2001), who concludes the same thing for German *werden* 'will'. The following subsections will more extensively motivate this conclusion.

A. The verb zullen *is not homonymous*

The claim that *zullen* is homonymous is often motivated by the meaning attributed to sentences such as (287). Example (287a) strongly suggests that the eventuality of Marie sending that book will take place tomorrow, thus giving room to the idea that the information is primarily about the location of the eventuality with respect to speech time *n* and therefore essentially temporal. The idea is then that (287b) is about whether or not Marie will send that book and the speaker finds it probable that she will; we are dealing with epistemic modality—temporality is not a factor.

A contrast between a temporal and a probability reading should come out by adding the conjunct ... *maar je weet het natuurlijk nooit echt zeker* '... but one never knows for sure, of course' as this should lead to an acceptable result with sentences expressing probability only; in sentences expressing future the result should be semantically incoherent given that the added, second clause contradicts the presumed core meaning of the first clause. That this does not come true is shown by the fact that both examples in (289) are fully acceptable.

(289) a. Marie zal dat boek morgen versturen ...
Marie will that book tomorrow send
(maar je weet het natuurlijk nooit echt zeker bij haar).
but you know it of.course never really certain with her
'Marie will send that book tomorrow (although one never knows for sure with her, of course).'

b. Marie zal dat boek wel versturen ....
Marie will that book PRT send
(maar je weet het natuurlijk nooit echt zeker bij haar).
but you know it of.course never really certain with her
'It is very likely that Marie will send that book (although one never knows for sure with her, of course).'

Haeseryn et al. (1997:994) note that examples with a probability reading normally include the modal particle *wel*, which opens the possibility that the probability reading is not part of the meaning of the verb *zullen* but should be ascribed to the particle. This suggestion is supported by the fact that examples such as (290) receive a probability reading without the help of the verb *zullen*, and it is also consistent with the fact that Van Dale's dictionary simply classifies *wel* as a modal adverb that may express a conjecture or doubt.

(290) Marie stuurt dat boek wel.
Marie sends that book PRT
'It is very likely that Marie will send that book.'

If *wel* is indeed responsible for the probability meaning of examples such as (287b), it is no longer clear that the two occurrences of *zullen* in (287) differ in meaning. That these occurrences may have identical meanings might be further supported by the fact that the two examples in (287) receive similar quantificational force when we add modal adverbs like *zeker* 'certainly' or *misschien* 'maybe', as in (291).

(291) a. Marie zal dat boek morgen zeker/misschien sturen.
Marie will that book today certainly/maybe send
'It will certainly/maybe be the case that Marie will send that book tomorrow.'

b. Marie zal dat boek zeker/misschien wel sturen.
Marie will that book certainly/maybe PRT send
'It will certainly/maybe be the case that Marie will send that book.'

The acceptability of (291b) would be surprising if the meaning aspect "probably" of (287b) is due to the meaning of *zullen*. First, this presumed meaning of *zullen* is inconsistent with the meaning "certainly" expressed by the adverb *zeker*, and we would therefore wrongly predict example (291b) to be semantically incoherent with this adverb. Second, this presumed meaning aspect of *zullen* is very similar to the meaning expressed by the adverb *misschien* 'maybe' and example (291b) would therefore be expected to have the feel of a tautology with this adverb. The fact that this is not borne out again suggests that the probability meaning aspect of (287b) is due to the modal particle *wel*, which can also be supported by the fact illustrated in (292) that the combinations *zeker wel* and *misschien wel* can also be used to express epistemic modality in constructions without *zullen*. We therefore conclude that the

two occurrences of *zullen* in (287) are semantically more similar than is often assumed, if not identical.

(292) a. Marie stuurt dat boek zeker wel.
Marie sends that book certainly PRT
'It is virtually certain that Marie will send the book.'
a′. Stuurt Marie dat boek? ja, zeker wel.
sends Marie that book yes certainly PRT
'Will Marie send the book? Yes, definitely.'
b. Marie stuurt dat boek misschien wel.
Marie sends that book maybe PRT
'It isn't excluded that Marie will send the book.'
b′. Stuurt Marie dat boek? ja, misschien wel.
sends Marie that book yes maybe PRT
'Will Marie send the book? Yes, maybe.'

That the two occurrences of *zullen* in (287) are similar is less easy to establish on the basis of their morphosyntactic behavior. At first sight, the primeless sentences in (293) seem to show that, like the epistemic modals *moeten* and *kunnen*, both occurrences of *zullen* appear as the finite verb in the corresponding perfect-tense constructions that refer to eventualities preceding speech time *n*, whereas the primed examples seem to show that they do not allow the syntactic format normally found with deontic modals; see the discussion of the examples in (277) in the introduction to Section 1.5.2. The problem with this argument, however, is that some readers will reject the idea that the (a)-examples with *gisteren* 'yesterday' involve temporal *zullen* simply because we are dealing with an eventuality preceding *n* in that case. We nevertheless include this argument given that it should be valid for readers that follow, e.g., Hornstein's (1990) implementation of Reichenbach's tense system, which in fact predicts that the future perfect can refer to eventualities preceding speech time *n*.

(293) a. Marie zal dat boek gisteren hebben verstuurd.
Marie will that book yesterday have sent
'Marie will have sent that book yesterday.'
a′. *Marie heeft dat boek gisteren zullen versturen.
Marie has that book yesterday will sent
b. Marie zal het boek gisteren wel verstuurd hebben.
Marie will the book yesterday probably sent have
'Marie will probably have sent the book yesterday.'
b′. *Marie heeft het boek gisteren wel zullen versturen.
Marie has the book yesterday probably will send

We will not, however, press this argument any further and conclude this subsection by observing that the past-tense counterpart of example (293a′) seems fully acceptable. However, examples such as (294) are °irrealis constructions of a special type, in which *hebben* does not seem to function as a perfect auxiliary.

(294) Marie had dat boek gisteren zullen versturen (maar ze had geen tijd).
Marie had that book yesterday will sent but she had no time
'Marie would have sent that book yesterday (but she couldn't find the time).'

B. The verb zullen *is not a future auxiliary*

If the two occurrences of *zullen* in (287) are not homonymous but representatives of a single category, we will have to establish whether we are dealing with a future auxiliary or with an epistemic modal. If *zullen* is a future auxiliary, we would expect the use of its present-tense forms to have the effect of locating eventuality *k* in non-actualized part $i_{\diamond}$ of the present-tense interval, as indicated in Figure 23, where we assume *n* to be the split-off point for the possible worlds; note that we have seen earlier that *zullen* does not imply that eventuality *k* takes place in all possible worlds, but we ignore this for the moment for simplicity.

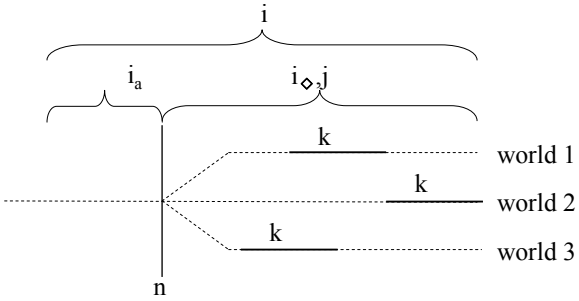

Figure 23:Future reading of zullen *'will'*

If *zullen* is an epistemic modal, on the other hand, we would expect that its present-tense forms are also possible if the split-off point precedes *n* and eventuality *k* is located in the actualized part i_a of the present-tense interval, as in Figure 24. Since the examples in (288) in the introduction to this subsection have already shown that in certain examples with *zullen* eventuality *k* may overlap with speech time *n*, the discussion below will focus on whether *k* may also precede *n*.

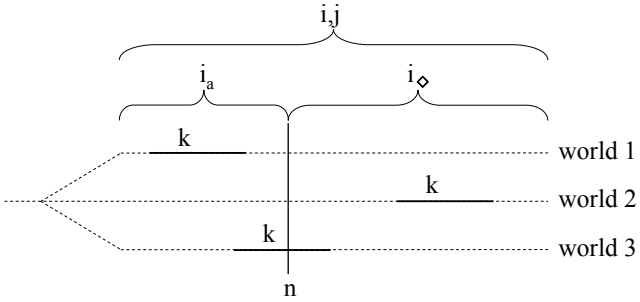

Figure 24: Epistemic reading of zullen *'will'*

The representation in Figure 24 is essentially the one that we gave in Figure 22 for example (282) with epistemic *moeten* 'must'; the main difference involves the fact not indicated here that whereas *moeten* is truly a universal quantifier, the use of *zullen* does not imply that the speaker asserts that eventuality *k* will take place in all

possible worlds. This means that we can easily test whether *zullen* can be used epistemically by considering the result of replacing *moeten* in (282) by *zullen*, as in (295).

(295) Mijn huis zal deze week instorten. Mogelijk is het al gebeurd.
my house will this week prt.-collapse possibly is it already happened
'My house will collapse this week. Possibly it has already happened.'

Now, assume the same context as for (282): there has been a storm last week and on Sunday the speaker inspected his weekend house and saw that it was seriously damaged. Since it has remained stormy, the speaker has worries about the house and on Tuesday he expresses these worries by means of uttering sentence (295). In this context, this sentence would be considered true if the house had already collapsed on Monday, as in world 1 of Figure 24, and we can therefore conclude that *zullen* indeed exhibits the semantic hallmark of epistemic modals.

As in the case of *moeten* and *kunnen*, the unambiguous future readings in Figure 23 should be seen as the result of pragmatics. This will become clear when we replace the modal *moeten* in example (283) by *zullen*, as in (296a). The proximate demonstrative *dit* in *dit huis* 'this house' suggests that the speaker is able to evaluate the actual state of the house at speech time *n*. It now follows from Grice's (1975) °maxim of quantity that (296a) can only be used if the house is still standing: if the house is already in ruins at *n*, the speaker could, and therefore would have expressed this more accurately by using the perfect-tense construction in (296b).

(296) a. Dit huis zal deze week instorten.
this house will this week prt.-collapse
'This house will collapse this week.'
b. Dit huis is deze week ingestort.
this house has this week prt.-collapse
'This house has collapsed this week.'

In the situation just described, a simple present sentence such as (297) would also receives a future interpretation for the same pragmatic reason; if the house is already in ruins at *n*, the speaker again could have expressed this more accurately by the perfect-tense construction in (296b). This shows that the future reading of (296c) is independent of the use of the verb *zullen*.

(297) Dit huis stort deze week in.
this house collapses this week prt.
'This house will collapse this week.'

Note, finally, that the speaker who uttered sentence (295) could also have used the sentence in (298) given that the two examples express virtually identical meanings; compare the discussion of *moeten* in sentences like (282) and (285).

(298) Mijn huis zou deze week instorten. Mogelijk is het al gebeurd.
my house would this week prt.-collapse maybe is it already happened
'My house would collapse this week. Maybe it has already happened.'

The possibility that the house still stands at speech time *n* is not only left open in (295), but also in (298). This is due to the fact that speech time *n* can be included in past-tense interval *i*; see the definition of [+PAST] in Section 1.5.1, sub C, example (249b). The two examples differ, however, in the perspective from which the information about eventuality *k* is presented. In (295) the information is presented from the perspective of the actual speech time *n* of the speaker/hearer, as is clear from the fact that it can be followed by the present-tense clause *...zo is mij verteld* 'so I am told'. In (298), on the other hand, the information is presented from the perspective of the virtual speech-time-in-the past *n'*, as is clear from the fact that it can only be followed by a past-tense clause: ... *zo werd mij verteld* 'so I was told'. This suggests that the choice between present and past tense is determined by the wish to speak about eventuality *k* on the basis of information available within, respectively, a specific present tense interval *i* or a specific past-tense interval *i*.

That eventuality *k* can precede speech time *n* can also be illustrated by means of non-telic predicates; see Janssen (1983). An example such as (299) is three ways ambiguous when it comes to the location of eventuality *k*. First, if the speaker and hearer know that Jan has already departed, the speaker can use (299) to express his expectation that Jan has already travelled for three hours at the moment of speech ($k < n$). Second, if the speaker and hearer know that Jan has departed one hour earlier, the speaker can use (299) to express his expectation that Jan will arrive in two hours (*n* is included in *k*). Third, if the speaker and hearer know that Jan has not yet departed, (299) can be used to express the speaker's expectation that Jan will undertake a future journey that lasts three hours ($n < k$).

(299) Jan zal in totaal drie uur onderweg zijn.
Jan will in total three hours on.the.road be
'Jan will be on the road for three hours.'

Note, however, that the three readings of (299) differ in their implications for the duration of Jan's travel. The first reading ($k < n$) can be used if the speaker knows the complete journey will take longer than three hours, whereas under the second and third reading the speaker expresses that the journey will take three hours. We assume that this is a side effect of the fact that the first reading implies some evaluation time that is identical to speech time, which could be made explicit by means of the adverb *nu* 'now'. When we overrule this default evaluation time by adding an adverbial phrase like *morgenmiddag om drie uur* 'at 3:00 p.m. tomorrow', the future reading ($k < n$) of this example will also allow the reading that the journey will take longer than three hours. If we put this side effect aside, we can conclude that the three way ambiguity of (299) with respect to the location of *k* shows that examples with *zullen* can have the temporal representation in Figure 24, and, hence, that *zullen* is not a future auxiliary.

This subsection has shown that the interpretation of simple present/past-tense constructions with the verb *zullen* proceeds in a way similar to the interpretation of simple present/past constructions with the epistemic modals *moeten* 'must' and *kunnen* 'may'. This means especially that in both cases inferences about the precise location of eventuality *k* (that is, whether it is situated before or after speech time *n*) are made along the lines sketched in (286) in Subsection I. We take this to be a

conclusive argument for assuming that *zullen* is not a future auxiliary; see Janssen (1983) for a similar line of reasoning.

C. The meaning contribution of zullen

Now that we have established that *zullen* is not a future auxiliary, we can conclude that it is an epistemic modal verb. This subsection tries to establish more precisely what its meaning contribution is.

1. No quantificational force

It seems that *zullen* 'will' differs from epistemic modal verbs like *moeten* 'must' and *kunnen* 'may' in that it does not have any inherent quantificational force. This will be clear from the examples in (300), in which the quantificational force must be attributed to the modal adverbs: *zeker* 'certainly' expresses universal quantification over possible worlds, *mogelijk*/*misschien* 'possibly' expresses a low degree of probability, and *waarschijnlijk* 'probably' expresses a high degree of probability.

(300) a. Dit huis zal deze week zeker instorten. [universal]
this house will this week certainly prt.-collapse
'This house will certainly collapse this week.'

b. Dit huis zal deze week mogelijk/misschien instorten. [low degree]
this house will this week possibly/maybe prt.-collapse
'Possibly/Maybe, this house will collapse this week.'

c. Dit huis zal deze week waarschijnlijk instorten. [high degree]
this house will this week probably prt.-collapse
'This house will probably collapse this week.'

If *zullen* were inherently quantificational, we would expect the examples in (300) to be degraded or at least to give rise to special effects (which is indeed the case in various degrees when we replace *zullen* by *moeten* or *kunnen*). For example, if *zullen* were to inherently express universal quantification, the modal adverb *zeker* in (300a) would be tautologous and the adverbs *mogelijk* and *waarschijnlijk* in (300b&c) would be contradictory. And if *zullen* were to inherently express existential quantification, *mogelijk* and *waarschijnlijk* in (300b&c) would be tautologous. Nevertheless, it should be noted that examples like (295) and (296a), which do not contain any element with quantificational force, are normally used if the speaker has strong reason for believing that eventuality *k* will occur in all possible worlds; high degree quantification therefore seems to be the default reading of sentences with *zullen*.

2. Subjective assessment

In order to describe the meaning contribution of *zullen* 'will', we have to discuss a meaning aspect of epistemic modality that has only been mentioned in passing. Epistemic modality stands in opposition to what is known as metaphysical modality, in which *objective truth* is the central notion and which is part of a very long philosophical tradition concerned with the reliability of scientific knowledge. Epistemic modality, on the other hand, concerns *the degree of certainty* assigned to

the truth of a proposition by an individual on the basis of his knowledge state (note in this connection that the notion *epistemic* is derived from Greek *episteme* 'knowledge'). Epistemic modal verbs like *moeten* 'must' and *kunnen* 'can', for example, do not express a degree of probability that is objectively given, but one that results from the assessment of the situation by some individual on the basis of the knowledge available to him. The difference between a declarative clause without a modal verb such as (301a) and a declarative clause with a modal verb such as (301b) is thus that in the former case the proposition that Marie is at home is merely asserted "without indicating the reasons for that assertion or the speaker's commitment to it" (Palmer 2001:64), whereas in the latter the modal verb indicates "that a judgment has been made or that there is evidence for the proposition" (Palmer 2001:68).

(301) a. Marie is nu thuis.
Marie is now at.home
'Marie is at home now.'
b. Marie moet/kan nu thuis zijn.
Marie must/may now at.home be
'Marie must/may be at home now.'

In his *Kritik der reinen Vernunft* (1781) Immanuel Kant already distinguished three types of epistemic modality, which he called problematical, apodeictical and assertorical modality. Palmer (2001) makes essentially the same distinctions in Section 2.1; he refers to the three types as speculative, deductive and assumptive modality. Illustrations are given in (302).

(302) a. Marie kan nu thuis zijn. [problematic/speculative]
Marie may now at.home be
b. Marie moet nu thuis zijn. [apodeictical/deductive]
Marie must now at.home be
c. Marie zal nu thuis zijn. [assertorical/assumptive]
Marie will now at.home be

By uttering examples such as (302), the speaker provides three different epistemic judgments about (his commitment to the truth of) the proposition *Marie is at home*. The use of *kunnen* 'may' in (302a) 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 use of *moeten* 'must' in (302b) presents the proposition as *the only possible* conclusion: on the basis of information available the speaker concludes that it is true. The use of *zullen* 'will' in (302c), finally, presents the proposition as *a reasonable* but *uncertain* conclusion on the basis of the available evidence; see also Droste (1958:311) and Janssen (1983/1989). Palmer (2001) further suggests that the evidence involved may include experience and generally accepted knowledge as in *Het is vier uur*; *Marie kan/moet/zal nu thuis zijn* 'It is 4.00 p.m.; Marie may/must/will be at home now'. Note that contrary to what Palmer suggests in Section 2.1.2, we believe that (at least in Dutch) this holds not only for assumptive but for all types of epistemic modality.

The claim that epistemic modality involves some subjective assessment is completely compatible with our earlier claim that epistemic modality introduces a set of possible worlds. The term possible world in fact only makes sense if such a world is accessible, that is, if one can, in principle, enter it from the one that counts as the point of departure. Thus, the creation of a point of perspective is—however metaphorically expressed—an essential ingredient of the notion of possible world; "Suppose now that someone living in w_1 is asked whether a specific proposition, *p*, is possible (whether *p might* be true). He will regard this as the question as to whether in some conceivable world (conceivable, that is, from the point of view of his world, w_1), *p* would be true …" (Hughes & Cresswell 1968:77).

That we are dealing with subjective assessments is clear from the fact that examples such as (303a) are definitely weird; the modals *moeten* and *kunnen* express that the suggested probability of the sun rising is just the result of an assessment by the speaker, who thereby suggests that the alternative view of the sun not rising tomorrow might in principle also be viable. Example (303b) shows that the modal *zullen* likewise gives rise to a weird result; examples like these are only possible if stating the obvious has some rhetoric function as in *Maak je niet druk, de zon zal morgen ook wel opkomen* 'Don't get upset, the sun will rise tomorrow just the same'. Janssen (1983) suggests that the markedness of the examples in (303) follows from Grice's maxim of quantity; the expression of doubt makes the utterances more informative than is required.

(303) a. $^{\$}$De zon moet/kan morgen op komen.
the sun has.to/may tomorrow up come
'The sun must/may rise tomorrow.'
b. $^{\$}$De zon zal morgen op komen.
the sun will tomorrow up come
'The sun will rise tomorrow.'

That epistemic modals imply an assessment by some individual may also be supported by the fact that examples like (304a&b) are completely acceptable if uttered by an amateur astronomer who has calculated for the first time in his life the time of the rising of the sun on a specific day; in these cases the possibility that the sun rises at some other time than indicated is indeed viable, as the speaker may have made some miscalculation. The expression of doubt in these examples is thus in accordance with the maxim of quantity.

(304) a. De zon moet morgen om 6.13 op komen.
the sun has.to tomorrow at 6:13 up come
'The sun must rise at 6:13 a.m. tomorrow.'
b. De zon zal morgen om 6:13 op komen.
the sun will tomorrow at 6.13 up come
'The sun will rise at 6:13 a.m. tomorrow.'

That subjective assessment is an essential part of the meaning of epistemic modal verbs is perhaps clearer in English than in Dutch given that epistemic clauses require that a modal verb be used in the English, but not the Dutch, simple present. This difference can be formulated as in (305): English obeys the material implication in (305a), from which we can derive (305a′) by °modus tollens (the

valid argument form in propositional logic according to which we may conclude from P → Q and ¬Q that ¬P); Dutch, on the other hand, has the °material implication in (305b), from which we cannot derive the statement in (305b′) as that would be a formal fallacy.

(305) • Distribution of epistemic modals in the present tense

a.	English:	subjective assessment → modal present	
a′.		no modal present → no subjective assessment	[valid inference]
b.	Dutch:	modal present → subjective assessment	
b′.		no modal present → no subjective assessment	[invalid inference]

From this difference it follows that the Dutch simple present can be used in a wider range of "future" constructions than the English simple present. Comrie (1985:118) has claimed that the English simple present construction can only be used to refer to future states of affairs if we are dealing with what he calls scheduled events (such as the rising of the sun, the departure of a train, etc.). Under the reasonable assumption that scheduled events do not involve a subjective assessment, this is correctly predicted by the valid inference in (305a′).

(306) a. *Jan leaves tomorrow.
b. The train leaves at 8.25 a.m.

The invalidity of the inference in (305b′), on the other hand, expresses that Dutch is not restricted in the same way as English, but can freely use clauses in the simple present to refer to any future event; see Section 1.5.4 for further discussion.

(307) a. Jan vertrekt morgen.
Jan leaves tomorrow
'Jan will leave tomorrow.'
b. De trein vertrekt om 8.25 uur.
the train leaves om 8.25 hour
'The train leaves at 8.25 a.m.'

Although the presence of an epistemic modal is not forced in contexts of subjective assessment in Dutch, the discussion above has shown that subjective assessment is an inherent part of the meaning of epistemic modals. Note that the person whose assessment is given can be made explicit by means of an adverbial PP. In accordance with the generalizations in (305) such PPs normally require an epistemic modal verb to be present in English present-tense constructions (Carole Boster, p.c.), whereas in Dutch they can also be used without such a modal.

(308) a. Volgens Jan komt de zon morgen om 6.13 uur op.
according.to Jan comes the sun tomorrow at 6.13 hour up
'According to Jan the sun will rise at 6.13 a.m. tomorrow.'
a′. *?According to John the sun rises at 6.13 a.m. tomorrow.
b. Volgens Jan zal de zon morgen om 6.13 uur op komen.
according.to Jan will the sun tomorrow at 6.13 hour up come
'According to Jan the sun will rise at 6.13 a.m. tomorrow.'
b′. According to John the sun will rise at 6.13 a.m. tomorrow.

3. Default values of the source

The previous subsection has shown that epistemic modals are used to provide a subjective assessment of the degree of probability that the proposition expressed by the lexical °projection of the embedded verb is true. The person providing the assessment will from now on be referred to as the SOURCE. Given that the source need not be syntactically expressed by means of an adverbial *volgens*-PP and need not even be identified by the context, it seems that language users assign specific default values to the source. When uttered "out of the blue", the assessment expressed by epistemic modals in present tense sentences such as (309a) will be attributed to the speaker himself (who, of course, may rely either on his own judgment or on some other source). This default interpretation can only be canceled by explicitly assigning a value to the source by adding a *volgens*-PP, as in (309b). Observe that it is also possible for speakers to explicitly present themselves as the source.

(309) a. Dit huis moet/kan/zal instorten.
this house has.to/may/will prt.-collapse
b. Volgens Els/mij moet/kan/zal dit huis instorten.
according.to Els/me has.to/may/will this house prt.-collapse

In past-tense constructions with the universal modal verb *moeten* 'must', the default interpretation of the source again seems to be the speaker. As in the present tense this default interpretation can be canceled or be made explicit by adding a *volgens*-PP.

(310) a. Dit huis moest (toen wel) instorten.
this house had.to then PRT prt.-collapse
b. Volgens Els/mij moest dit huis instorten.
according.to Els/me had.to this house prt.-collapse

We have seen in Subsection I that examples such as (310a) are normally used to indicate that a specific eventuality that occurred before speech time *n* was inevitable. Furthermore, example (311) shows that it is impossible to cancel the universal quantification expressed by the modal. The reason for this is that the sources of the first and the second conjunct in (311) have the same value, the speaker. On the assumption that the past-tense interval precedes speech time *n*, this leads to a contradiction: according to the first conjunct the eventuality occurs in all possible worlds in the past-tense interval, but according to the second conjunct the eventuality did not take place in the actualized part of the present tense interval.

(311) $Dit huis moest (toen wel) instorten, maar het is niet gebeurd.
this house had.to then PRT prt.-collapse but it is not happened
'This house had to collapse, but it didn't happen.'

A potential problem for this account is that the past-tense interval may in principle include speech time *n*; see the discussion in Section 1.5.1, sub I. Consequently, the first conjunct of (311) should be true if the collapsing of the house takes place after speech time *n*. This reading of (311) is blocked, however, by Grice's maxim of quantity given that the speaker can more accurately express this situation by means

of the present-tense counterpart of (310a): *Dit huis moet (wel) instorten* 'This house has to collapse'.

Examples such as (312) that do explicitly mention the source by means of a *volgens*-PP are different in that they do not imply that the eventuality denoted by the lexical projection of the embedded main verb occurred before speech time *n*; this is clear from the fact that examples such as (312a) do not lead to a contradiction but are fully acceptable. The reason for this is that the sources of the first and the second conjunct have different values: the former has Els as its source and the latter the speaker. This leads to the coherent interpretation that Els' past assessment has proven to be incorrect. In fact, example (312b) may receive a similar interpretation, provided that we construe the pronoun *mij* as referring to the speaker-in-the-past; by (312b) the speaker asserts that his earlier assessment was wrong. If we interpret the pronoun as referring to the speaker-in-the-present, the example becomes incoherent again.

(312) a. Volgens Els moest dit huis instorten, maar het is niet gebeurd.
according.to Els had.to this house prt.-collapse but it is not happened
'According to Els, this house had to collapse, but it didn't happen.'
b. Volgens mij moest dit huis instorten, maar het is niet gebeurd.
according.to me had.to this house prt.-collapse but it is not happened
'According to me, this house had to collapse, but it didn't happen.'

In the past-tense example with the existential modal verb *kunnen* in (313a), the default interpretation of the source is again the speaker; as usual, this default interpretation can be canceled or be made explicit by adding a *volgens*-PP.

(313) a. Dit huis kon (elk moment) instorten.
this house might any moment prt.-collapse
'It might have been the case that this house would collapse any moment.'
b. Volgens Els/mij kon dit huis (elk moment) instorten.
according.to Els/me might this house any moment prt.-collapse

We have seen in Subsection I that examples such as (313a) are especially used if the event denoted by the lexical projection of the embedded main verb did not yet take place in the actual world, and suggest that certain measures have prevented the eventuality from taking place, that we have had a lucky escape, etc. That the source of this example is the speaker is clear from the fact that adding the conjunct *...maar dat was onzin* to this example, as in (314a), leads to an incoherent result: the first conjunct asserts the speaker's currently held belief that there are possible worlds accessible from some point of time in the present-tense interval in which the house would have collapsed (e.g., in which the measures that have prevented the eventuality from occurring in the speaker's actual world were not taken or in which the circumstances were different) and in the second conjunct the speaker characterizes this belief as nonsense. Example (314b), of course, does not suffer from this defect as it is perfectly coherent to characterize a belief held by somebody else or by the speaker-in-the-past as nonsense.

(314) a. $Dit huis kon (elk moment) instorten, maar dat was onzin.
this house might any moment prt.-collapse but that was nonsense
'It might have been the case that this house would collapse any moment, but that was nonsense.'

b. Volgens Els/mij kon dit huis (elk moment) instorten,
according.to Els/me might this house any moment prt.-collapse
maar dat was onzin.
but that was nonsense
'According to Els/me, it might have been the case that this house would collapse any moment, but that turned out to be nonsense.'

Given the discussion above, one might expect that in past-tense examples with *zullen*, the default interpretation of the source is again the speaker, but this is not borne out; such examples typically involve some other source, as will be clear from the fact that the examples in (315) are both fully coherent: (315a) expresses that the prediction of some source has not come true and (315b) expresses that somebody's belief was badly motivated.

(315) a. Dit huis zou instorten, maar het is niet gebeurd.
this house would prt.-collapse but it is not happened
'This house was predicted to collapse, but it didn't happen.'

b. Dit huis zou (elk moment) instorten, maar dat was onzin.
this house would any moment prt.-collapse but that was nonsense
'It was said that this house would collapse any moment, but that was/turned out to be nonsense.'

That past-tense examples with *zullen* have a default interpretation in which the source is not the speaker may account for the fact that constructions with *zullen* are versatile in counterfactuals such as (315a) and conditionals such as (316). We will return to constructions of these types in Section 1.5.4.2.

(316) a. Als hij al zijn geld in aandelen belegd had,
if he all his money in shares invested had,
dan zou hij nu straatarm zijn.
then would he now penniless be
'If he had invested all his money in shares, he would be penniless now.'

b. Als hij niet al zijn geld in aandelen belegd zou hebben,
if he not all his money in shares invested would have
dan was hij nu schatrijk.
then was he now immensely.rich
'If he hadn't invested all his money in shares, he would be rich now.'

The verb *zullen* thus differs from *moeten* and *kunnen* in that the speaker is the default value of the source in the present but not in the past tense. This contrast in interpretation can also be brought to the fore by the contrast between (317) and (318). The fact that the speaker is the default value of the source in present-tense examples with *zullen* accounts for the fact that examples such as (317) are readily construed as promises made by the speaker as he can be held responsible for the truth of the assertions.

(317) a. Ik zal u het boek deze week toesturen.
I will you the book this week prt.-send
'I'll send you the book this week.'
b. Het boek zal u deze week toegestuurd worden.
the book will you this week prt.-sent be
'The book will be sent to you this week.'

The fact that the default value of the source in past-tense examples with *zullen* is some person other than the speaker accounts for the fact that examples such as (318) are construed as promises made by the (implicit) agent of the clause (which, of course, can also be the speaker-in-the-past). Examples such as (318) often have a counterfactual interpretation: they strongly suggest that, to the knowledge of the speaker-in-the-present, the promise has not been fulfilled, which is also clear from the fact that they are typically followed by a conjunct connected with the adversative coordinator *maar* 'but'.

(318) a. Els zou u/me het boek vorige week toesturen (maar ...).
Els would you/me the book last week prt.-send but
'Els would have sent you/me the book last week (but ...).'
b. Het boek zou u/me vorige week toegestuurd worden (maar ...).
the book would you/me last week prt.-sent be but
'The book would have been sent to you/me last week (but ...).'

III. Future reference and pragmatics

Subsection II has shown that the future reading of the modal verb *zullen* is triggered by pragmatics and is thus not an inherent part of the meaning of the verb. Present tense sentences with *zullen* can felicitously refer to the situation depicted in Figure 23 from Subsection I where the split-off point of the possible worlds is situated at speech time *n*; such examples cannot refer to a similar situation in which the eventuality *k* is situated in time interval i_a given that such a situation could be more accurately expressed without *zullen* by means of the present perfect.

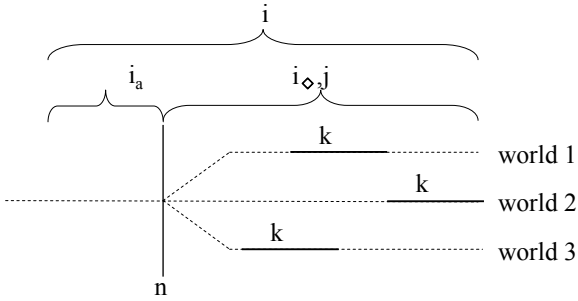

Figure 23:Future reading of zullen *'will'*

If this approach is correct, we would expect future readings to arise as well with other (non-main) verbs in situations like Figure 23. We have already seen in Subsection I, that this is indeed the case with the epistemic modals *moeten* and *kunnen*. It is important to stress, however, that we can find the same effect outside the domain of epistemic modal verbs. Consider the examples in (319).

(319) a. Ik ga/kom vandaag vissen.
I go/come today fish
'I (will) go/come fishing today.'
b. Ik ga slapen.
I go sleep
'I (will) go to sleep.'

The semantics of the verbs in (319) is rather complex. In some cases, they seem to have maintained the lexical meaning of the main verb and thus imply movement of the subject of the clause: example (319a) with *gaan* 'to go' may express that the speaker is leaving his default location (e.g., his home) whereas the same example with *komen* 'to come' may express that the speaker will move to the default location of the addressee; see Section 6.4.1, sub I, for more discussion. However, this change of location reading can also be entirely missing with *gaan*; example (319b), for example, can be uttered when the speaker is already in bed, and thus does not have to change location in order to get to sleep. The verb *gaan* in (319b) is solely used to express inchoative aspect, a meaning aspect that can also be detected in the examples in (319a); see Haeseryn et al. (1997: Section 5.4.3).

The future reading of the examples in (319) can again be derived by means of Grice's maxim of quantity: if the eventuality denoted by the lexical projection of the main verb had already started at speech time *n*, the speaker could have described the situation more precisely by using the simple present or the present perfect (depending on whether the eventuality is presented as ongoing or completed). Things are again different in situations where the split-off point of the possible worlds precedes speech time *n*, like in Figure 22 in Subsection I. Consider the examples in (320) and suppose that the speaker does not know anything about Els' movement since some contextually determined moment preceding speech time *n*.

(320) a. Els gaat vandaag vissen.
Els goes today fish
'Els goes fishing today.'
b. Els komt vandaag vissen.
Els comes today fish
'Els will come fishing today.'

In the situation sketched, example (320a) does not imply anything about the temporal location of the eventuality denoted by the lexical projection of the main verb within the present tense interval; it may precede, overlap with or follow speech time *n*. In (320b), a future reading is greatly favored given that this example strongly suggests that the agent of the clause is moving to the default location of the speaker; if Els had already joined the speaker, the speaker could have expressed the situation more precisely by using the present perfect: *Els is vandaag komen vissen* 'Els has come fishing today'.

To conclude, note that we find similar facts with the verb *blijven*, which in its main verb use means "to stay" and denotes lack of movement. In examples such as (321a) the meaning of the main verb is retained, and the sentence is interpreted as referring to a future event. In examples such as (321b) the locational interpretation has completely disappeared and it is just a durative (non-terminative) aspect that remains, and the eventuality denoted by the lexical projection of the main verb is therefore construed as occurring at speech time *n*.

(321) a. Jan blijft eten.
Jan stays eat
'Jan will stay for dinner.'

b. Jan blijft twijfelen.
Jan stays doubt
'Jan continues to doubt.'

IV. Conclusion

Subsection I has investigated the epistemic use of modal verbs like *moeten* 'have to' and *kunnen* 'may', that is, their use in which they quantify over possible worlds. Traditional grammar correctly claims that the verb *zullen* 'will' is an epistemic modal as well, but simultaneously maintains that *zullen* can also be used as a future auxiliary. The discussion in Subsection II suggests that the latter claim is incorrect and that the future reading of examples with *zullen* is triggered by a specific knowledge state of the speaker and is therefore not a matter of semantics, but of pragmatics. Subsection III provides support for this conclusion by showing that similar pragmatic considerations may force future readings on utterances with the aspectual verbs *gaan*, *komen* and *blijven*. If the conclusion that *zullen* is not a future auxiliary is indeed correct, this will have important consequences for the description of the Dutch tense system; instead of the traditional eight-way distinction based on the three binary features [±PAST], [±POSTERIOR] and [±PERFECT] discussed in Section 1.5.1, sub I, the verbal system would express a four-way distinction based on the binary features [±PAST] and [±PERFECT]. We will return to this issue in Section 1.5.4.

1.5.3. Aspect

Aspect concerns the internal temporal organization of events denoted by the lexical projection of main verbs. This section focuses on the *grammatical means* by which specific aspectual properties can be expressed, and will not include a discussion of °Aktionsart, that is, the *semantic properties of main verbs and their projection* that restrict the internal temporal structure of events; this is discussed in Section 1.2.3. The grammatical means to express aspectual properties are rather limited in Dutch and generally involve the use of non-main verbs, but there are also a number of more special constructions that deserve attention. It is important to keep in mind that this section aims at illustrating a number of grammatical means that can be used to express aspect, and does not intend to provide an exhaustive description of the aspectual contributions that can be made by individual non-main verbs; for this we refer the reader to Chapter 6. Note that we will not discuss the aspectual verbs *gaan*, *komen* and *blijven* either given that they were already discussed in Section 1.5.2, sub III.

I. Progressive/continuous aspect

Dutch differs from English in that it can use the present tense to refer to durative events that take place at speech time: whereas an English present-tense example such as (322b) cannot refer to a specific walking-on-the-moor event occurring at speech time *n*, Dutch present-tense examples such as (322a) are quite normal in such a context; see also the discussion of the generalizations in (305) in Section 1.5.2, sub II.

(322) a. Jan wandelt op de hei.
Jan walks on the moor
'Jan is walking on the moor.'
b. #John walks on the moor.

Section 1.5.4 will show that the Dutch simple present/past has a wide range of possible interpretations concerning the location of °eventuality *k* expressed by the lexical projection of the main verb with respect to speech time *n*/virtual speech-time-in-the-past *n'*: the former may precede, follow or overlap with the latter. Therefore, it will not come as a big surprise that Dutch also has special means for expressing progressive aspect, that is, for expressing that a certain eventuality *k* is ongoing at *n*/*n'*.

A first option is the use of a set of semi-aspectual verbs, as in (323). The glosses show that these aspectual verbs are normally verbs that can also be used to denote specific postures or specific ways of moving. This meaning aspect may still be present, as in the examples in (323a), but it may also be suppressed; a speaker who utters (323b) typically has no knowledge of Jan's posture or activity during the relevant present tense interval.

(323) a. Jan zit/ligt/staat (?morgen) te lezen.
Jan sits/lies/stands tomorrow to read
'Jan is reading.'
b. Jan zit/loopt zich (?morgen) te vervelen.
Jan sit/walks REFL tomorrow to bore
'Jan is being bored.'

The markedness of the use of the time adverb *morgen* 'tomorrow' shows that the examples in (323) are preferably used to refer to some eventuality during speech time *n*. This seems to be confirmed by a Google search (4/27/2012) on the string [*zit morgen (weer) te*] which resulted in no more than 16 attestations. This result is especially telling in view of the fact that a similar search on the string [*zit te lezen*] already resulted in nearly 500 cases.

A more special progressive construction is the *aan het* + $V_{\text{infinitive}}$ + *zijn* construction exemplified in (324). The markedness of the use of the time adverb *morgen* 'tomorrow' shows that examples such as (323) are preferably used to refer to some eventuality during speech time *n*. This seems to be confirmed by a Google search (4/27/2012) on the string [*is morgen (weer) aan het*] resulted in fewer than 50 results, many of which do not involve the relevant construction. This result is especially telling in view of the fact that a similar search on the string [*is aan het dansen*] resulted in nearly 250 cases.

(324) Jan is (?morgen) aan het dansen.
Jan is tomorrow AAN HET dance
'Jan is dancing.'

The *aan het* + $V_{\text{infinitive}}$ + *zijn* construction is problematic in the sense that it is not clear what the precise syntactic status of the *aan het* + $V_{\text{infinitive}}$ sequence is: there are reasons for assuming that it is a °complementive PP headed by the preposition *aan*, but there are also reasons for assuming that it is just a non-finite form of the

verb. The most important evidence in favor of claiming that we are dealing with a complementive *aan*-PP is related to word order: example (325b) shows that the sequence *aan het wandelen* behaves like a complementive in that it must precede the verb(s) in clause-final position; this restriction would be surprising if *aan het wandelen* were simply an inflected main verb given that main verbs normally can follow the verb that they are selected by; cf. *dat Jan heeft gewandeld op de hei* 'that Jan has walked on the moor' and *dat Jan wil wandelen op de hei* 'that Jan wants to walk on the moor.'

(325) a. Jan is aan het wandelen op de hei.
Jan is AAN HET walk on the moor
'Jan is walking on the moor.'

b. dat Jan <aan het wandelen> is <*aan het wandelen> op de hei.
that Jan AAN HET walk is on the moor
'that Jan is walking on the moor.'

The assumption that we are dealing with a complementive PP also accounts for the fact illustrated in (326) that the verb *zijn* appears as a past participle in the perfect-tense construction. If the *aan het* + $V_{\text{infinitive}}$ sequence were simply an inflected verb, we might wrongly expect the infinitive *zijn*/*wezen* 'be' given that such complex perfect-tense constructions normally exhibit the called °*infinitivus-pro-participio* effect.

(326) a. Jan is aan het wandelen geweest op de hei.
Jan is AAN HET walk been on the moor
'Jan has been walking on the moor.'

That the *aan*-PP must precede the verbs in clause-final position and the verb *zijn* 'to be' appears as a participle in perfect-tense constructions thus suggests that we are dealing with a copular-like construction with a complementive *aan*-PP. This seems to be supported by the fact that the verb *zijn* 'to be' can be replaced by the modal verbs *lijken* 'to appear', *schijnen* 'to seem' and *blijken* 'to turn out', which are traditionally also analyzed as copular verbs; cf. (327a). The same thing holds for copular verbs like *blijven* 'to remain' and *raken* 'to get' in (327b&c). For completeness' sake, the primed examples illustrate the unsuspected copular use of these verbs.

(327) a. Ze leken aan het kletsen.
they appeared AAN HET chat
'They appears to be chatting.'

a′. Hij leek wat verward.
he was a.bit confused
'He was a bit confused.'

b. Ze bleven aan het kletsen.
they continued AAN HET chat
'They continued chatting.'

b′. Hij bleef wat verward.
he remain a.bit confused
'He stayed a bit confused.'

c. Ze raakten aan het kletsen.
they got AAN HET chat
'They started to chat.'

c′. Hij raakte wat verward.
he got a.bit confused
'He got a bit confused.'

More support is provided by the fact that undative verbs like *hebben* 'to have', *krijgen* 'to get' and *houden* 'to keep' may occur in this construction given that

Section A.6.2.1 shows that these verbs can be used as semi-copular verbs; the examples in (328) are adapted from Booij (2010:ch.6).

(328) a. Ik heb/kreeg de motor weer aan het draaien.
I have/got the engine again AAN HET run
'I have/got the engine running again.'
b. Ik hield de motor met moeite aan het draaien.
I kept the engine with difficulty AAN HET run
'I kept the engine running with difficulty.'

A final piece of evidence for assuming that the sequence *aan het* + $V_{\text{infinitive}}$ functions as a complementive is that it can also occur in resultative-like constructions such as (329), which are again adapted from Booij (2010). Such resultative constructions are often of a more or less idiomatic nature.

(329) a. Jan bracht Marie aan het twijfelen.
Jan brought Marie AAN HET doubt
'Jan made Marie doubt.'
b. Els maakte Peter aan het lachen.
Els made Peter AAN HET laugh
'Els made Peter laugh.'
c. Haar opmerking zette mij aan het denken.
her remark put me AAN HET think
'Her remark made me think.'

If the *aan het* + $V_{\text{infinitive}}$ phrase is indeed a complementive PP, the phrase *het* + $V_{\text{infinitive}}$ is most likely an INF-nominalization, which seems to be the direction that Booij (2010:163) is heading. That this is indeed conceivable is clear from the fact illustrated in (330) that the sequence *het* + $V_{\text{infinitive}}$ sometimes alternates with an undisputable noun phrase with the article *de* 'the'. So, besides the primeless examples in (327), we find examples such as (330) with more or less the same meaning. Note in passing that a Google search (8/24/2011) on the string [*aan het kletsen/de klets V*] suggests that the copular verb *zijn* prefers the infinitive *kletsen*, *raken* prefers the noun *klets*, and that *blijven* has no clear preference between the options; an investigation of more minimal pairs is needed, however, to determine whether this is indeed a general tendency.

(330) a. Ze waren aan de klets.
they were AAN DE chat
b. Ze bleven aan de klets.
they were AAN DE chat
c. Ze raakten aan de klets.
they got AAN DE chat

It can be noted in passing that the suggested analyses may also be supported by the fact that certain German dialects allow constructions like *Ich bin am Arbeiten*, in which *am* can be seen as the contraction form of the preposition *an* and the dative, neuter article *dem*; see Bhatt & Schmidt (1993). However, if we are indeed dealing with INF-nominalization in the progressive *aan het* + $V_{\text{infinitive}}$ + *zijn* construction,

we should conclude that noun phrases following the preposition *aan* exhibit more restricted behavior than run-of-the-mill nominalizations; whereas (331a) shows that such nominalizations can normally be modified by an adverbially or attributively used adjective, example (331b) shows that it is not possible to modify the infinitive in the *aan het* + $V_{\text{infinitive}}$ sequence in the same way–modification is possible but only if the modifier is an adverbial phrase preceding the *aan het* + $V_{\text{infinitive}}$ sequence, as in (331b′).

(331) a. het geanimeerd(e) kletsen (van de kinderen)
the animated chatting of the children
b. *De kinderen waren aan het geanimeerd(e) kletsen.
the children were AAN HET animated chat
b′. De kinderen waren geanimeerd aan het kletsen.
the children were animated AAN HET chat
'They were having a vivid conversation.'

Something similar to the restrictions on modifiers holds for the internal °argument(s) of the input verb. Whereas nominalizations like *het boeken lezen*/*het lezen van de boeken* 'the reading of (the) books' are perfectly acceptable, example (332a) is not; expression of the direct object *boeken* 'books' is possible provided that it is external to the *aan het* + $V_{\text{infinitive}}$ sequence, as in (332a′). Essentially the same thing holds for °complementives like *helderblauw* 'pale blue'; whereas nominalizations like *het lichtblauw verven van het hek* are fully acceptable, the (b)-examples in (332) show that the complementive must be external to the *aan het* + $V_{\text{infinitive}}$ sequence.

(332) a. *Ze zijn aan het <boeken> lezen <van de boeken>.
they are AAN HET books read of the books
a′. Ze zijn (de) boeken aan het lezen.
they are the books AAN HET read
'They're reading (the) books.'
b. *Ze zijn het hek aan het lichtblauw verven.
they are the gat AAN HET pale.blue paint
b′. Ze zijn het hek lichtblauw aan het verven.
they are the gat pale.blue AAN HET paint
'They're painting the gate blue.'

The examples in (331) and (332) strongly suggest that infinitives in the *aan het* + $V_{\text{infinitive}}$ sequence must be bare in the sense that it cannot be accompanied by any other material, but there seem to be exceptions to this general rule: if the verb forms a fixed collocation with a bare noun, as in *paard rijden* 'to ride horseback', or a predicative adjective, as in *dronken voeren* 'to ply someone with liquor', the non-verbal part of the collocation noun can be either external or internal to the *aan het* + $V_{\text{infinitive}}$ sequence; see Smits (1987), Booij (2010), and references cited there. The same thing holds for verbal particles, which are argued in Section 2.2.1 to function as complementives as well.

(333) a. Ze zijn <paard> aan het <paard> rijden.
they are horse AAN HET ride
'They're riding horseback.'
b. Ze waren Peter <dronken> aan het <dronken> voeren.
they were Peter drunk AAN HET feed
'They were plying Peter with liquor.'
c. Ze waren de whisky <op> aan het <op> drinken.
they were the whisky up AAN HET drink
'They were finishing the whisky.'

It will be clear that the unacceptability of the primeless examples in (332) is problematic for the assumption that infinitives in *aan het* + $V_{\text{infinitive}}$ sequences are INF-nominalizations, and thus also for the hypothesis that we are dealing with complementive *aan*-PPs. In fact, the acceptability of the primed examples is even more problematic for this hypothesis, as this would imply that the presumed INF-nominalizations are able to license the inherited °complements of their input verbs by assigning them a °thematic role and/or case in the position external to the *aan*-PP; this would clearly be unprecedented.

This problem does not occur if we assume that the *aan het* + $V_{\text{infinitive}}$ sequence is simply a regular main verb, that is, that the *aan het* part functions as some kind of inflection comparable to the prefix *ge-* in past participles; cf. Smits (1987). Although this is an unconventional move, it may not be too far-fetched given that we proposed a similar analysis for the element *te* preceding infinitives in Section 1.3, sub IIIA1. The main reason given there in favor of the claim that *te* is a prefix and not an independent word is that it behaves like the prefix *ge-* in that it is always left-adjacent to the verbal element/stem; this is illustrated again in (334).

(334) a. Hij heeft <paard> ge- <*paard> -reden.
he has horse GE ridden
'He has ridden on horseback.'
a′. Hij probeert <paard> te <*paard> rijden.
he tries horse to ride
'He tries to ride on horseback.'
b. Hij heeft Peter <dronken> ge- <*dronken> -voerd.
he has Peter drunk GE fed
'He has plied Peter with liquor.'
b′. Hij probeert Marie <dronken> te <*dronken> voeren.
he tries Marie drunk to feed
'He tries to ply Marie with liquor.'
c. Marie heeft de whisky <op> ge- <*op> -dronken.
Marie has the whisky up GE drunk
'Marie has finished the whisky.'
c′. Marie probeert de whisky <op> te <*op> drinken.
Marie tries the whisky up to drink
'Marie tries to finish the whisky.'

When we compare the examples in (334) to those in (333), we immediately see that this argument does not carry over to the *aan het* + $V_{\text{infinitive}}$ sequence; there are cases

in which the verbal part of the sequence can be split from the *aan het* part. Claiming that the *aan het* part is some sort of inflection therefore requires extensive motivation (which Smits in fact tries to provide). If we add this to the problem illustrated in (325b) above that the *aan het*-phrase must precede the finite verb in clause-final position, we see that the analysis according to which the *aan het* + $V_{\text{infinitive}}$ sequence is an inflected form of the verb is not with its problems either. We therefore conclude that the internal organization of the progressive *aan het* $+V_{\text{infinitive}}$ + *zijn* construction is still far from clear and therefore in need of further investigation.

II. Inchoative and terminative aspect

Inchoative aspect can be expressed by the verb *beginnen* 'to begin/start', as in (335a). The fact that the object of the verb *lezen* must precede the verb *beginnen* in clause-final position may suggest that the latter verb is not a main verb with a clausal complement but a non-main verb that forms a °verbal complex with the main verb *lezen*. It is, however, far from clear whether this is sufficient for claiming that *beginnen* is a non-main verb, as other main verbs exhibit similar behavior; see Chapter 4 for relevant discussion.

(335) a. dat Jan het boek begint te lezen.
that Jan the book begins to read
'that Jan is beginning to read the book.'
b. *dat Jan begint het boek te lezen.

Example (336a) shows that terminative aspect cannot be expressed by means of a verbal complex. Instead the constructions in (336b&c) are used: the verb *stoppen* 'to stop' selects a *met*-PP with an INF-nominalization denoting the terminated action. That we are dealing with a true nominalization is clear from the fact that the object of the input verb can be realized as a postnominal *van*-PP or, if the object is indefinite, as a prenominal noun phrase; cf. N2.2.3.2.

(336) a. *dat Jan het boek stopt te lezen.
that Jan the book stops to read
b. dat Jan stopt met het lezen van het boek.
that stops with the reading of the book
'that Jan stops reading the book.'
c. dat Jan stopt met boeken lezen.
that stops with books reading
'that Jan stops reading books.'

1.5.4. The Dutch verbal tense system

Section 1.5.1 discussed the binary tense theory proposed by Te Winkel (1866) and Verkuyl (2008), according to which the three binary distinctions in (337) are used in mental representations of tense. Languages may differ when it comes to the grammatical means use for expressing the oppositions in (337): this can be done within the verbal system by means of inflection and/or auxiliaries, but may also involve the use of adverbial phrases, aspectual markers, pragmatic information, etc. Verkuyl claims that Dutch expresses all oppositions in (337) in the verbal system:

[+PAST] is expressed by inflection, [+POSTERIOR] by means of the verb *zullen* 'will', and [+PERFECT] by means of the auxiliaries *hebben* 'to have' and *zijn* 'to be'.

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

Section 1.5.2 has argued at length that the claim that *zullen* is a future auxiliary is incorrect: it is an epistemic modal and it is only due to pragmatic considerations that examples with *zullen* are sometimes interpreted with future time reference. If this is indeed correct, the Dutch verbal system is based on just the binary features [±PAST] and [±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 9 from Section 1.5.1, sub I, must be replaced by the one in Table 11; the examples with *zullen* no longer define a separate set of future tenses.

Table 11: The Dutch verbal tense system (revised)

	PRESENT	PAST
IMPERFECT	simple present (o.t.t.) *Ik wandel/Ik zal wandelen.* I walk/I will walk.	simple past (o.v.t.) *Ik wandelde/Ik zou wandelen.* I walked/ I would walk.
PERFECT	present perfect (v.t.t.) *Ik heb gewandeld/* *Ik zal hebben gewandeld.* I have walked/I will have walked.	past perfect past perfect (v.v.t.) *Ik had gewandeld/* *Ik zou hebben gewandeld.* I had walked/I would have walked.

This revised view on the verbal tense system of Dutch implies that utterances in the simple present/past can normally refer to any event time interval in present/past-tense interval *i*; eventuality *k* may precede, follow or overlap with *n*/*n'*, as indicated in Figure 25. Recall that the number of possible worlds is in principle infinite and that we simply select a number of them that suit our purpose.

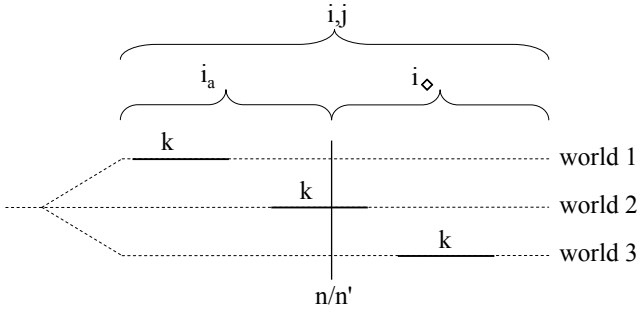

Figure 25: Simple tenses in Dutch

The representation of the perfect tenses is virtually identical to that in Figure 25; the only difference is that the eventualities are construed as completed autonomous units within the present/past-tense interval. As before, we indicate this in Figure 26 by means of a vertical line at the end of the event time interval *k*.

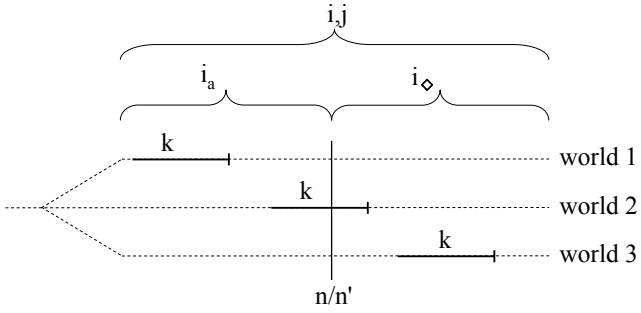

Figure 26: Perfect tenses in Dutch

Note that we assumed in the figures above that the default value of time interval *j* (that is, the time interval within which the eventuality denoted by the lexical projection of the main verb must take place) is equal to that of the complete present/past-tense interval *i*. In the following sections we will show that contextual information (both of a linguistic and a non-linguistic nature) may overrule this default interpretation and that this gives rise to more restricted interpretations.

Before we start with the Dutch tense system, we want to note that, although Verkuyl (2008) was probably wrong in assuming that binary tense theory was perfectly mirrored by the Dutch tense system, it seems that Dutch is very suitable for studying the interaction of tense, modality and pragmatic information because it can be characterized as a strongly "tense-oriented" language. First, Dutch normally does not mark mood on the verb (the exception being imperative marking), so that it differs from, e.g., German in that it does not have a productive subjunctive marking on the verb; see Section 1.4.3 for more discussion. Second, Dutch normally does not mark syntactic aspect on the verb, so that it differs from, e.g., English in that progressive aspect can simply be expressed by means of the simple present/past. Third, Dutch does not require epistemic modality to be marked, so that it differs from English in that the expression of non-actualized ("future") events need not be marked by the presence of *will* (or some other modal verb); Dutch *zullen* 'will' is optional in such cases. Finally, it may be useful to mention that, contrary to what is the case in English, adverbial phrases like *gisteren* 'yesterday' that refer to temporal intervals preceding speech time can be used in present-perfect constructions; Dutch does not have the property found in English that such adverbials can only be used in past-tense constructions. As a result, Dutch enables us to directly investigate the interaction of past tense, epistemic modality and pragmatics in deriving special meaning effects without the intervention of any of the more idiosyncratic properties concerning mood/modality, aspect and adverbial modification of the type mentioned above.

1.5.4.1. The uses of the simple tenses

This section discusses the uses of the simple tenses. We will assume that the default interpretation of these tenses is as given in Figure 25, and that eventuality *k* can thus precede, follow or overlap with *n*/*n'*; in other words, the default interpretation of the present *j* of eventuality *k* is identical to the present/past *i* of the speaker/hearer. We will further argue that the more restricted/special interpretations of the simple

tenses do not require any special stipulations but follow from the interaction of three types of linguistic information.

(338) a. Temporal information (tense and adverbial modification)
b. Modal information (theory of possible worlds)
c. Pragmatic information (Grice's maxim of quantity)

The discussion will focus on the simple present as we assume that the argumentation carries over to the simple past (although this may not always be easy to demonstrate); we will see, however, that the use of the simple past sometimes triggers some special effects.

I. Default use

In their discussion of non-temporal analyses of tense, Boogaart & Janssen (2007:808ff.) discuss a number of examples in the simple present in which the eventuality takes place before speech time. Two of their examples from, respectively, English and Dutch are given as (339). Boogaart & Janssen also claim that the fact that the telling/asking precedes *n* or, in their words, "took place in the past" is problematic for temporal theories of time given that "such discrepancies cannot be accounted for coherently in exclusively temporal terms."

(339) a. John tells me that you are getting a new car.
b. Fred, iemand vraagt naar je. Kom je even?
Fred someone asks for you come you a.moment
'Fred, someone is asking for you. Will you come here for a minute?'

From the point of view encoded in Figure 25, this claim is clearly premature given that simple present examples such as (339) are precisely what we expect to arise, provided at least that eventuality *k* is included in present *i* of the speaker/hearer. Simple present tense situations in which the eventuality *k* precedes or follows speech time *n* also arise if the speaker provides a second hand report. When Els promised the speaker yesterday to read his paper today, the speaker may utter example (340) at noon to report this promise, even if Els has already read his paper in the morning or if she will start reading it later that day.

(340) Els leest vandaag mijn artikel.
Els reads today my paper
'Els is reading my paper today.'

The fact that we are able to account for the fact that the simple present may also refer to an imperfect eventuality preceding or following *n* by assuming that Dutch does not express the binary feature [±POSTERIOR] within its verbal system provides strong support for the binary tense theory. This especially holds because this cannot be expressed by means of the Reichenbachian approaches to the verbal tense system; such approaches must treat such cases as special uses of the simple present.

II. Non-linguistic context: monitoring of k

The default interpretation of example (340) can be overruled by pragmatic considerations. In the context given above the split-off point of the possible worlds

precedes present tense interval *i*, and therefore also precedes speech time *n*. If the speaker is able to monitor Els' doings, however, the split-off point of the possible worlds coincides with *n*, and in this case example (340) can only be used to refer to the situation depicted in Figure 27, in which eventuality *k* must follow or overlap with *n*.

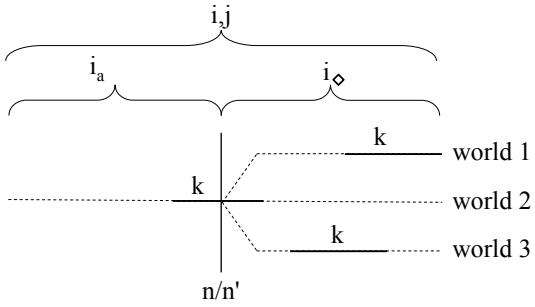

Figure 27: Simple tenses in Dutch (split-off point of possible worlds = n/n′)

The fact that the simple present cannot be used if the eventuality precedes *n* is entirely due to pragmatics; since the speaker knows that eventuality *k* precedes *n* (that is, that *k* is presented as completed within the actualized part time interval i_a of the present/present-tense interval), he can describe this situation more precisely by means of the perfect (see Section 1.5.4.2, sub II-III), and Grice's °maxim of quantity therefore prohibits the use of the less informative simple present.

III. Adverbial modification

The interpretation of example (340) can also be restricted by grammatical means, more specifically, by the addition of temporal adverbial phrases, as in (341). Note in passing that, under the working assumption that the speech time is noon, (341a) is only felicitous if the split-off point of the possible worlds precedes speech time *n*; if the split-off point coincides with *n* the present tense is excluded for the pragmatic reasons discussed in the Subsection II.

(341) a. Els leest vanmorgen mijn artikel.
Els reads this.morning my paper
'Els is reading my paper this morning.'
b. Els leest op dit moment mijn artikel.
Els reads at this moment my paper
'Els is reading my paper at this moment.'
c. Els leest vanmiddag mijn artikel.
Els reads this.afternoon my paper
'Els is reading my paper this afternoon.'

The adverbial phrases *vanmorgen* 'this morning', *op dit moment* 'at this moment' and *vanmiddag* 'this afternoon' situate eventuality *k* respectively before, simultaneous with, and after *n*, that is, noon; we illustrate this in Figure 28 for the adverbial phrase *vanmiddag* 'this afternoon'. The effect of adding temporal adverbial phrases is thus that the time interval *j* is restricted to a subpart of *i* that may be situated in the actualized part of the present/past-tense interval, the non-

actualized part of the present/past-tense interval, or some other part of the present/past-tense interval that includes speech time *n*.

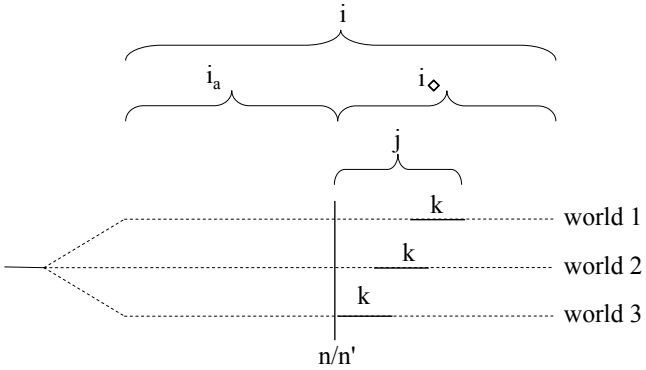

Figure 28: Simple tenses in Dutch (adverbial modification)

Temporal adverbial phrases do not necessarily restrict the temporal interval *j*, but may also modify event time interval *k*. This can be observed in example (342), in which *vanmiddag* 'this afternoon' modifies *j* and *na afloop van haar college* 'after her course' modifies *k*; the event time interval *k* must be located within the time interval *j* denoted by *vanmiddag* and after the moment in time referred to by *na afloop van haar college*.

(342) Els leest vanmiddag mijn artikel na afloop van haar college.
Els reads this.afternoon my paper after the.end of her course
'This afternoon, Els will be reading my paper after her course has ended.'

The effect of adverbial modification of interval *k* is especially conspicuous with momentaneous events like *bereiken* 'to reach' in (343); this example asserts that in all possible worlds eventuality *k* is located within the interval *j* denoted by *vanmiddag* 'afternoon' and includes 3 p.m. Since the eventuality is momentaneous, this implies that the eventuality will take place at 3 p.m. in all possible worlds (where 3 p.m. is, of course, both intended and interpreted as an approximation: "approximately at 3 p.m.").

(343) Het peloton bereikt vanmiddag om 3 uur de finish.
the peloton reaches this.afternoon at 3 o'clock the finish
'The peloton will reach the finish this afternoon at 3 o'clock.'

One may claim that the resulting reading of (343) is not due to the independent modification of the time intervals *j* and *k*, but that we are dealing with a single adverbial phrase *vanmiddag om drie uur*. That this is a possible analysis is undeniable given that the whole string is able to occur in clause-initial position, but example (344) shows that the proposed analysis is also a possible one: the string *vanmiddag om drie uur* can be split and the two parts are assigned different scopes with respect to the modal adverb *waarschijnlijk* 'probably'.

(344) Het peloton bereikt vanmiddag waarschijnlijk om 3 uur de finish.
the peloton reaches this.afternoon probably at 3 o'clock the finish
'This afternoon, the peloton will probably reach the finish at 3 o'clock.'

The adverb *vanmiddag*, the modifier of *j*, has wide scope with respect to the modal adverb; it is claimed that in all possible worlds the eventuality of reaching the finish will take place during the afternoon. The adverbial phrase *om 3 uur*, the modifier of event time interval *k*, on the other hand, has narrow scope with respect to the modal adverb; it is claimed that in the majority of possible worlds the eventuality of reaching the finish will take place at three o'clock. The net result is that the speaker asserts that it is certain that the eventuality of the peloton reaching the finish will take place in the afternoon and that there is a high probability that the event time interval *k* will include the time denoted by the phrase *om 3 uur*. The facts that the string *vanmiddag om drie uur* can be split and that the two parts can take scope independently of each other is clear evidence that it does not have to form a single constituent, but may consist of two independent temporal adverbial phrases.

IV. Multiple events

For the examples discussed so far, we tacitly assumed that the eventuality denoted by the lexical °projection of the main verb only occurs once. Although this may be the default interpretation, the examples in (345) show that this is certainly not necessary: example (345a) expresses that within present tense interval *i*, the speaker will eat three times: once in the time interval *j* denoted by *vanmorgen* 'this morning', once in the time interval *j'* denoted by *vanmiddag* 'this after noon', and once in the time interval *j''* denoted by *vanavond* 'this evening'. Similarly, the frequency adverb *vaak* 'often' in (345b) expresses that within present tense interval *i* (which in this case must involve a longer period of months or years) there are many instances of the eventuality denoted by phrase *naar de bioscoop gaan* 'go to the cinema'.

(345) a. Ik eet vandaag drie keer: vanochtend, vanmiddag en vanavond.
I eat today three time this.morning this.afternoon and tonight
'I'll eat three times today: this morning, this afternoon and tonight.'
b. Ik ga vaak naar de bioscoop.
I go often to the cinema
'I often go to the cinema.'

V. Habitual and generic clauses

The fact that present/past-tense interval *i* can contain multiple occurrences of the eventuality denoted by the lexical projection of the main verb is exploited to the full in habitual constructions such as (346), in which a regularly occurring eventuality can be expressed without the use of an overt adverbial phrase. The availability of this reading may again be a matter of pragmatics, but there are also analyses that postulate empty °operators with a similar function as frequency adverbs like *altijd* or *vaak*; see Oosterhof (2008) for examples of such proposals.

(346) a. Jan gaat (altijd) met de bus naar zijn werk.
Jan goes always with the bus to his work
'Jan (always) goes to his work by bus.'
b. Jan rookt.
Jan smokes
'Jan smokes/is a smoker.'

From habitual examples such as (346), it seems just a small step to get to truly generic examples such as (347); see section N5.1.1.5 for an extensive discussion of the different types of generic examples.

(347) a. Een echte heer is hoffelijk.
a true gent is courteous
b. Echte heren zijn hoffelijk.
true gents are courteous
c. De walvis is een zoogdier.
the whale is a mammal

Note that examples similar to (346) and (347) can readily be given in the simple past. Even the past-tense counterpart of example (347c), *De walvis was een zoogdier* 'the whale was a mammal' is possible with the reading that in a specific past-tense interval whales were mammals. This sentence is infelicitous, of course, since it wrongly suggests that whales are not mammals in the present tense interval (or that they are extinct), but this is again due to pragmatics: if the speaker is aware of the fact that whales are also mammals in the present tense interval, Grice's °maxim of quantity would have required the use of the present tense with a present tense interval that includes the past-tense interval.

VI. Conditionals and hypotheticals

Present-tense examples such as (348) allow at least two readings, which we may refer to as conditional and hypothetical. This subsection shows that the choice between the two readings is pragmatic in nature.

(348) Als ik genoeg geld heb, ga ik op vakantie.
when/if I enough money have go I on holiday
'When/If I've enough money, I will go on holiday.'

The conditional reading is the default reading and expresses that for any subinterval in the present tense interval for which it is true that the speaker has enough money, it will also be true that the speaker will go on holiday. The hypothetical reading is pragmatic in nature and arises if the actualized part of the present tense interval is considered irrelevant: the utterance expresses that in any future world in which the speaker has enough money, he will go on holiday. The ambiguity between the two readings can be resolved by means of adverbial modification.

(349) a. Als ik genoeg geld heb, ga ik altijd op vakantie. [conditional]
when I enough money have go I always on holiday
'Whenever I've enough money, I go on holiday.'
b. Als ik volgend jaar genoeg geld heb, ga ik op vakantie. [hypothetical]
if I next year enough money have go I on holiday
'If I've enough money next year, I'll go on holiday.'

Modification of the consequence of the construction by means of a frequency adverb like *altijd* 'always' favors the conditional reading, whereas modification of the antecedent by a temporal adverbial phrase like *volgend jaar* 'next year' triggers the hypothetical reading. That this is more than just a tendency is shown by the examples in (350). Given that (350a) expresses an established fact of chemistry, it is only compatible with a conditional reading. This is reflected by the fact that it is easily possible to modify the consequence by a frequency adverb, but that modification of the antecedent by a time adverb leads to an infelicitous result.

(350) a. Als je waterstof en zuurstof verbindt, krijg je water (H_2O).
if one hydrogen and oxygen merge get one water H_2O
'If one merges hydrogen and oxygen, one gets water (H_2O).'
b. Als je waterstof en zuurstof verbindt, krijg je meestal water (H_2O).
if one hydrogen and oxygen merge get one mostly water H_2O
'If one merges hydrogen and oxygen, one nearly always gets water (H_2O).'
c. $^{\$}$Als je morgen waterstof en zuurstof verbindt, krijg je water.
when one tomorrow hydrogen and oxygen merge get one water
'If one merges hydrogen and oxygen tomorrow, one gets water.'

VII. Conditionals and counterfactuals

Past-tense examples such as (351a) also allow at least two readings. The first is again conditional but the second is counterfactual rather than hypothetical. We will argue below that the choice between the two readings is again pragmatic in nature. Note that examples such as (351b) are special in that the conditional reading is excluded: this is, of course, due to pragmatics as it is *a priori* unlikely that the antecedent of the construction will be true in any possible world.

(351) a. Als ik genoeg geld had, ging ik op vakantie.
when I enough money had went I on holiday
'When/If I had enough money, I went/would go on holiday.'
b. Als ik jou was, ging ik op vakantie.
when I you were went I on holiday
'If I were you, I would go on holiday.'

The conditional reading is again the default reading and expresses that for any subinterval in past-tense interval *i* for which it is true that the speaker has money, it is also true that the speaker goes on holiday. The counterfactual reading arises if the antecedent of the construction is not or not expected to be fulfilled in the speaker's actual world (within the relevant past-tense interval). First, if the condition expressed by the antecedent of the construction had been fulfilled in the speaker's actual world before speech time *n*, the speaker could be more precise by using

example (352a). Secondly, if the speaker believes that the condition will be fulfilled in some of the possible worlds that have their split-off point at speech time *n*, he can be more precise by using, e.g., example (352b).

(352) a. Toen ik genoeg geld had, ging ik op vakantie.
at.the.time I enough money had went I on holiday
'At the time that I had enough money, I went on holiday.'
b. Zodra ik genoeg geld heb, ga ik op vakantie.
as.soon.as I enough money have go I on holiday
'As soon as I've got enough money, I'll go on holiday.'

The maxim of quantity therefore leaves the addressee no other choice than to conclude that the speaker believes that the antecedent in (351a) is only fulfilled in possible worlds other than the actual one, which furthermore must have a split-off point preceding *n*. This leads to the counterfactual interpretation.

An interesting fact about conditionals and counterfactuals is that *als*-phrases often alternate with constructions without *als*, in which the finite verb occupies the first position of the clause. Such verb-first constructions can be used to express wishes, especially if a particle like *maar* is present; note that under the wish reading the consequence can readily be left implicit. This shows that Grice's maxim of quantity is more generally applicable to derive °irrealis constructions of various types.

(353) a. Als Jan hier was, dan had ik wat gezelschap.
if Jan here was, then had I a.bit.of company
'If Jan were here, I'd have a bit of company.'
b. Was Jan maar hier, (dan had ik wat gezelschap).
were Jan PRT here then had I a.bit.of company
'I wish that Jan were here, then I'd have a bit of company.'

VIII. Counterfactuals and epistemic modality

Example (354a) shows that counterfactual interpretations also arise in examples with an epistemic modal verb in the past tense. This option is expected under the assumptions adopted so far: the past tense on the modal verb in the first conjunct indicates that some source had reason for assuming that collapsing of the house was unavoidable, while the second conjunct indicates that this assessment was wrong. Counterfactual readings are not possible in present-tense examples such as (354b); if the speaker and addressee know that the house did not collapse before speech time *n*, a future interpretation will arise for the pragmatic reasons indicated in Section 1.5.2, sub I.

(354) a. Mijn huis moest verleden week instorten, maar het is niet gebeurd.
my house had.to last week prt.-collapse but it is not happened
'There was reason for assuming that my house had to collapse last week, but it didn't happen.'
b. Mijn huis moet deze week instorten, ($maar het is niet gebeurd).
my house has.to this week prt.-collapse but it is not happened
'There is reason for assuming that my house has to collapse this week.'

The past tense of the modal verb *zullen* 'will' is frequently used to express a counterfactual interpretation. Example (355a) is interpreted counterfactually for the same reason as (354a): the past tense of *zullen* indicates that to some source had information that suggested that the collapsing of the house would take place, but the second conjunct again indicates that this assessment was wrong. The present-tense counterpart of this example in (355b) again has a future interpretation for pragmatic reasons; see Section 1.5.2, sub II, for detailed discussion of this.

(355) a. Mijn huis zou verleden week instorten, maar het is niet gebeurd.
my house would last week prt.-collapse but it is not happened
'There was reason for assuming that my house would collapse last week, but it didn't happen.'

b. Mijn huis zal deze week instorten, ($maar het is niet gebeurd).
my house will this week prt.-collapse but it is not happened
'There is reason for assuming that my house has to collapse this week.'

For more discussion about the relation between counterfactual interpretations and past tense, the reader is referred to Section 1.4.3, sub II, where it is shown that many instances of the German past subjunctive can be expressed by regular past marking in Dutch.

IX. Denial of appropriateness of a nominal description

Pragmatics can also be used to account for the fact that the simple past can be used to express that a given nominal description is not applicable to a certain entity. Imagine a situation in which a pregnant woman enters a bus. All seats are occupied, and nobody seems to be willing to oblige her by standing up. An elderly lady gets angry and utters (356) to the boy sitting next to her. Since she knows at speech time that the boy had no intention to offer his seat, she implies by uttering (356) that the description *een echte heer* is not applicable to him. This use of the simple past seems very pervasive in children's games; examples such as (356b) are used to introduce a play, and the participants assume certain model roles.

(356) a. Een echte heer stond nu op.
a true gent stood now up
'A true gent would give up his seat now.'

b. Ik was vader en jij was moeder.
I was daddy and you were mommy
'I'll play daddy and you'll play mommy.'

X. Conclusion

This section has shown that the default reading of the simple tenses is that the time interval *j*, during which the eventuality denoted by the lexical projection of the main verb must take place, is identical to the complete present/past-tense interval: the eventuality may take place before, during or after speech time *n*/*n*′. In many cases, however, the interpretation is more restricted and may sometimes also have non-temporal implications. This section has also shown that this can be derived without any further ado from the interaction between the temporal information (tense and

adverbial modification), modal information encoded in the sentence (the theory of possible worlds) and pragmatic information (Grice's maxim of quantity).

1.5.4.2. The uses of the perfect tenses

This section discusses the uses of the perfect tenses. We will assume that the default interpretation of these tenses is as given as in Figure 26, repeated below for convenience, and that eventuality *k* can thus precede, follow or overlap with *n*/*n'*; in other words, the default interpretation of the present *j* of eventuality *k* is identical to the present/past *i* of the speaker/hearer. The perfect tense thus only differ from the simple tenses discussed in 1.5.4.1 in that eventuality *k* is presented as completed within *j*.

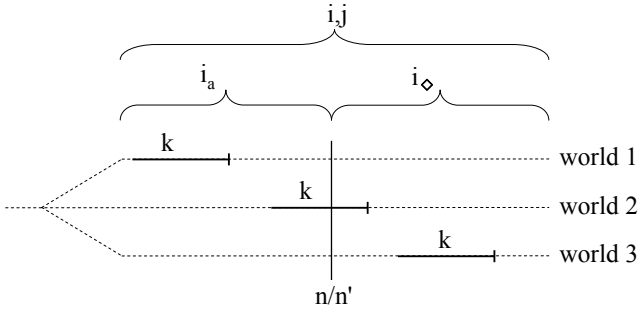

Figure 26: Perfect tenses in Dutch

We will further argue that the more restricted and more special interpretations of the perfect tenses do not need any special stipulations but follow from the interaction of three types of linguistic information.

(357) a. Temporal information (tense and adverbial modification)
b. Modal information (theory of possible worlds)
c. Pragmatic information (Grice's maxim of quantity)

The discussion will mainly focus on the present perfect as we will assume that the argumentation carries over to the past perfect; we will see, however, that the use of the past perfect sometimes triggers some special effects.

I. Default use

Perfect tense situations represented by Figure 26 normally arise if the speaker provides a second hand report. When Els promised the speaker yesterday that she would read the paper under discussion today, the speaker may utter example (358) at noon to report this promise, even if Els has not yet completed the reading of the paper, that is, if she is still in the process of reading it or will start reading it later that day.

(358) Els heeft vandaag mijn artikel gelezen.
Els has today my paper read
'Els will have read my paper today.'

That the present perfect may also refer to eventuality overlapping or following *n* is an immediate consequence of our claim that Dutch does not express the binary feature [±POSTERIOR] within its verbal system. This finding also favors the binary tense theory over the Reichenbachian approaches to the verbal tense system given that the latter does not have the means to express it, and must therefore treat such cases as special/unexpected uses of the present perfect.

The choice between the past and present perfect is often related to the temporal location of some other event. Consider the examples in (359): the present tense in example (359a) requires that the exam is part of the present tense interval (and in fact strongly suggests that it will take place in the non-actualized part of it), whereas (359b) strongly suggests that the exam is part of the past-tense interval preceding speech time *n*.

(359) a. Ik heb me goed voorbereid voor het tentamen.
I have me well prepared for the exam
'I've prepared well for that exam.'
b. Ik had me goed voorbereid voor dat tentamen.
I had me well prepared for that exam
'I've prepared well for that exam.'

Similarly, an example such as (360a) will be used to inform the addressee that the window in question is still open at the moment of speech, whereas (360b) does not have this implication but will rather be used in, e.g., a story about a break-in that happened in some past-tense interval.

(360) a. Ik heb het raam niet gesloten.
I have the window not closed
'I haven't closed the window.'
b. Ik had het raam niet gesloten.
I had the window not closed
'I hadn't closed the window.'

II. Non-linguistic context: monitoring of k

The interpretation of example (358) can be restricted by pragmatic considerations. In the context given above the split-off point of the possible worlds precedes present tense interval *i*, and therefore also precedes speech time *n*. However, if the speaker is able to monitor Els' doings during the actualized part of the present tense interval i_a, the split-off point of the possible worlds coincides with *n*, and in this case example (358) would normally be used to refer to the situation depicted in Figure 29, in which eventuality *k* precedes *n*; cf. Verkuyl (2008).

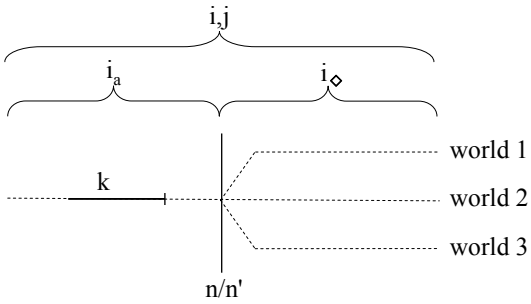

Figure 29: Perfect tenses in Dutch (split-off point of possible worlds = n/n')

That *k* normally precedes *n* in the situation sketched above is illustrated in (361a). Recall that 1.5.4.1, sub II, referred to this preferred reading of (361a) in order to account for the fact that the present in (361b) cannot normally be used to refer to some event preceding *n*.

(361) a. Jan heeft vandaag gewerkt. [*k* precedes *n*]
Jan has today worked
'Jan has worked today.'
b. Jan werkt vandaag. [*k* follows or overlaps with *n*]
Jan works today
'Jan will work today.'

Examples such as (362a), in which the completion of eventuality *k* is situated in the non-actualized part $i_\diamond$ of the present might help us to understand better how the more restricted interpretation in Figure 29 arises. As will be discussed more extensively in Subsection III, temporal adverbial phrases may restrict the precise location of eventuality *k* within interval *j*; the temporal adverbial phrase *om drie uur* indicates that the completion of the eventuality of *Marie reading the speaker's paper* will take place before 3:00 p.m.; see also Janssen (1989). The reason why example (362b) normally does not refer to eventualities following *n* in the situation sketched in Figure 29 may be that the relevant point of time at which eventuality *k* must be completed is taken to be speech time *n* by default; making this point of time explicit by, e.g., adding the adverb *nu* 'now' is only possible if the speaker intends to emphasize that the relevant evaluation time is the speech time.

(362) a. Marie heeft mijn artikel om drie uur zeker gelezen.
Marie has my article at 3:00 p.m. certainly read
'Marie will have read my article by 3:00 p.m.'
b. Marie heeft mijn artikel gelezen.
Marie has my article read
'Marie has read my article.'

Although an account along these lines seems plausible, the examples in (363) show that it cannot be the whole story. In these examples, the adverb *vandaag* 'today' again modifies *j* and the adverbial phrase *tot drie uur* 'until 3:00 p.m.' restricts the location of eventuality *k* to some subinterval of *j* preceding 3:00 p.m. The comments between square brackets indicate, however, that even in situations where

the speaker is able to monitor eventuality *k*, present-perfect examples such as (363a) are normally used if *k* is completed before speech time *n*, whereas simple present examples such as (363b) are normally used if *k* will be competed after *n*.

(363) a. Vandaag heeft Jan tot drie uur gewerkt. [*n* > 3:00 p.m.]
today has Jan until 3:00 p.m. worked
'Today, Jan has worked until three p.m.'
b. Vandaag werkt Jan tot drie uur. [*n* < 3:00 p.m.]
today works Jan until 3:00 p.m.
'Today, Jan will work until 3:00 p.m.'

The fact that (363a) cannot have a future interpretation suggests that something is still missing. The following subsection tries to fill this gap by showing that °Aktionsart may also restrict the temporal interpretation of the perfect tenses.

III. Adverbial modification and Aktionsart

As in the case of the simple tenses, the temporal interpretation of the perfect tenses can be restricted by means of adverbial modification. It seems, however, that the situation is somewhat more complicated given that Aktionsart may likewise constrain the interpretation of the perfect tenses: more specifically, °atelic predicates differ from °telic ones in that they only allow a future interpretation of the perfect under very strict conditions.

A. Adverbial modification

The interpretation of example (358) can also be restricted by grammatical means, more specifically, by the addition of temporal adverbial phrases. If we assume that the examples in (364) are uttered at noon, example (364a) expresses that Els has finished reading the paper in the morning (before speech time *n*), and (364b) that Els will finish reading the paper in the afternoon (after speech time *n*).

(364) a. Els heeft vanmorgen mijn artikel gelezen.
Els has this.morning my paper read
'Els has read my paper this morning.'
b. Els heeft vanmiddag mijn artikel gelezen.
Els has this.afternoon my paper read
'Els will have read my paper by this afternoon.'

Given that the perfect tense focuses on the termination point of the event, it is immaterial for the truth of example (364b) whether the eventuality denoted by the lexical projection of the main verb overlaps or follows speech time *n*. This means that the adverbial phrase *vanmiddag* 'this afternoon' is compatible both with eventualities that overlap and eventualities that follow *n*. Example (364b) can thus refer to the situation in Figure 30.

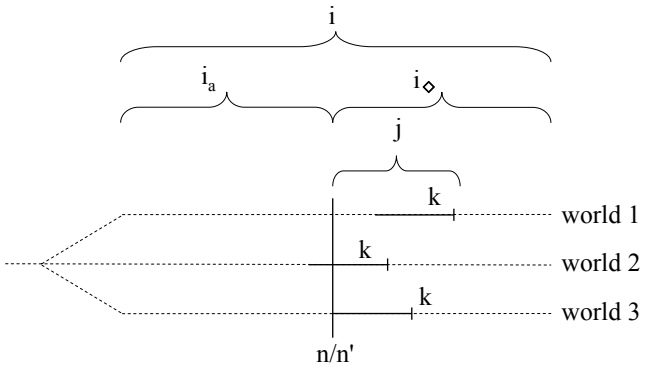

Figure 30: Perfect tenses in Dutch (adverbial modification)

The effect of adding temporal adverbial phrases is thus that time interval *j*, which must include the termination point of the eventuality denoted by the lexical projection of the main verb, is restricted to a subpart of *i* that may be situated in the actualized part of the present/past time interval, as in (364a), or in its non-actualized part, as in (364b).

Temporal adverbial phrases do not, however, necessarily restrict temporal interval *j*, but may also modify the event time interval *k*. The latter can be observed in example (365), in which *vanmiddag* 'this afternoon' modifies *j* and the adverbial PP *voor het college* 'before the course' modifies *k*, with the result that the termination point of event time interval *k* must be located within the time interval *j* denoted by *vanmiddag* and must precede the moment in time where the nominal complement of the preposition *voor* is situated.

(365) Ik heb vanmiddag je artikel voor het college gelezen.
I have this.afternoon your paper before the course read
'This afternoon, I'll have read your paper before the course starts.'

In (365) the modifier of *j* precedes the modifier of *k* and it seems that this is the normal state of affairs (in °middle field at least). In fact, it seems that the two also have different locations with respect to the modal adverb; the examples in (366) show that the adverbial modifiers of interval *j* normally precede modal adverbs like *waarschijnlijk* 'probably', whereas modifiers of the event time interval *k* must follow them.

(366) a. Jan was gisteren/vandaag waarschijnlijk om 10 uur vertrokken.
Jan was yesterday/today probably at 10 o'clock left
'Jan had probably left at 10 o'clock yesterday/today.'
b. Jan is morgen waarschijnlijk om 10 uur al vertrokken.
Jan is tomorrow probably at 10 o'clock already left
'Jan will probably already have left at 10 o'clock tomorrow.'

That the modifier of *k* must follow the modal adverbs can also be supported by the two examples in (367): in (367a) the adverbial phrase *om tien uur* precedes the modal adverb and the most conspicuous reading is that the leaving event took place before 10 o'clock; the adverbial phrase thus indicates the end of time interval *j*

within which the eventuality must be completed; in (367b), on the other hand, the adverbial phrase *om tien uur* follows the modal adverb and the most conspicuous reading is that the leaving event took place at 10 a.m. Note that English does not have similar means to distinguish the two readings; the translations of the examples in (367a&b) are truly ambiguous; cf. Comrie (1985:66).

(367) a. Jan was om 10 uur waarschijnlijk al vertrokken.
Jan was at 10 o'clock probably already left
'Jan had probably already left at 10 o'clock.'
b. Jan was waarschijnlijk al om 10 uur vertrokken.
Jan was probably already at 10 o'clock left
'Jan had probably already left at 10 o'clock.'

It seems that adverbial modification of *k* in present-perfect examples with a future reading must result in placement of the termination point *in between* speech time *n* and the time (interval) referred to by the adverbial phrase. If we maintain that the sentences are uttered at noon, this will become clear from the contrast between the fully acceptable example in (365) and the infelicitous, or at least marked, example in (368); the semantic difference is that whereas the modifier *voor het college* in (365) places the completion of *k* between noon and the course that will be given later that afternoon, the modifier *na het college* 'after the course' in (368) places it after the course (and hence also after speech time *n*).

(368) #Ik heb vanmiddag je artikel na het college gelezen.
I have this.afternoon my paper after the course read
'This afternoon, I'll have read your paper after the course.'

That the future completion of *k* must be situated between *n* and some point referred to by the adverbial phrase that modifies *k* is even clearer if the modifier refers to a single point in time: the adverbial phrase *om 3 uur* in (369) refers to the ultimate time at which the eventuality denoted by the lexical projection of the main verb must have been completed.

(369) Vanmiddag heeft het peloton om 3 uur de finish bereikt.
this.afternoon has the peloton at 3 o'clock the finish reached
'The peloton will reach the finish this afternoon at 3 o'clock.'

Similar restrictions do not occur if the completion of eventuality *k* precedes speech time *n*. If uttered at noon, the sentences in (370) are equally acceptable, despite the fact that the event time interval is only situated between breakfast and the time of utterance in (370b).

(370) a. Ik heb vanmorgen je artikel voor het ontbijt gelezen.
I have this.morning your paper before breakfast read
'This morning, I read your paper before breakfast.'
b. Ik heb vanmorgen je artikel na het ontbijt gelezen.
I have this.morning your paper after breakfast read
'This morning, I read your paper after breakfast.'

In past perfect constructions such as (371), we seem to find just the same facts, although judgments are a bit more delicate. If eventuality *k* is placed after *n′* the adverbial phrase must refer to some time after the completion of the event, as in (371a), which is equally acceptable as its present time counterpart in (370a). Example (371b) violates this restriction and is therefore marked and certainly less preferred than its present-tense counterpart in (370b).

(371) a. Ik had vanmorgen je artikel voor het ontbijt gelezen.
I had this.morning your paper before breakfast read
'This morning, I'd read your paper before breakfast.'
b. ?Ik had vanmorgen je artikel na het ontbijt gelezen.
I had this.morning your paper after breakfast read
'This morning, I read your paper after breakfast.'

Example (371b) is perhaps not as bad as one might expect, but this may be due to the fact that *vanmorgen* can in principle also be read as a modifier of the past-tense interval. The examples in (372) show that in that case the examples are fully acceptable (provided that the adverbial phrase refers to an eventuality preceding *n′*).

(372) a. Ik had gisteren je artikel voor het ontbijt gelezen.
I had yesterday your paper before breakfast read
'Yesterday, I'd read your paper before breakfast.'
b. Ik had gisteren je artikel na het ontbijt gelezen.
I have yesterday your paper after breakfast read
'Yesterday, I read your paper after breakfast.'

B. Aktionsart

Modification of the time interval *j* by means of a time adverbial referring to some time interval following *n* is not always successful in triggering a future reading on perfect-tense constructions. The examples in (373) show that Aktionsart may affect the result: atelic predicates like the state *ziek zijn* 'to be ill' or the activity *aan zijn dissertatie werken* 'to work on his thesis' normally resist a future interpretation.

(373) a. Jan is vorige week ziek geweest. [state]
Jan is last week ill nee
'Jan was ill last week.'
a′. *Jan is volgende week ziek geweest.
Jan is next week ill been
b. Jan heeft vanmorgen aan zijn dissertatie gewerkt. [activity]
Jan has this.morning on his dissertation worked
'Jan has worked on his PhD thesis all morning.'
b′. ??Jan heeft morgen aan zijn dissertatie gewerkt.
Jan has tomorrow on his dissertation worked

The unacceptability of the primed examples seems to be related to the fact discussed in Section 1.5.1, sub IB2, that the perfect has different implication for eventuality *k* with telic and atelic predicates; we illustrate this difference again in (374) for activities and accomplishments.

(374) a. Jan heeft vanmorgen aan zijn dissertatie gewerkt. [=(373a); activity]
Jan has this.morning on his dissertation worked
'Jan has worked on his PhD thesis all morning.'
b. Jan heeft de brief vanmorgen geschreven. [accomplishment]
Jan has the letter this.morning written
'Jan has written the letter this morning.'

Although the examples in (374) both present the eventualities expressed by the projection of the main verb as discrete, bounded units that are completed at or before speech time *n*, they differ with respect to whether the eventualities in question can be continued or resumed after *n*. This option seems natural for the activity in (374a), as is clear from the fact that this example can readily be followed by *... en hij zal daar vanmiddag mee doorgaan* '... and he will continue doing that in the afternoon'. The accomplishment in (374b), on the other hand, seems to imply that the eventuality has reached its implied endpoint and therefore cannot be continued after speech time *n*.

Atelic and telic predicates also differ if it comes to modification by the accented adverb *nu* 'now', which expresses that the state of completeness is achieved at the very moment of speech; atelic predicates allow this use of *nu* only if a durative adverbial phrase like *een uur* 'for an hour' is added; see Janssen (1983) and the references cited there.

(375) a. Jan heeft NU *(een uur) aan zijn dissertatie gewerkt. [activity]
Jan has nu one hour on his dissertation worked
'Jan has worked on his PhD thesis for an hour ... NOW.'
b. Jan heeft de brief NU geschreven. [accomplishment]
Jan has the letter now written
'Jan has written the letter ... NOW.'

Janssen suggests that this is due to the fact that the moment at which atelic predicates can be considered "completed" is not conspicuous enough to be pointed at by means of accented *nu* 'now'; we are normally only able to pass judgment on this after some time has elapsed unless the rightward boundary is explicitly indicated by, e.g., a durative adverbial phrase. This inconspicuousness of the end point of atelic eventualities is of course related to the fact that they can in principle be extended indefinitely, and is probably also the reason why speakers will refrain from using the perfect if it comes to future atelic eventualities; like in example (375a), the speaker will use the perfect only if the extent of the atelic predicate is explicitly bounded by means of a durative adverbial phrase. In other cases, the speaker will resort to the simple present to locate atelic eventualities in the non-actualized part of the present.

(376) Morgen heeft Jan ??(precies een jaar) aan zijn dissertatie gewerkt.
tomorrow has Jan exactly one year on his thesis worked
'Tomorrow Jan has worked on his thesis for a full year.'

IV. Multiple events

For the examples so far, we tacitly assumed that the eventuality denoted by the lexical projection of the main verb occurs only once. Although this may be the default interpretation, the examples in (377) show that this is not necessary: example (377a) expresses that in the actualized part of the present tense interval *i* denoted by *vandaag* 'today', the speaker has eaten three times before speech time *n*. Similarly, the frequency adverb *vaak* 'often' in (377b) expresses that within the actualized part of the tense interval *i* denoted by the adverbial phrase *dit jaar* 'this year' there have been many occurrences of the eventuality denoted by the phrase *naar de bioscoop gaan* 'go to the cinema'.

(377) a. Ik heb vandaag drie maaltijden gegeten: ontbijt, lunch en avondeten.
I have today three meals eaten breakfast lunch and supper
'I've eaten three times today: breakfast, lunch and supper.'
b. Ik ben dit jaar vaak naar de bioscoop geweest.
I am this year often to the cinema been
'I've often been to the cinema this year.'

As expected, the default interpretation of examples such as (377) is that the eventualities precede speech time *n*. This default reading can, however, readily be cancelled. An example such as *Als ik vanavond naar bed ga, heb ik drie maaltijden gegeten: ontbijt, lunch and avondeten* 'When I go to bed tonight, I will have eaten three meals: breakfast, lunch and supper' can readily be uttered at dawn or noon by, e.g., someone with an eating disorder who wants to express his good intentions.

V. Habitual and generic clauses

The fact that the present/past-tense interval can contain multiple occurrences of the eventuality denoted by the lexical projection of the main verb is exploited to the full in habitual constructions such as (378). These examples differ from the simple present examples in (346) in that they tend to situate the habit in the actualized part of the present tense interval i_a; for example, there is a strong tendency to interpret example (378b) such that Jan has quit smoking. It is, however, certainly not necessary to interpret perfect habituals in this way, as will be clear from the fact that example (378a) can readily be followed by ... *en hij zal dat wel blijven doen* '... and he will continue to do so'.

(378) a. Jan is (altijd) met de bus naar zijn werk gegaan.
Jan has always with the bus to his work gone
'Jan has (always) gone to his work by bus.'
b. Jan heeft (vroeger) gerookt.
Jan has in.the.past smoked
'Jan has smoked in the past/used to be a smoker.'

In contrast to the present-tense examples in (356), it does not seem possible to interpret the perfect-tense examples in (379) generically: the examples in (379a&b) are only acceptable if the subject refers to a (set of) unidentified individual(s); example (379c) can at best give rise to the semantically incoherent interpretation that a specific whale has become a fish.

(379) a. #Een echte heer is hoffelijk geweest.
a true gent is courteous been
'A true gent has been courteous.'
b. #Echte heren zijn hoffelijk geweest.
true gents are courteous been
c. *De walvis is een zoogdier geweest.
the whale is a mammal been

VI. Conditionals and hypotheticals

Present perfect-tense clauses introduced by *als* 'when' seem to allow both a conditional and a hypothetical reading, just like the simple present examples in (348) from Section 1.5.4.1. The conditional reading, which is illustrated in (380a&b), is again the default one. These examples involve identical strings but are given different glosses in order to express that a teacher could say this sentence either to his pupils in general to indicate that those who have fulfilled the condition expressed by the antecedent of the sentence may leave, or to a specific student if he does not know whether this student has fulfilled the condition.

(380) a. Als je je spullen op geruimd hebt, mag je weg.
when one his things away cleared has be.allowed one go.away
'When one has put away his things, one may go.'
b. Als je je spullen op geruimd hebt, mag je weg.
when you your things away cleared has be.allowed you go.away
'If you've put away your things, you may go.'

The hypothetical reading of this sentence arises if the discourse participants know that the antecedent is not fulfilled in the actualized part of the present tense interval, e.g., if the teacher addresses a specific pupil of whom he knows that he did not yet clear away his things; see the gloss and rendering of (381).

(381) Als je je spullen op geruimd hebt, mag je weg.
as.soon.as you your things away cleared has be.allowed you go.away
'As soon as you've put away your things, you may go.'

The fact that contextual information is needed to distinguish the two readings of the antecedent clause *Als je je spullen opgeruimd hebt, mag je weg* clearly shows that pragmatics is involved. It is, however, possible to favor a certain reading by means of adverbial phrases. As in the present-tense examples, the conditional reading in (380) is favored by adding an adverb like *altijd* 'always' to the consequence: *Als je je spullen opgeruimd hebt, mag je altijd weg* 'if one has put away his things, one may always go'. The same thing holds for the addition of *al* 'already' to the antecedent since this locates the eventuality denoted by the lexical projection of the main verb of the antecedent clause in the actualized part of the present tense interval and thus blocks the hypothetical reading: *Als je je spullen al opgeruimd hebt, mag je weg* 'If you have already put away your things, you may go'. Addition of *straks* 'later' to the antecedent, on the other hand, will favor the hypothetical reading as it suggests that the speaker knows that the condition is not yet fulfilled at

the moment of speech: *Als je straks je spullen opgeruimd hebt, mag je weg* 'If you have put away your things later, you may go'.

VII. Conditionals and counterfactuals

Past perfect tense utterances allow both a conditional and a counterfactual reading, just like the simple past examples in (351) from Section 1.5.4.1. The default conditional reading can be found in (382a), which refers to some general rule which was valid in the relevant past-tense interval. The conditional reading is not that easy to get if the pronoun *je* is interpreted referentially, as in (382b), which seems preferably interpreted counterfactually instead. This preference may again be pragmatic in nature. Given that the eventuality is situated in the past-tense interval, the speaker and the addressee may be expected to know whether or not the condition mentioned in the antecedent is fulfilled.

(382) a. Als je je spullen op geruimd had, mocht je weg.
when one his things away cleared had be.allowed one go.away
'When one had put away his things, one was allowed to go.'
b. Als je je spullen op geruimd had, mocht je weg.
when you your things away cleared had be.allowed you go.away
'If you had put away your things, you were allowed go.'

It is important to observe that the use of the simple past of the verb *mogen* 'to be allowed' in the consequence does not necessarily imply that the leaving event denoted by the lexical projection of the main verb in the consequence is located before speech time *n*. In fact, the preferred interpretation of counterfactuals of the form in (382b) is that in possible worlds in which the condition mentioned in the antecedent is fulfilled, the leaving event would coincide with or follow speech time *n*. This will be clear from the fact that the use of the adverb *gisteren* 'yesterday' is not possible in (383a). This shows again that the past-tense interval can include speech time *n* and thus overlap with the present tense interval; see the discussion in Section 1.5.1, sub IC. Note that this restriction on adverbial modification is lifted if the consequence is put in the perfect tense, as in (383b).

(383) Als je je spullen op geruimd had, ...
when you your things away cleared had
'If you'd put away your things, ...'
a. ... dan mocht je nu/morgen/*gisteren naar het feest.
then be.allowed you now/tomorrow/yesterday to the party
'... then you were allowed go to the party now/tomorrow.'
b. ... dan had je nu/morgen/gisteren naar het feest gemogen.
then had you now/tomorrow/yesterday to the party been.allowed
'... then you would have been allowed to go to the party now/tomorrow/yesterday.'

An interesting fact about conditionals and hypotheticals is that the *als*-phrase alternates with constructions without *als*, in which the finite verb occupies the first position of the clause: the antecedent in (383) can also have the form *Had je je spullen opgeruimd, dan ...* With antecedents of this form, counterfactuals are often used to express regret or a wish; for obvious reasons the former reading is probably

more likely to arise if the speaker expresses a counterfactual situation that involves himself. The parentheses in these examples indicate that under these readings the consequence is often left implicit.

(384) a. Had ik mijn spullen maar op geruimd, dan had ik weg gemogen.
had I my things PRT away cleared then had I away been.allowed
'I regret that I hadn't put away my things/I wish I'd put away my things (since then I'd have been allowed to go).'
b. Had hij zijn spullen maar op geruimd, dan had hij weg gemogen.
had he his things PRT away cleared then had he away been.allowed
'I wish he had put away his things since then he'd have been allowed to go.'

When the hypothetical involves the addressee, as in (385), the resulting structure is readily construed as a reproach. The construction is special, however, in that it is not possible to overtly express the subject of the antecedent, which strongly suggests that we are formally dealing with an imperative; see also the discussion of examples (179) and (180) in Section 1.4.2, sub I.

(385) a. Had (*je) je spullen maar op geruimd, (dan had je weg gemogen).
had you your things PRT away cleared then had you away been.allowed
'It is your own fault: if you'd put away your things, you'd have been allowed to go.'
b. Had (*je) niet zo veel gedronken (dan had je nu geen kater).
had you not that much drunk then had you now no hangover
'It would have been better if you hadn't drunk that much (since then you wouldn't have had a hangover now).'

The counterfactual examples in this subsection all have in common that the speaker/hearer can be assumed to know whether or not the condition given in the antecedent is satisfied, which makes the conditional reading of these examples uninformative: the speaker could simply have given the addressee permission to leave. Because the counterfactual reading is informative (the speaker informs the addressee about the situation that would have arisen if he had fulfilled the condition expressed by the antecedent), Grice's °maxim of quantity favors this interpretation. This shows that Grice's maxim of quantity is involved in triggering various types of °irrealis meanings of past perfect-tense constructions.

VIII. Denial of the appropriateness of a nominal description

Like the simple past in (356), the past perfect can be used to express that a given nominal description is not applicable to a specific entity. Imagine again a situation in which a pregnant woman enters a bus. All seats are occupied, and nobody seems to be willing to oblige her by giving up his seat. An elderly lady gets angry and utters (386) to the boy next to her, thus implying that the description *een echte heer* is not applicable to him.

(386) Een echte heer was nu allang opgestaan.
a true gent was nu a.long.time.ago up-stood
'A true gent would have given up his seat a long time ago now.'

IX. Conclusion

This section has shown that, as in the case of the simple tenses, the default reading of the perfect tenses is that the time interval *j*, during which the eventuality denoted by the lexical projection of the main verb must take place, is identical to the complete present/past-tense interval *i*: the completion of the eventuality may take place before, during or after speech time *n*/*n*′. In many cases, however, the interpretation is more restricted and may sometimes also have non-temporal implications. This section has shown that this can be derived without any further ado from the interaction between the temporal information (tense and adverbial modification), modal information encoded in the sentence (the theory of possible worlds) and pragmatic information (Grice's maxim of quantity).