

2 *Semiotactic Relations and Symbols*

In the following sections the formalization and the relation symbols used in the notations will be explained and illustrated with examples to demonstrate how the semiotactic representations are compiled and how they could be interpreted. The goal of the semiotactic formalization is to provide a formula for each construction. A **construction** consists of a number of semantic particles related to each other by semiotactic relations that can be formalized by using symbols. In the formalizations we will mainly use English as a metalanguage to refer to the meanings (semantic particles) of the construction, but in some instances we will also use the ‘target language’ as the metalanguage (e.g. French, Dutch, German, Russian and Japanese). It should be noted that in most cases we do not provide definitions of the meanings or discuss whether the meanings are polysemous or not.

Semantic particles (i.e. non-complex meanings) need not correlate only with words but may also correlate with (part of) the meaning expressed by a **morpheme**. To give an example, the English plural form *-s* is part of a word but has its own contribution to the meaning, which must be semiotactically represented so that a distinction can be made between, for example, *the dog* and *the dogs*. Another example is the English semantic particle ‘un’, expressed by the morpheme *un-* as in *unkind*, which does indeed contribute an added meaning to the word *kind*, i.e. a contrasting meaning. Of course, there are also many languages where a meaning that is expressed by a morpheme in English is expressed by a word, or vice versa. For the semiotactic representation it is irrelevant how a semantic particle is expressed (i.e. by a word or a morpheme), therefore this is not indicated in the formalization. At the same time, morphemes (or words) that do not contribute to meaning but have only a purely grammatical function are not semiotactically represented. An example is the English verb inflection *-s*, as in *he walks*, which does not indicate a difference in the meaning of ‘walk’ as compared with *I walk*, even though it only occurs in the case of a third person singular. For each element of an utterance the decision must be made as to whether and, if so, how it should be represented in the semiotactic notation. As the

arguments presented in the following sections will show, such decisions are not always straightforward or easy to make, and in some cases more than one representation is possible, depending on how the construction is analysed.

2.1 Limitation Relation

Limitation is a relation between two meanings and is found when one word or word group modifies (qualifies) another in such a way that a subset is indicated. The relation of **limitation** may be convergent, divergent or temporal.

2.1.1 Convergent Limitation

- (1) *old man*

'*man – old*'

In the notation 'man – old', the use of the relation symbol '–' points to the fact that the set of appropriate referents of *old man* is a **subset** of those of *man*. The property expressed by 'old' modifies the entity expressed by 'man' by limiting or further specifying it. Additionally, it demonstrates convergence because there is only one entity. The **orientation** indicates that the representation is constructed from left to right: the headword 'man' is put first in the representation, then further specified (limited, modified) by 'old'. Note that 'old' is a relative feature, which presupposes a norm that is provided by its carrier ('old with respect to men'). However, the same notation is used in the case of adjectives that do not presuppose a norm of this kind, such as 'English' in *English breakfast*: 'breakfast – English'.

This order in the representation is maintained in the case of constructions with more than one adjective, as in the following example:

- (2) *big young dog*

'*dog – young – big*'

This should be read as ((dog – young) – big), with the semantic immediate constituents indicated within brackets. This limitation relation '–' can therefore be seen as **progressive**, i.e. in the formula the splitting into ICs is done from left to right: 'x – y – z' is first split into the ICs 'x – y' and 'z', and secondly 'x – y' is split into 'x' and 'y'.

A question that arises in the case of the limitation relation as expressed by adjective-noun combinations, for example, is whether account must be taken of various **metonymic** relationships. To give an example, a phrase like *red pen*

can be used for a pen that is red itself, but also for a pen that contains red ink (for a discussion, see Honselaar and Keizer 2011: 75). In the same vein, *red day* can be used to refer to a red object that is associated with a particular day (as in e.g. *I have red days and black days; today is a red day so I will wear a red dress*). In our view, it is difficult to account for such metonymic relationships in the syntactic representation. This is because the syntactic relation between what is expressed by the adjective and what is expressed by the noun is inherently flexible, and in all cases the basic meaning of the forms (noun, adjective) remains the same. However, Ebeling (2006: 130) discusses an example for which he proposes separate notations, i.e. *een oude vriend* ‘an old friend’, which may express four different meanings, namely ‘a friend who is old’, ‘someone who has been a friend for a long time’, ‘an ex-friend’ and ‘a friend like friends used to be’. Ebeling proposes that the first meaning should be represented with the regular convergent limitation relation: ‘friend – old’, but that the other three meanings should be represented as ‘friend > old’. According to Ebeling, the latter notation expresses ‘someone in whom the feature ‘friend’ is old’. However, such a distinction in meaning cannot be made on the basis of the form (adjective + noun) but only on the basis of context, prior knowledge or interpretation, which are not taken into account in the semiotactic analyses we propose. To illustrate this with another example, in the case of a *hot day* one can argue that it is not the day itself that is hot, but rather *hot* refers to the temperature experienced during that day. We would argue, however, that it is a matter of interpretation how ‘day’ is perceived by a particular speaker, who may use this word to refer to a time stretch, a temperature, a mood or feeling (‘black day’, ‘good day’) or the way time is spent. The meaning of ‘hot’ and the meaning of ‘day’ are both inherently flexible and this is evident when the two meanings are combined. In all cases the same representation is given, i.e. with a limitation relation.

Another issue that we would like to raise here is that adjective modifiers can sometimes have both a **restrictive** and an **appositive** reading, as remarked by Hawkins (1978: 282). He quotes the example sentence *the rich Danes are well-educated*, which can either be used to indicate that all Danes are well-educated and rich (appositive reading), or to indicate that the property of being well-educated pertains only to the subset of rich Danes (restrictive reading). This difference can also be found if we analyse just the adjective-noun combination *the rich Danes*, which can be interpreted as referring to all Danes, who are all rich, or only to the Danes who are rich. The syntactic relation of limitation does not differentiate between these readings, since in both constructions a subset of Danes is selected, which in the case of the appositive

reading is identical to the whole set; nevertheless, even in this case the use of the adjective is not superfluous, since it presents extra information for the hearer. As such, in the (intersubjective) communicative act the **potential referents** of Danes also include (imaginary) non-rich Danes. This means that the difference between ‘apposition’ and ‘restriction’ is here an interpretative phenomenon, which is not accounted for in the semiotactic representation, where the relation of limitation (‘–’) is used in both cases. Ebeling (2006: 303), who also proposes just one notation (with convergent limitation) for the example *the rich Danes are well-educated*, quotes a similar example that has only an appositive reading, i.e. *the Danes, rich, are well-educated*, which would be given a different representation, namely with the symbol ‘┌’ for apposition.¹ In this case a different representation (formalization) is necessary because of the difference in syntactic structure.

Although limitation is typical of adjective-noun relations, it also occurs in other contexts, for example with prepositional phrases (see Section 4.1) or with **definite or indefinite articles**, as in example (3) below, where *dog* is modified by the definite article *the*, which provides a further specification of ‘dog’ and is also a convergent limitation relation:

(3) *the big dog*

'dog – big – THE'

In his earlier work (1978: 165), Ebeling proposed the notation ‘THE’ to represent the **definite article**, and ‘NONTHE’ to represent the **indefinite article**. In his later book (2006: 111), he chose the notation ‘DEF’ for the Dutch definite articles *de* and *het*, and ‘INDEF’ for the indefinite article *een*. Furthermore, Ebeling (2006: 141) uses the same notation for occurrences of nouns without a definite or indefinite article, for example in the plural, where the (singular) indefinite article cannot be used, e.g. *drie vissen* (‘three fish’): ‘vis / 3 – INDEF’ (v. *de drie vissen*: ‘vis / 3 – DEF’).

However, we see a problem with this latter notation; namely it is not consistent with the principle ‘one form – one meaning’ to use the same notation both for elements that are linguistically expressed (in this case the articles) and for the absence of such form elements. Moreover, in this way we cannot account for specific meanings of the articles, as it is only indicated that they signal definiteness or indefiniteness. In the literature, various meanings are attributed to these articles. For example, Shopen (1985: 285) writes that the

¹ See Chapter 9 on appositions, and relative clauses in Section 4.6.

indefinite article in English can mark both referential and non-referential indefinite noun phrases. He quotes the sentence: *I'm looking for a snake*, which is ambiguous because it can have both the referential indefinite meaning ('specific') as in (a) below, where a certain snake with particular features is meant, and the non-referential meaning as in (b):

- (a) *I'm looking for a snake. It is 4 feet long and has red stripes.*
- (b) *I'm looking for a snake; any one will do.*

Furthermore, many languages have other structures to express definiteness and indefiniteness (as will be discussed in Section 16.5), i.e. constructions that do not necessarily indicate the same meaning as the definite and indefinite articles in the European languages. Therefore, we argue that separate notations are required for constructions with and constructions without definite or indefinite articles. We propose to use the notations 'THE' and 'NONTHE' for definite and indefinite articles respectively, and 'DEF' and 'INDEF' for other constructions that are taken to indicate definiteness and indefiniteness. Although we acknowledge that not all the (definite or indefinite) articles of different languages are used in the same way or express the same meaning,² and likewise not all constructions expressing definiteness or indefiniteness in other languages indicate the same meaning, we have concluded that in the scope of this present study it is not appropriate to further describe such individual meanings.

2.1.2 *Divergent Limitation*

In some cases we find a construction consisting of two words (or phrases) where the entity expressed by one word limits (modifies, qualifies) the entity expressed by the other. We then speak of divergent limitation, because there are two separate entities. In English this is the case in various possessive or possessive-like constructions, such as *my book* or *John's bicycle*. Divergent limitation is represented by means of the down arrow symbol, in combination with the symbol for limitation. Note that in the semiotactic notations only proper names and the English first person singular pronoun *I* are written with a capital letter.

- (4) *my book*

'book ↓
— *I*'

² For example, the Dutch equivalent for the English sentence *I play the piano* does not use a definite article: *Ik speel piano*.

(5) *John's bicycle*

'bicycle ↓
– John'

These representations show that in (4) a subset of books is created, i.e. books that are mine, and in (5) we find the subset of bicycles that belong to John. It should be emphasized here that in our representation for these English constructions we equate the relation that is linguistically expressed by a possessive pronoun or by the genitive's with the relation of divergent limitation (or to put it differently, the meaning of the possessive construction is absorbed by the relation of divergent limitation). This means that we have chosen *not* to indicate the possessive meaning separately in the syntactic representation (*pace* Ebeling 2006, who represents these forms with the semantic bivalent particle 'x HAS y').³ This is because we take the view that the semantic contribution of the second (pro)noun is specifically to modify (limit) the meaning of the first. Furthermore, the resulting combination may refer to an actual possessive relation, but not necessarily so. A phrase like *my book* may refer to the book owned by me, but also to the book written by me/about me, or to the book suitable for me, as in: *not really my book*.⁴ Another use of the divergent limitation relation is for relative clauses, as analysed in Sections 4.6 and 16.2.

2.1.3 Temporal Limitation

A distinction must be made between temporal and non-temporal limitation. If we compare (6) and (7) we find that in both constructions the set of potential referents of *granddad* is limited, but in a different way: in the first example the granddad is opposed to other granddads that are not young, which is given the notation for convergent limitation; however, in (7), which has the meaning 'granddad when he was young', granddad is opposed to himself during other periods of his life. This relationship is called temporal limitation, which is represented with the symbol '∼'. In English this temporal dimension is present only in constructions where the adjective occurs after the noun, implying a predicative reading.

³ Ebeling (1978: 432) does not make a distinction in the syntactic representation between the genitive 's and the construction with *of* in English. However, we follow Ebeling (2006: 268) in making explicit the difference between these two constructions. Thus, 'the book of John' is given a different representation than 'John's book'. See also Section 13.5.

⁴ According to Jespersen (1984: 108), the genitive does not only indicate possession; it merely denotes close relationship, but that relationship naturally varies according to the two (persons or things) that are connected by means of the genitive.

- (6) *young granddad*
 '*granddad – young*'
- (7) *(this was) granddad young*
 '*granddad ~ young*'

2.2 Compounding Relation

The term **compounding** is used for the relation between two elements in a compound. This relation is represented with the symbol '∪'.⁵ A compound consists of two words joined together, thus becoming one longer word. In general, there is assumed to be a word boundary between two elements if a third element can be inserted between them; if this is not the case, the unit is analysed as a compound. Compounds can be seen as borderline cases between syntax and morphology, because even though a compound functions as a single word, it can still be analysed as consisting of more than one form-meaning element. Not only are these form-meaning elements connected by the syntactic relation of compounding, it is also possible to establish whether the compound presupposes one or more entities.

A relation with a limitative (modifying) effect often occurs in two kinds of forms, i.e. as a full construction (e.g. the limitation relation described above) or as an incorporation. In a fully fledged construction every meaning is separately interpreted, whereas compounds are interpreted as units, so that there is a semantic difference between *tea from Ceylon* and *Ceylon tea*. While this difference is sometimes hardly noticeable, it is nevertheless maintained in the notation, to comply with the principle 'one form – one meaning'.

In a compound, the set of appropriate referents of the whole construction is commonly a subset of those of the headword in the compound. To illustrate this: *a blackbird* refers to a type of bird. A compound shares features with a regular adjective-noun construction with two words, such as *a black bird*. However, compared with the construction with two separate words, the modifying possibilities for the elements in a compound are much more limited. To give an example, if we compare *a blackbird* and *a black bird*, further specification, for instance with *very*, is possible for the adjective-noun construction (*a very black bird*) but not for the compound (**a very blackbird*). This is because in the compound *black* does not function as a separate word. Also note

⁵ Ebeling refers to this relation with the terms close-knitting (1978) or incorporation (2006).

that even though *a blackbird* refers to a type of bird that is usually black, this is not necessarily the case (as in *that blackbird is actually white!*). Moreover, in spoken English the first element ‘black’ of the compound *blackbird* is stressed (BLACKbird), whereas in the adjective-noun construction *black bird* the word stress is on the second element ‘bird’ (black BIRD), implying that only the compound is conceptualized as one word.

2.2.1 Convergent Compounding

If the two elements of a compound are convergent, i.e. they point to the same entity, their relation is called convergent compounding. In the representation the second word is placed first, because in the semantic arrangement of a two-piece compound in English the second member dominates (or put in different terminology, the second member functions as the head), cf.:

- (8) *a blackbird*
 '*bird* \cup *black* – NONTHE'
- (9) *a black bird*
 '*bird* – *black* – NONTHE'

Also compare the following Dutch examples, which are different in form and meaning; the first example is a compound with the meaning of a non-alcoholic kind of drink (e.g. Coca-Cola), and the second phrase (11), consisting of an adjective and a noun, expresses a (non-specified kind of) drink with the property that it is refreshing:

- (10) *een frisdrank*
 ‘a soft drink’
 '*drank* \cup *fris* – NONTHE'
- (11) *een frisse drank*
 ‘a refreshing drink’
 '*drank* – *fris* – NONTHE'

This difference in meaning between the two phrases is evident, since not all *frisse dranken* (‘refreshing drinks’) are *frisdranken* (‘soft drinks’), and *frisdrank* has more distinctive features than *frisse drank*.⁶ However, the same

⁶ See also Ebeling (2006: 56).

argument does not always apply to such compounds; e.g. a specimen of *witvis* (a collective noun for a category of fish) is not by definition white and a *blackbird* is not always black. The question of whether such compounds should be regarded as expressions with an opaque structure (and hence as idiomatic expressions) or not will be discussed in Chapter 5.

2.2.2 *Divergent Compounding*

There are also compounds where the constituent parts are two entities that are divergent with respect to each other, e.g. (12) with the meaning ‘a chair on/with wheels’ and (13) a silversmith, who is not ‘silver’ but is rather a person who makes silver articles. The same representation can be used for *a blacksmith* (a person who works with black metals).

(12) *a wheelchair*

'chair ↓ – NONTHE
 ∪ wheel'

(13) *a silversmith*

'smith ↓ – NONTHE
 ∪ silver'

In our analysis of compounds, we provide the syntactic relations between the component parts of the compound, but these relations may well not exist for some speakers of the language, if the compounds are stored as single units in the speaker's brain.

2.3 **Equipollent Relation**

Following Jespersen (1984: 11), we use the term **equipollent** relation for constructions consisting of two parts where one word does not dominate the other. They are represented in the notations in their original word order, with the symbol ‘•’ between them, e.g.:

(14) *Samuel Johnson*

'Samuel • Johnson'

These constructions have the character of a compound because no linguistic material can be inserted between the words, but in contrast to compounds there is no ‘modifier-head’ relation between the two nouns, since they have equal

syntactic rank, i.e. they are equipollent. This relation will be further discussed in Section 13.1.

2.4 Stratification Relation

Stratification is the name for the relation that exists between elements on the basis of their set level (i.e. the level of the set as a whole). Unlike other modifications that connect entities and properties, in the case of **stratification** an entire set is specified. What is to the left of the symbol for stratification $'/$ can best be characterized as the distinctive features of the elements in a set, and on the right of this symbol are further specifications of this set. Consider the following example and formalization:

(15) *the two young dogs*

'dog – young / 2 – THE'

The relation of stratification is also a progressive relation, which means that the semiotactic representation should be read from left to right: (((dog – young) / 2) – THE). Note that in this example it would not be correct to describe the relation between 'young dogs' and 'two' with a limitation relation because 'two' cannot be seen as a property of 'young dogs'. Instead, 'two' indicates the number of the set 'young dog'. In *the two young dogs* 'young' is a feature of 'dog', whereas '2' and 'THE' are features of the whole set 'young dog'. Since 'THE' provides information about the set of dogs as a whole, and not about individual members of this set, this information is given at the very end of the formula, and not before the meaning '2' (*dog – young – THE / 2'). When the set number is **zero**, as in *no young dogs*, the relation is represented as: 'dog – young / PL – NO'.

This order of the formula takes account of the way the construction is arranged from a semantic point of view. With respect to number, in English this is also visible in the form of the construction, since number is marked on the noun, whereas definiteness is expressed by a separate form. However, this feature is not taken into account in the representation of the construction. To illustrate this, we can refer to *high trees* when we provide the formula 'tree – high / PL', even though the noun expressing 'tree' is marked for number. If we were to follow the actual form of the construction, this would result in the notation 'tree / PL – high'. This representation is incorrect, however, since each individual instance of the set of trees is high and the feature 'high' does not pertain to the set of trees as a whole. One could also make a distinction between two different meanings for *the heavy boxes*, i.e. all boxes are heavy,

which could be given the notation ‘box – heavy / PL – THE’, or the boxes taken together are heavy, which would be represented as ‘box / PL – heavy – THE’. However, we argue that such a distinction is a matter of interpretation, which will not be taken into account here.

The same relation of stratification is found in other constructions and meanings, i.e. connecting the tense of the situation (which will be explained in Section 3.3), and for **singular** and **plural** markings, which are represented as ‘/ SING’ and ‘/ PL’, e.g.:

(16) *the big dog*

'dog – big / SING – THE'

(17) *the big dogs*

'dog – big / PL – THE'

In this case the plural marking is indicated because it is a meaningful element: there is an opposition between *the dog* and *the dogs*. This differs from *two young dogs* in (15), where the plural ‘PL’ is not placed in the notation because *two* already indicates more than one and ‘two young dogs’ is not opposed to ‘two young dog’.

The analysis of a word being ‘singular’ or ‘plural’ is not always straightforward, especially in English, which has numerous uncountable nouns, such as water, rice, money, music, news, etc. These words are usually treated as singular and used with a verb in the singular form, e.g. *the water is hot* or *this is good news*, but they do not have a specifically singular or plural meaning. There are also nouns that may occur as countable nouns or as uncountable nouns (albeit with different meanings), such as *time* (*how many times* v. *we had a great time*), *room* (*this house has four rooms* v. *there is enough room for all of us*) and *light* (*there are two lights in the hallway* v. *there is not enough light to read*). Furthermore, the division between the two categories of nouns is not always clear-cut. For example, *water* is classified as an uncountable noun because it cannot be directly connected to a numeral and needs a quantity word for counting, i.e. *two glasses of water* instead of *two waters*; the same analysis is assumed to apply for *coffee*: *two cups of coffee*. However, in a restaurant it is not uncommon to hear someone ordering: ‘*four coffees, one mineral water, please*’ (see also Section 13.6, example (159)). Other languages may have different structures or ways to distinguish between singular or plural (or make no distinction at all, as e.g. Japanese).

In this present study we have decided to leave aside the matter of countable and uncountable nouns and to concentrate on analysing many other constructions and showing the interrelated meanings of these constructions in the

semiotactic representations. We therefore propose to use only the notation 'PL' when the plural meaning is indicated in the form and not to use 'SING' at all, with the understanding that unless a numeral or 'PL' is represented, the word can be taken to be non-plural (without differentiating whether this non-plural does or does not have a singular meaning), cf. the following examples:

(18) *nice weather*

'weather – nice'

(19) *the old man*

'man – old – THE'

(20) *the old men*

'man – old / PL – THE'

2.5 Gradation Relation

A gradation relation does not link a property to an entity but rather a property to the property of an entity, and it links only these two elements. The **gradation** relation is represented by the symbol '>' and can be illustrated with the following example:

(21) *very big dog*

'dog – big > very'

In this phrase we find a limitation relation between 'big' and 'dog', and a gradation relation between 'big' and 'very'. The representation for (21) indicates: 'a dog in which the feature big is present to a high degree', hence the term gradation. In this construction 'dog' and 'very' are not convergent, but 'big > very' as a whole is convergent with 'dog'. As such, it is the abstraction of 'big' (bigness) that is modified. Although the sentence parts that are connected with this relation are placed on the same line, the property connected with '>' is only convergent with the modifier, not with the entity itself. This representation should be read as (dog – (big > very)). The gradation relation '>' is **regressive**, which means that in the formula the splitting into ICs is done from right to left: 'x – y > z' is first split into the ICs 'y > z' and 'x', and secondly 'y > z' is split into 'y' and 'z'.

In the next example the relation between the meanings of the **adverb** *terribly* and the adjective *cold* is gradation, because 'terribly' pertains to the coldness,

which is not the carrier, but a property of the entity ‘weather’. (Note that in the semiotactic notations adverbs are represented by their basic (adjective) form).

(22) *terribly cold weather*

'weather – cold > terrible'

A more complicated example is:

(23) *not particularly well constructed plot*

'plot – constructed > good > particular > NON'

The IC structure (splitting from right to left) is: (*plot* – (*constructed* > (*good* > (*particular* > NON))))). The semantic core of this construction is expressed by *plot*, which is modified by *not particularly well constructed*. Within this constituent *not particularly well* modifies *constructed*. As such, the meanings ‘well’, ‘particularly’ and ‘not’ do not modify ‘plot’, but rather modify ‘constructed’, which is a property of ‘plot’ (i.e. they are instances of gradation), whereas ‘constructed’ modifies plot directly (i.e. it is an instance of limitation). (For negation, see Chapter 7.)

The gradation relation is also used to connect adverbs and adjuncts that further specify an action or event, such as location (e.g. *he walked here* or *the cat sat in the tree*), time (e.g. *yesterday*, *now*) and negation, and to connect conjunctions (e.g. *when*, *if*). In short, we use gradation for all instances of modification or specification that do not involve modification in terms of creating a subset. A special use of the gradation relation is with coordinatives (*and*, *or*), as will be discussed in Section 4.3.

2.5.1 *Reversed Gradation*

Gradation is indicated by ‘x > y’ (where x is gradated by y). In some cases we will use the reverse order and write ‘x < y’ (where y is gradated by x). This symbol for reversed gradation is used for connecting elements that express coordination (see Section 4.3). Furthermore, it can be used to show changes in word order (see Chapter 17).

2.5.2 *Temporal Gradation*

For constructions such as *I like my tea cold* or *I like my fries salty* the notation for temporal gradation with the symbol ‘ \supset ’ is used. In this construction an object is *liked* with the proviso that this is only the case if the object has a particular property (being cold or salty). This means that the

object of the action (and hence the action itself) has a conditional-temporal character: 'I like my tea *as long as/only if/when* it (the tea) is cold', i.e. the act of liking (drinking) tea applies only to tea when it is cold. The notation ' $x \supset y$ ' indicates that something ('x') is temporarily present (namely if 'y' applies).

(24) *I like my tea cold.*

'...[like₂] ; tea \supset cold...'⁷

Note that temporal gradation differs from temporal limitation as in (*this was*) *granddad young* 'granddad ~ young' (see (7), Section 2.1.3), where 'granddad' is only presented at a time when he was young, implying that 'young' is a temporal property of the entity 'granddad'. In the case of temporal gradation, however, it is not the entity itself that is temporally modified (limited).

Another example of a construction with the relation of temporal gradation is the following Dutch sentence:

(25) *Hij is dronken gevaarlijk.*
(lit. he is drunk dangerous)
'He is dangerous when he is drunk.'

'...hij = gevaarlijk \supset dronken...'

The symbol for temporal gradation is also used for the semantics of the progressive form in English, as will be explained in Section 14.4.

⁷ Three dots at the beginning and end of the representation indicate that the representation is incomplete, i.e. that not all the elements of the sentence that carry meaning are represented.