Aspect, tense and modality: theory, typology, acquisition
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Chapter 3

Tense, Aspect and Quantification

3.1 Introduction

In FG, TMA expressions are defined with respect to their scope, the part of the utterance that they modify. As the scope of an operator gets wider, the operator modifies a more complex semantic unit that designates a more abstract entity and it contributes to a less basic communicative function. See Table 3-1:

Table 3-1. Functions of operators

<table>
<thead>
<tr>
<th>Operator</th>
<th>Scope over</th>
<th>Modifies</th>
<th>Contributes to</th>
</tr>
</thead>
<tbody>
<tr>
<td>π1</td>
<td>Predicate</td>
<td>Property / relation</td>
<td>Describing</td>
</tr>
<tr>
<td>π2</td>
<td>Predication</td>
<td>Event</td>
<td>Situating</td>
</tr>
<tr>
<td>π3</td>
<td>Proposition</td>
<td>Propositional content</td>
<td>Presenting content</td>
</tr>
</tbody>
</table>

Operators with wider scope are more marked than operators with narrower scope, in that they are cognitively more complex and communicatively less relevant. The hierarchical relation between operators can be conceived of as a markedness scale or implicational hierarchy.

To determine the scope of specific TMA expressions, i.e. to which class of operators they belong, their semantics have to be described adequately: it has to be clear what the expression adds to the semantic structure in order to know as what type of operator it functions. As described in Chapter 2, predicate operators (π1) change the description of the property or relation that is ascribed to the argument(s) without modifying the description of the arguments or of additional participants. They specify additional features of the property or relation in such a way that it is applicable to the argument(s). Predication operators (π2) contribute to the situating function of the predication, they ‘relate the description of a [state of affairs] to the occurrence of that [state of affairs] in a real or imaginary world.’ (Hengeveld 1989: 134). Finally, proposition operators (π3) contribute to the function of presenting the content.

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1 An earlier version of this chapter appeared in Boland (2005).
They specify how much responsibility the speaker takes for the propositional content or how reliable the speaker estimates the proposition to be.

In this chapter the semantics of the related domains tense, aspect and quantification are discussed together with the scope of specific categories in these domains. Section 3.3 is dedicated to the domain of aspect; the domains of tense and quantification will be discussed in sections 3.4 and 3.5, respectively. Quantification covers notions such as habitual, frequentative, repetitive, distributive and iterative, sometimes labeled as quantificational aspect. Although the discussion will be organized according to general TMA domains, note that I agree with the statement in Dahl (2000):

The basic units of description are not “the category of tense” and “the category of aspect” but rather what we call grams, i.e., things like Progressive in English, the Passé simple in French etc. Notions like tense, aspect, and mood are seen as ways of characterizing the semantic content of grams, or domains from which their meanings are chosen, but do not, in the typical case, represent structurally significant entities in grammatical systems. (p.7)

Before the semantics of TMA can be discussed, however, it is necessary to take a closer look at situation types or inherent temporal constituencies of events because aspect, tense and quantification are often interrelated with this component.

3.2 SITUATION TYPES

In the previous chapter it was explained that one of the major functions of an utterance is to describe an event, but it was not yet discussed what events actually are. In FG an event is defined as ‘the conception of something that can be the case in some world’ (Dik 1997a: 51). Events can be classified with respect to their inherent temporal structure. Vendler (1967), elaborating on Aristotle, was one of the first who recognized that verbs have different ‘time schemata’ and he proposed a classification of verbs. It is now, however, widely accepted that it is not the inherent temporal structures of a verb that should be taken into account but rather the inherent temporal structure of an event. This event is compositionally constructed by the (modified) predicate (often, but not necessarily, expressed by a verb), the (modified) arguments, and possibly (modified) additional participants. In the literature, different terms are used to refer to different temporal structures: lexical aspect, situation type or event structure.

Cf. Verkuyl (1972) for a systematic analysis of the compositional nature of event structure.

The term Aktionsart is also used to refer to event structure, but in my view it covers a related, though slightly different phenomenon, namely systematic marking of the type of relation or property designated by the verb, such as German brennen ‘burn’, an-brennen ‘start burning’ (of food), ver-brennen ‘burn up’.
In this thesis I will use the terms situation type and event structure interchangeably. I will not use the term lexical aspect in order to avoid confusion with (grammatical) aspect.

Different situation types are generally described by the universal features dynamicity, telicity and durativity (e.g., Chung & Timberlake 1985; Comrie 1976; Mourelatos 1978; C. S. Smith 1991). The first broad distinction is made between situations that are [–dynamic] and situations that are [+dynamic]. Consider (1)-(3):

(1) Mary is searching for an envelope.
(2) She also needs a stamp.
(3) She has written a letter.

The difference between (2) on the one hand and (1) and (3) on the other is a matter of dynamicity. The situation type described in (2), ‘need a stamp’, is non-dynamic or static. It differs from the dynamic situation types search for an envelope and write a letter in that need something can continue forever, without any input of energy, ‘unless something happens to change that state’ whereas search for an envelope and write a letter are actions started deliberately whereby the action ‘will only continue if it is continually subject to a new input of energy’ (Comrie 1976: 49). Non-dynamic or static events are called states. Entities involved in a state are presented ‘as being or remaining the same at all points of the time interval during which the [state of affairs] obtains’ (Dik 1997a: 107), whereas there is always some change involved in dynamic events.

A test that helps to distinguish dynamic and static events is to add an adverb of manner that expresses a sense of control, such as deliberately or carefully. Dynamic events (with animate agents) allow this combination, as shown in (4) and (6), whereas the combination with a state leads to a semantic anomaly, as shown in (5):

(4) Mary is searching for an envelope on purpose. / Mary is carefully searching for an envelope.
(5) *She needs a stamp on purpose. / *She carefully needs a stamp.
(6) She has written a letter on purpose. / She has carefully written a letter

Other examples of states are know the Russian alphabet, want a new car, be a linguist, have three sisters, be blond, love John, see the eclipse, etcetera.

Dynamic events can be further divided with respect to telicity. The above examples (1) and (3) differ in this respect. The event search for an envelope could in principle last forever: it is atelic. The event write a letter on the contrary has an inherent endpoint, the moment at which the letter is finished: it is telic.
Atelic events are internally homogeneous; any subpart of them has the same properties as the event as a whole. In contrast, telic events involve change through time: any subpart of the event ideally has properties different from those of any other subpart and different from those of the event as a whole. (Bohnemeyer 1998: 59-60)

In other words, a telic event involves a certain change of state, from a ‘source state’ to a ‘target state’ (Klein 1994). It describes ‘a process that leads up to a well-defined terminal point, beyond which the process cannot continue’ (Comrie 1976: 45), whereas atelic events have an arbitrary endpoint. Atelic events are referred to as activities or processes and telic events as events or state changes. I will use the term event or state of affairs as a neutral term and refer to static, dynamic, atelic and telic events or states of affairs. More examples of atelic events are dance, listen to the radio, hunt sharks, buy clothes. Some examples of telic events are climb the mountain, cross the river, kill the dragon and free the lady.

There are several criteria to determine the telicity of an event (Dik 1997a: 109). A first test is to combine it with a specification of duration. If an event is telic, it is possible to add a specification of the duration until the reaching of the endpoint, such as within an hour, whereas this is not possible with atelic events. Compare (7) and (8):

(7) Mary wrote the letter in an hour.
(8) *She searched for an envelope in an hour.

A second related test is illustrated in (9) and (10). A telic event can be combined with an expression like ‘it took X three hours to ….’, whereas this is impossible with an atelic event.

(9) It took her three hours to write a letter.
(10) *It took her three hours to search for an envelope.

A third criterion is the almost-test. If one adds almost to an atelic event, it implies that the event has never started, whereas with a telic event, it implies either that the event never started or that it was started but not finished. Compare (11) and (12):

(11) Mary almost wrote a letter (but she didn’t start/*but she didn’t finish it).
(12) Mary almost searched for an envelope (but she didn’t start/*but she didn’t finish it).

Smith (1996) and Bohnemeyer (1998: 66) have noted that the above tests do not yield the same results in every language, as for example in Navajo and in
Yukatek Maya. The exact semantics of constructions like almost or within an hour are not identical in every language, which affect possible combinations. Bohnemeyer (1998: 60-61) suggests that the strongest test crosslinguistically is to use the question: If X is interrupted in the course of VERB-ing, has she then VERB-ed? With telic events, the answer is no, whereas with atelic events the answer is yes. Consider (13) and (14):

(13) If Mary is interrupted in the course of writing a letter, has she then written a letter? Answer: No.
(14) If Mary is interrupted in the course of searching for an envelope, has she then searched for an envelope? Answer: Yes.

Whether the event structure is telic or atelic depends for a large set of verbs on the presence of an object, whether the object refers to a specified or an unspecified quantity, or on the presence and type of an additional participant. See (15) and (16):

(15) a. *Bob painted within an hour. > atelic  
    b. ?Bob painted landscapes within an hour. > atelic  
    c. Bob painted five landscapes within an hour. > telic

(16) a. *Bill walked in Santiago within three hours. > atelic  
    b. Bill walked to Santiago within three months. > telic

These examples illustrate that the event structure is not a property of the verb but rather the resultant semantics of the predicate and its arguments.

A third feature that distinguishes event structures is punctuality, i.e. whether events have duration in time or not. This feature is mainly relevant to telic events.

[punctual events] are conceived as having no duration: their beginning coincides with their terminal point: they occupy only one point in time. [non-punctual events] on the other hand, occupy a certain stretch of time, and have a distinct beginning and terminal point. (Dik 1997a: 111)

Telic punctual events are, for example, reach the summit, break the egg, sit down, etcetera. Punctual events do not combine very well with specifications of duration, such as for an hour. Telic non-punctual events are for example draw a still life, run a mile, bake a pie, etcetera. Their combination with duration is unproblematical.

By using the three parameters of dynamicity, telicity and punctuality, the different situation types can be described schematically as in Figure 3-1:
Smith (1991) demonstrated that there is a fifth situation type, which she called \textit{semelfactives}.\footnote{They are called ‘points’ in Moens (1987).} Examples are \textit{jump, drip, knock, bounce} or \textit{sneeze}. These verbs are often used to describe a repeated (iterative) event: for example, \textit{jumping in I was jumping for an hour} involves a series of jumps that could be conceived of as an atelic event. Semelfactives describe one punctual event or a series of punctual events, but they do not involve a change of state: they are therefore atelic. They can be regarded as a special type of activity [+dynamic, -telic].

The above distinctions in event structures are commonly recognized and they seem to be universally applicable. However, in what way a specific real world event is semantically structured is a language-specific characteristic. For example, a specific real world event may in one language be described as a state (\textit{know}), while another language describes it as a change of state (\textit{come to know, realize}; one language may describe a specific event as a state (\textit{be seated}) whereas another describes it as an activity (\textit{sit}).

### 3.3 Aspect

#### 3.3.1 Introduction

To determine the scope of aspectual expressions, their semantics have to be defined. What do speakers do when they mark aspect? What do they add to the meaning of the utterance? The examples in (17)-(22) from Bohnemeyer (1998: 4)

\footnote{They are called ‘points’ in Moens (1987).}
illustrate aspectual distinctions with respect to the description of an event of Mary writing a letter, which started at 6.30 and ended at 7 o’clock:

(17) Mary was going to write a letter.
(18) At 6.30, Mary started writing a letter.
(19) At 6.45, Mary was writing a letter.
(20) At 7, Mary finished writing a letter.
(21) At 7.15, Mary had written a letter / At 7.15, a letter was written.
(22) Mary wrote a letter from 6.30 to 7.

A common definition of aspect is that it marks the viewpoint or the perspective from which a speaker looks at an event. In the seminal work by Comrie, aspect is defined as ‘different ways of viewing the internal temporal constituency of a situation’ (1976: 3). One of the major aspectual distinctions is between perfective and imperfective aspect. When speakers use perfective aspect, as in the above example (22), they look ‘at a situation from outside, without necessarily distinguishing any of the internal structure of the situation’, ‘the whole of the situation is presented as a single unanalysable whole, with beginning, middle, and end rolled into one’. When speakers use imperfective aspect, as in (19), they look ‘at the situation from inside’ and make explicit reference to the internal temporal constituency of the situation, to ‘the various individual phases that make up the action’ (1976: 3-4).

The standard approach to aspect in FG is to distinguish different areas of aspectuality (Dik 1997a: 221-22): the first type of aspectuality concerns the distinction between perfective and imperfective aspect, similar to Comrie’s view. The second area is phasal aspectuality, which specifies the phase of development of the event in terms of beginning, continuation or end of an event (see (18)-(20)). The third area concerns perspectival aspectuality that relates the occurrence of the event to an outside temporal reference point. This includes the categories prospective (17) and perfect (21). Finally, Dik speaks of quantificational aspect that gives information about the frequency of an event. This last category is not considered aspect in this thesis, but it is treated under the notion of quantification in section 3.5.

In my view, the definition of aspect in FG is not entirely adequate. This results in considerable disagreement on the scope of different aspectual areas (Anstey 2002: 3). In order to arrive at a more decisive analysis, it is important to reconsider the semantics of different aspectual categories. Therefore, in the next section, other approaches to aspect will be discussed.

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3.3.2 Defining aspect

In the early nineties, Smith (1991) proposed an analysis of aspect that is compatible with Comrie’s view, but nonetheless crucially different in formulation:

The aspectual viewpoint of a sentence functions as an independent lens on the situation talked about. Viewpoint makes visible all or part of a situation, without obscuring the conceptual properties of the situation types. (C. S. Smith 1991: 171).

Smith considers aspect as selecting a part of the event or the whole event, whereas Comrie uses the metaphor of looking at the internal temporal structure in a different way. In a similar vein as Smith, though logically better underpinned, Bohnemeyer (1998) proposes to treat different aspectual categories as one unified category of ‘boundary operators’ that select a specific part of the temporal structure of an event that is relevant to the conversation.\footnote{This idea is inspired among others by Chung & Timberlake (1985), Klein (1994), Moens (1987) and Smith (1991).}

What this means, is illustrated in Figure 3-2. The lower line in Figure 3-2 represents a time line with times related to examples (17)-(22). The upper figure represents the maximal referential projection of an event. This includes all parts of the temporal structure that can potentially be referred to by a linguistic expression, including a potential pre- and post-state. The dotted ovals indicate which part of the temporal structure is selected, representing the examples in (17)-(22). Bohnemeyer distinguishes six notional boundary operators: language-specific categories do not necessarily match these selections, but may select larger or smaller parts.

In each sentence, the speaker concentrates on a different part of the temporal structure. In (17), the speaker focuses on the ‘pre-state’ of the process of writing a letter: this is prospective aspect. In (18), the starting point of the process of letter-writing is focused on, while in (20) the endpoint is highlighted. These are ingressive and egressive aspect, respectively. In (19) the speaker selects a time interval in the middle of the temporal structure, without taking the initial or terminal boundary into consideration. This is both imperfective and progressive aspect. In (21) the speaker concentrates on the post-state of the
Figure 3-2. Possible selections of parts of the temporal structure of an event by aspectual expressions (adapted from Bohnemeyer 1998: 73)

letter-writing, which is the counterpart of (17). This is perfect (had written) or resultative (was written) aspect. Finally, in (22) the speaker describes the complete event, including the beginning and endpoint, which is perfective aspect.

What Bohnemeyer means by pre- and post-states is different from pre- and post-times:

Pre- and post-times are time intervals that precede and follow the event, respectively. By contrast, pre- and post-states are related to the event in some non-temporal way in addition to temporal sequentiality. (...) Post-states reflect some kind of trace that the occurrence of the target event leaves behind in the world. (...) the target event may be the consequence or purpose of the pre-state, or an agent may be said to be in an intentional pre-state with respect to the target event. (...) I assume that pre- and post-states of an event E are events which do not form part of E, but encompass E in a natural ‘causal chain’. (1998: 76-77)

Causality is thus the essential distinction between prospective and perfect aspect on the one hand, and future and past tense on the other. Dik (1997a: 239) explains the difference of a prospective compared to a future tense as ‘a prediction about what is going to happen in the future on the basis of what information the speaker has now, whereas a future is a simple statement about what will happen in the future.’

Now what exactly are the semantic distinctions between (17)-(22)? All utterances concern the same relation, designated by the predicate write, with the same participants, designated by the arguments Mary and a letter. What is
variable is that different parts of the temporal structure of ‘write’ are ascribed to Mary. For example, in (17) Mary is not writing, she is going to write, in (20) she is not going to write, she stops writing. In other words, the speaker selects exactly the part of the temporal structure of the property or relation that is relevant, and it is only this specific part that is predicated of the arguments.

Bohnemeyer’s analysis unites different types of aspect that are distinguished in FG: in his account there is no distinction between the function of perspectival aspect (prospective, perfect), phasal aspect (progressive, egressive, ingressive) or (im)perfective aspect: in principle, all aspectual expressions serve the same function, which is selecting the part of the temporal structure of the property or relation that is ascribed to the arguments. In this thesis, Bohnemeyer’s proposal is adopted and aspect is defined as follows:

D1. Aspect markers select the relevant parts of the temporal structure of a property or relation, including the pre- or post-state. It is only this selected part of the temporal structure that is the predicated property or relation of the argument(s).

Aspect markers modify the property of relation that is ascribed to the argument(s) and contribute to a proper description of the event; at the same time, they leave the description of the argument(s) intact. This implies that aspect markers have scope over the predicate only and that they should be classified as $\pi$-operators in FG.

3.3.3 Categories in detail

Now that the semantics of aspect are broadly defined, a closer look is taken at the specific semantic functions within the domain of aspect, at their relation with the temporal structure of properties and at relations and possible combinations of aspect markers. The specific functions will be described starting from the maximal temporal structure of a property or relation. Notice that the extension of a property or relation in time does not mean that it also has location in time. As shown above, it is not always the maximal temporal structure that is predicated of the argument(s); it is often only part of the temporal structure that the speaker wants to assert. The selection of part of the temporal structure neither modifies the meaning of the arguments nor of the additional participants; it only modifies what is predicated of the argument(s). As a consequence, this has repercussions on the description of the set of possible events, since only the selected part of the temporal structure of the property or relation, only the modified predicate helps to build up the event description.
Although different properties or relations behave differently a general temporal structure is presented in Figure 3-3:

![Figure 3-3](image)

**Figure 3-3.** Representation of maximal temporal structure of an unmodified relation or property: `PRED (x)`

The time span represented by the horizontal line represents a homogeneous or a heterogeneous interval, with or without a state change within the boundaries. The length of the time span is not exactly specified in the temporal structure of the unmodified property or relation. The initial and terminal boundaries, represented by the left and right vertical lines can represent an arbitrary begin- and endpoint but they can also represent the point of beginning and completion in case the predicate is used in the description of a telic event. However, whether the temporal boundaries are points of ending or of completion is determined by the combination of the predicate, the arguments and the additional participants. In case of states, there are no boundaries if the state is permanent, but there are boundaries if the state is temporary. When aspectual expressions are used, the temporal structure is modified: part of the temporal structure is selected or part of the structure is added and then selected as in the case of pre- and post-states. Only this selected part of the temporal structure is ascribed to the argument(s), and nothing more.

Common aspectual distinctions will be illustrated below, in Figure 3-4 to Figure 3-10: in these representations, the maximal temporal structure is represented by the dotted line. The dotted oval indicates the part of the temporal structure that is selected and ascribed to the argument(s). In addition to the selected part, some other parts of the temporal structure may be implied. Contrary to what I claimed in Boland (2005), the implied part is the interval earlier in the temporal structure. This can be inferred by general knowledge of temporal structures. For example, if an event is going on, it must have begun. However, it is not necessarily the case that anything earlier in time is ascribed to the participants: the initial boundary is not made explicit by the progressive (Figure 3-6), whereas it is made explicit by the continuative (Figure 3-7). The

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7 The representations are inspired by Figures 4 and 34-38 in Bohnemeyer (1998).
complete part of the temporal structure that is implied is represented through the solid line, which is thus not necessarily equal to the part of the structure that is selected and ascribed to the argument(s), indicated by the dotted oval. I will discuss aspectual categories in two sets: those categories that do not and those categories that do imply the complete temporal structure. Categories that do not imply the complete temporal structure are the prospective, the ingressive (inchoative), the progressive, the continuative and the imperfective. First, the prospective will be discussed. If a speaker uses a prospective, he adds a pre-state to the temporal structure. Only this pre-state of the event is predicated of the argument(s). So, the argument is not in the state of, for example, reading, but only in the state of going to read. See Figure 3-4:

![Figure 3-4. Representation of prospective: 'going to PRED'](image)

When a participant is in the pre-state of an event, it is probable, but not necessary that the event will in fact also take place. A prospective may thus lead to the inference of the occurrence of the event, but this inference may be denied: I was going to read, but I couldn’t find my book and I ended up watching television.

The ingressive focuses on the initial boundary. In English, it can only be expressed lexically by start or begin, but in other languages there may be specific markers for ingressive. The ingressive is represented in Figure 3-5:

![Figure 3-5. Representation of ingressive: 'start PRED'](image)

When an ingressive is combined with a state, it means that the state has begun and it may imply that the state still continues. In several languages, such as

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The idea that the speaker adds a pre-state or a post-state to the temporal structure is based on Klein (subm.) even though Klein speaks of pre- and post-times. Bohnemeyer (1998) on the contrary supposes that the pre- and post-state are always part of the maximal temporal structure of a property or relation.
Russian, Ancient Greek, Mandarin Chinese and Spanish (Comrie 1976: 19), a perfective may be combined with a stative state of affairs, which yields the interpretation that the state begins, or, as an inference, that the state holds. When the initial boundary is selected, it implies in general that the event takes place for an unspecified duration. *Jim started to read* implies that Jim read and if the starting point is just before speech time, it probably also implies that Jim is now in the process of reading. Note that when an intransitive is combined with a telic event, it does not imply that the event reaches its point of completion: *Jim started to draw a circle* does not imply that Jim drew a circle.

By using a progressive the speaker selects a subinterval in between the boundaries to ascribe to the argument(s), without taking the initial or terminal boundary into account. Consider Figure 3-6:

![Figure 3-6. Representation of progressive: 'PRED-ing'](image)

The starting point of the event is implied, but not ascribed to the participants. A progressive is most frequently used with dynamic and non-punctual events. However, depending on the particular language, there may be exceptions that raise specific interpretations. First, a progressive may be used with predicates that by default describe a permanent state, *naughty* or *a teacher*. In those cases, the state is described as if it were a temporary, deliberate activity, with boundaries in the temporal structure, such as *being naughty* or *behaving like a teacher* (behaving naughtily or behaving like a teacher, rather than being a teacher by profession). Furthermore, a progressive may be combined with a predicate that in general describes properties or relations of very short duration, raising the interpretation that the property or relation has a longer duration, either because it is repeated (*jumping, firing a gun*) or because the stage leading up to the state change is stretched (as in *reaching the top*).

Closely related to the progressive is the continuative. It was argued that a progressive implies, but does not ascribe the initial boundary to the participants. When the initial boundary does form part of what is ascribed to the participants, we speak of continuative aspect. In English, this is expressed by the construction *keep—ing*. Consider Figure 3-7:
A continuative indicates that the argument(s) have started and still continue their activity.

Finally, imperfective aspect may cover the same meanings as progressive and continuative markers (see Figure 3-6 and 3-7). Imperfective aspect thus functions in the same way as phasal aspect, but makes less fine-grained selections. Speakers have to infer more about the intended focus.

The aspectual categories that target the complete temporal structure are the egressive, completive, perfect and perfective. The egressive and completive focus on the terminal boundary. They both select the terminal boundary, but a completive can only combine with telic events. It not only indicates that the event stopped, but also that it is completed. In English, egressive and completive aspect can only be expressed lexically by stop, end, or finish. Egressive and completive aspect are represented in Figure 3-8:

If a speaker uses a perfect, then a post-state is added to the temporal structure. It is exactly this post-state that is predicated of the argument(s). This view is compatible with Smith (1991: 148) who also claims that the post-state, selected by the perfect, should be considered the modified property ascribed to the argument:

Present perfect sentences ascribe to their subjects a property that results from their participation in the prior situation. If at some time Henry has laughed, danced, built a sandcastle, the property of having done these things is asserted of Henry.’ (italics mine).

The perfect is the counterpart of the prospective and can be depicted as in Figure 3-9:
The post-state of an event starts immediately after the terminal boundary of an event, but it may stretch in time for an indeterminate period. The post-state may also be selected by a resultative ('was PRED-ed') in which the agentive argument has little or no relevance. Note that a perfect makes the complete temporal structure explicit. It is therefore possible to get the so-called continuative perfect reading as in *He has lived here for ten years* or *I have already run five miles*. Although the preceding event is implied, the focus is on the post-state, since the ‘having lived somewhere for ten years’ is only true in the post-state of this event (see Klein 1994: 113 for a similar analysis). In Bohnemeyer's words:

> Pre-and post-state operators select semantic components of the causal chain in which the event is embedded, in the same manner in which the other boundary operators select parts of the event itself. (1998: 77)

Although there is a temporal relation between the pre- or post-state and the event (the event took place before the post-state or the event will take place after the pre-state), this temporal relation is only an implication and not part of the meaning. Only when this implication becomes an increasingly essential part of the meaning, as has happened to different extents in German and Dutch (cf. Boogaart 1999: 156), then it may grammaticalize into a tense marker.

Like imperfective, perfective aspect makes a less fine-grained selection than phasal aspect. A perfective expression selects the entire temporal structure including the initial and terminal boundary. This is depicted in Figure 3-10:

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9 There is no real perfective marker in English, but the simple past is often interpreted as perfective past.
A perfective often covers the post-state too, but not necessarily. Moreover, it is important to note that perfective is not the same as **completed**, an assumption often incorrectly made, as argued by Comrie:

The perfective does indeed denote a complete situation, with beginning, middle, and end. The use of 'completed', however, puts too much emphasis on the termination of the situation, whereas the use of the perfective puts no more emphasis, necessarily, on the end of a situation than on any other part of the situation, rather all parts of the situation are presented as a single whole (Comrie 1976: 18).

Some of the aspectual categories may be combined. This is again a language-specific quality. In English, a perfect or prospective can have scope over a progressive. This is however no argument for positioning them at a different layer. The combination of a perfect with a progressive leads to a more refined selection of what is predicated of the argument, that is the argument is in a post-state of being engaged in an event, without the implication that this activity has ended. Consider Figure 3-11:

![Figure 3-11. Representation of perfect progressive: 'have been PRED-ing']()

Observe that a perfect progressive does not necessarily imply the terminal boundary. In contrast to *John has written a letter*, which implies that the letter is finished, in *John has been writing a letter* there is no implication that John has finished writing the letter. Therefore, the terminal boundary is not bold in Figure 3-11.

The opposite of the perfect progressive can also be expressed: *John is going to be writing a letter*. In this case, the pre-state of the activity of writing is ascribed to the argument(s), without making the boundaries of the temporal structure explicit. Consider Figure 3-12:

![Figure 3-12. Representation of prospective progressive: ‘going to be PRED-ing’](

As with a ‘simple’ prospective, the actual occurrence of the property or relation is not implied, only expected. The distinction between both categories is that
the expectation of the prospective progressive is confined to the interval in between the boundaries, whereas a normal prospective concerns the complete temporal structure. Finally, it is possible to combine a perfect or prospective with an ingressive or an egressive. Consider Figure 3-13 for the representation of prospective ingressive:

![Image](image.png)

**Figure 3-13.** Representation of prospective ingressive: ‘going to start PRED’

Perfect and prospective aspect can have other aspectual expressions in their scope, but this is not considered an argument for regarding these expressions as different types of operators. The communicative function of the complex aspectual expressions is equal to ‘simple’ aspectual expressions, that is, they select the part of the temporal structure that is ascribed to the argument(s). The combination of aspectual expressions results in a more complex selection of the temporal structure, with different parts of the structure taken into account. However, like with simple aspect, complex aspect does not change anything about the description of the arguments nor does it situate the event in the real world; the combination of expressions functions as a $\pi_1$-operator.

### 3.3.4 Summary

Aspect was defined as a grammatical means to select a specific part of the temporal structure of a property or relation to be ascribed to the argument(s). This definition differs from the standard approach to aspect in FG in that it assumes a similar function for all possible aspect markers. Selecting the pre-state or post-state of a property or relation in principle does not differ from selecting one of the boundaries, a subinterval or the complete temporal structure. All categories of aspect have the same communicative function: they select part of the temporal structure of the property or relation that is designated by the predicate. Therefore, they all function as $\pi_1$-operators. An aspect marker modifies what is predicated of the participants. It restricts or defines the part of the temporal extension that is ascribed to the argument(s). The fact that certain aspectual expressions may have scope over each other is no reason for locating them at different layers of the semantic representation. The combinations of aspect markers still function as a selection of the temporal structure, albeit a more complex selection.
It must be stressed that it is language-specific which aspectual categories are marked by grammatical means. In English for instance lexical verbs such as start or finish are needed to describe an initial or terminal boundary of an event; in fact, in English these verbs describe a state of affairs by themselves, the state of affairs of starting or finishing something. Note that simple tenses may imply, but do not encode a perfective or imperfective viewpoint. I will elaborate on this matter in the next section.

3.4 TENSE

3.4.1 Introduction

The second semantic domain to be discussed is the domain of tense. The most common temporal distinction is between past and non-past, where non-past may be split up into present and future. A less common distinction is between future and non-future. For the discussion of tense, consider the situation in which Mary is writing. Depending on when this situation takes place, the speaker could describe the situation in different ways. If the speaker does not make a clear selection of the event, the situation could be described as in (23)-(25). If the speaker wishes to focus for example on the post-state of the event, the situation could be described as in (26)-(28):

(23) Mary wrote a letter.
(24) Mary is writing a letter.
(25) Mary will write a letter.

(26) Mary had written a letter.
(27) Mary has written a letter.
(28) Mary will have written a letter.

In the classical analysis of tense by Reichenbach (1947), tense denotes a three-way relation between the time of speech (ST)\(^{10}\), the time of the event (ET) and the time of a reference point (RT). The time of speech is the time at which the utterance is spoken; the time of the event is the temporal location of the event and the point of reference is indicated either by an adverb or contextually. In Reichenbach’s analysis, past, present and future tense (23)-(25) indicate that ET is at RT and RT is located relative to ST, before, at or after ST, respectively. Thus, for the past tense the relation would be ET = RT and RT < ST; for the

\(^{10}\)Comrie and Reichenbach use S, R and E, but here ST, RT and ET are used.
present tense $ST = RT = ET$; and for the future tense $ST < RT$ and $RT = ET$. In the case of a perfect, $ET$ is located before $RT$. In the pluperfect $RT$ precedes $ST$, that is; $ET < RT$ and $RT < ST$. In the present perfect, $RT$ overlaps $ST$, that is; $ET < RT$ and $RT = ST$. In the future perfect, $ST < RT$ and $ET < RT$, but there are three possible resultant interpretations: $ET < ST < RT$; $ST < ET < RT$, or; $ST = ET$ and $ET < RT$.

Reichenbach's approach was later modified by Comrie (1981; 1985). He criticized the idea that every tense marker involves a reference point by making a strict distinction between absolute and relative tense marking. Comrie argued that absolute tense, such as the simple past, present and future in English, marks the temporal relation between $ET$ and $ST$ directly; there is no $RT$ involved. The past, present and future are thus analyzed as $ET$ before $ST$, $ET$ simultaneous to $ST$, and $ET$ after $ST$, respectively. Relative tense, on the contrary, marks the relation between $ET$ and a reference point $RT$: $ET$ can be before, simultaneous to or after $RT$. The reference point (RT) is somehow given in the (linguistic) context, ‘the range of potential reference points being in principle all those compatible with the given context’ (Comrie 1985: 58). The pluperfect and the future perfect combine absolute and relative tense marking. In contrast to Reichenbach’s analysis, Comrie assumes that in those cases, there are two binary relations, between $ET$ and $RT$ and between $RT$ and $ST$, rather than one three-way relation between $ET$, $RT$ and $ST$. The future perfect for example is composed of $ET$ before $RT$ and of $RT$ after $ST$. The relation between $ST$ and $ET$ is not established and therefore, different readings are allowed: $ET$ may take place before, at or after $ST$. Comrie makes a distinction between the basic meaning of a tense category and its implicatures. The basic meaning of the past is ‘location in time prior to the present moment’ (1985: 41). There is often a conversational implicature that the situation does not continue up to or beyond the present, but that is not part of the basic meaning.

A further difference between Comrie and Reichenbach is that the former considers present perfect as essentially an aspectual category rather than a (relative) tense category, expressing ‘current relevance’ (Comrie 1976, 1981), as opposed to the pluperfect and future perfect, that are combinations of absolute and relative tense. It is a language-specific characteristic which temporal distinctions a language marks grammatically. The most commonly marked opposition is between past and non-past. Some languages divide the non-past into present and future.

The standard account of tense in the FG model closely resembles Comrie’s point of view: ‘Tense operators serve to locate the SoA [state of affairs] on the time axis in relation to some $t$’ (Dik 1997a: 237). The moment $t$ can represent the moment of speech (absolute tense) or another moment in time (relative
tense). This view needs some modification, however, as it is not completely satisfactory. This will be discussed in the next section.

3.4.2 Topic time

Although Comrie’s view on tense is widely used, Klein (1994: 22-23) has shown that it does not account for some common phenomena. The first problem with Comrie’s view is that a past tense marker is used for a state that still holds at the moment of speech; in *It was a beautiful book, but it was in Japanese*, there are two states marked for past tense, whereas the real world states (being a beautiful book and being in Japanese) are still true for the present time. Why then is it correct to use a past tense in these contexts? The opposite phenomenon also occurs: a future marker is used for a state that already holds at the moment of speech. It is perfectly fine to ask *will you be here at eight?* and to answer *yes, I will be here*, whereas in both cases, the state of being here already holds in the present. It can, therefore, not be maintained that tense markers locate the event in time, since the events in the above examples also hold in the present, whereas they are not encoded for present tense. Klein solves this problem by the notion of **topic time**, that is ‘the time span to which the speaker’s claim on this occasion is confined’ (1994: 4). In his view, tense does not locate the **event** on the time line, but rather the topic time. The topic time interval is located on the temporal axis by tense markers. In Klein’s view ‘tense does not directly specify the “time of the situation”; rather, it imposes a temporal constraint on the time for which the assertion is made.’ (1994: xii). This implies that the speaker does not mark the temporal location of the complete situation or event (ET in Comrie’s approach); he merely asserts the time location for a selected part of the situation, the part he has focused on. In the earlier examples (26)-(28), only the post-state of the event of Mary’s writing a letter is located in time. Klein calls the time of the interval for which the assertion is made the topic time (from now on, TT), and the time of the real event the Situation Time (TSit). In his view absolute tense marks the relation between TT and the time of the utterance (TU) or speech time. The past tense indicates that TT < TU, which means that the speaker asserts something for a period of time (TT), which is located prior to TU. Accordingly, the present can be represented by TT overlapping TU; and the future by TT after TU.

Topic time also explains why aspectual expressions are used to select part of the temporal structure. In Klein’s view aspect serves to link the time of the event to the topic time interval (1994: 99). This is compatible with the definition of aspect presented in D1. The relevant part of the temporal structure that aspect selects is exactly the part of the structure that holds at topic time. An overview of Klein’s approach to relevant categories of tense and aspect is presented in Table 3-2.
Table 3-2: Temporal and aspectual relations according to Klein (1994)

<table>
<thead>
<tr>
<th>Tense categories</th>
<th>Aspect categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>past</td>
<td>TT before TU</td>
</tr>
<tr>
<td>present</td>
<td>TT overlaps TU</td>
</tr>
<tr>
<td>future</td>
<td>TT after TU</td>
</tr>
<tr>
<td></td>
<td>prospective</td>
</tr>
</tbody>
</table>

Notes. TT = topic time; TU = Time of utterance; TSit = Time of situation or event

Klein argues that relative tenses should be analyzed as prospective or perfect aspect in combination with tense. The pluperfect, then, is the combination of the selection of the post-state of a situation (TT), which is situated prior to TU, while the present perfect situates the post-state of a situation (TT) as overlapping TU.

3.4.3 Defining tense

I agree with Klein that tense does not necessarily locate the entire state of affairs in time. I also agree with Klein that there is a topic time, a time span about which the speaker is asserting something. I do, however, not agree with his view that tense locates the topic time interval on the temporal axis. In my view, topic time is not systematically marked linguistically. However, there are several cues that the language users can rely on to infer the topic time, such as tense markers, temporal adverbial phrases, world knowledge about the sequence of events, etcetera. This stance resembles the statement that Partee (1984) makes about reference times:

Reference times are not directly denoted by any part of the sentence; they are more like a part of the necessary context for interpreting tensed sentences (…), akin to the kind of locative frame of reference needed to interpret left and right and other locative expressions. And like the locative case, they are not bound to the actual context of the utterance but can be ‘constructed’ and shifted in the course of interpretation. (pp. 264-65)

The relation between the topic time interval and the temporal structure of a property or relation is crucial. Tense does locate the event in time, but only the part that is relevant to topic time. Speaker and addressee mutually understand what is the relevant time span about which the speaker asserts something. It is

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11 This view is compatible with Dik’s remark (1997a: 50) that ‘the qualified state of affairs] expressed in the core predication can be located in space and time by predication operators’ (emphasis mine).
because of the Conversational maxim of Quantity (Grice 1975)\textsuperscript{12} that tense marking only concerns the part of the event that is relevant to topic time and not the complete event.

If a speaker selects a part of the temporal structure by aspectual operators, then this indicates that only that specific part of the temporal structure is relevant at topic time and ascribed to the argument(s). If no selection is made of the temporal structure, then the temporal structure of the property or relation determines what is the relevant part to topic time. In cases of a temporal structure with boundaries, it can be assumed that the complete state of affairs is relevant at topic time; in such cases the speaker wants to ascribe the entire temporal structure to the argument(s). In cases of a temporal structure without boundaries (properties conceived of as permanent states) only the part of the state that overlaps topic time is located in time. No explicit selection of the temporal structure is made but it is pragmatic inference that only a partial interval of the permanent state is located in time: locating the entire state of affairs is virtually impossible (or at least pragmatically very inconvenient) since it holds anterior to, simultaneous to and posterior to the topic time. Language users know that once a permanent state holds for a certain topic time, it will also hold for other topic times. So, only the part of the state that is relevant to the topic time needs to be located in time. In this view, the examples of Klein in which tense markers do not comply with the temporal location of the entire event (see 3.4.2), can still be accounted for. With respect to states, for example, this view explains why it is possible to use a past tense for a state that still holds at the moment of speaking. Consider (29):

(29) He didn’t come to the party. He was ill.

In the light of his not coming to the party in the past, it is only relevant to talk about the interval of the state of his being ill that held at the same time interval of his not coming to the party, even though he might still be ill. So, Comrie’s view on tense can with slight modifications readily account for the problems that Klein has pointed out. I therefore propose to define the function of tense markers as follows:

D2. **Tense** markers locate the part of the event that is relevant to the discourse on the time axis in relation to a reference time interval, in general the speech time interval.

\textsuperscript{12} Make your contribution [to the conversation] as informative as required and do not make your contribution more informative than is required.
In cases of absolute tense marking, the use of a present tense indicates that the relevant part of the event overlaps ST. Whenever the past tense is used, the relevant part of the event is anterior to ST. Whenever the future tense is used, the relevant part of the event is posterior to ST. ‘Relative’ tense marking can in many cases be explained by the interference of perspectival aspect and tense, like Klein claims (section 3.4.2). However, there are languages that encode real anterior or posterior tenses, such as Japanese (Bohnemeyer, personal communication). In those cases the relevant part of the event is not located with respect to the speech time interval, but with respect to another reference time interval. This other reference time interval is comparable to Comrie’s RT.

In addition to the location of the relevant part of the event in time, some languages specify the length of the period between the location of the event and the reference time interval. These languages have different encodings for events that are situated relatively close to or relatively far away from RT or ST. This leads to categories like remote past, recent past, immediate future or remote future. Some languages have a different encoding of what happened today (hodiernal) or before today (prehodiernal), or they distinguish between past events that took place today, past events that took place yesterday (hesternal) and past events that took place before yesterday (prehesternal) (Comrie 1985: 83-101).

3.4.4 Scope of tense

Where should grammatical tense expressions be located in the model of FG? Although I have modified the semantic definition of tense compared to the traditional FG view, its communicative function has remained the same. Tense contributes to the situating function of the utterance, that is, it situates the state of affairs in time. Tense expressions do not change the description of the event, such as aspect expressions do. They therefore belong to the class of predication-operators \( \pi_2 \), located at the second layer of the semantic representation.

FG thus assumes expressions of aspect and tense to modify different parts of a clause. This has already been noted by Jakobson (1971), Foley & Van Valin (1984, and subsequent work on RRG), and Bybee (1985). These authors all recognize that aspect is only concerned with the temporal structure of the action or property designated by the predicate, ‘without involving its participants and without reference to the speech act.’ (Jakobson 1971: 134). The participants are unaffected by a marker of aspect. Tense on the contrary is concerned with locating the relevant part of the event in time in its entirety, i.e., including the participants that are involved in that event.

Although RRG and FG agree that the clause can be divided into layers and that TMA expressions should be considered operators that modify a layer, the
exact layered structure is not identical in both theories. In RRG (Foley & Van Valin 1984: 208) no distinction is made between predication and proposition. A main point of difference with FG is that tense in RRG is considered a peripheral operator that modifies the whole clause (similar to the proposition in FG), whereas in FG it only modifies the predication.

3.4.5 Tense and aspect

What are the implications of the definition of tense for the relation between tense and aspect markers? Aspect markers select the part of the temporal structure of a property or relation that is relevant to topic time. Only this part helps building up the proper state of affairs description. Tense markers on the other hand locate the part of the state of affairs that is relevant to the conversation on the time axis in relation to the speech time interval. In the figures below, the relevant part of the event is indicated by a dotted oval, the topic time interval by ‘TT’ and speech time by ‘ST’. For example, in Mary has written a letter in Figure 3-14, the relevant part of the event is the post-state, selected by the perfect. The present tense has indicates that this post-state is overlapping the speech time interval (indicated by ST). Consider Figure 3-14:

![Figure 3-14](image)

**Figure 3-14.** Representation of present tense and perfect: Mary has written a letter

A past tense marker indicates that the relevant part of the event, the post-state in case of perfect aspect, is located anterior to speech time. See Figure 3-15:

![Figure 3-15](image)

**Figure 3-15.** Representation of past tense and perfect: Mary had written a letter
A future tense marker indicates that the relevant part of the state of affairs, the post-state in this case, is located posterior to speech time. There are three possible temporal interpretations for an utterance like *Mary will have written a letter*:\(^{13}\) Consider Figure 3-16 for the representations of these interpretations:

![Time line diagrams](image)

**Figure 3-16.** Representations of future tense and perfect: *Mary will have written a letter*

When a prospective, instead of a perfect is used, it is the pre-state that is located on the time line with respect to ST, when an ingressive is used, it is the initial boundary that is located on the time line with respect to ST, etcetera.

There are close relationships between certain aspects, tenses and situation types, mainly due to the implicatures of aspectual expressions. First, when the pre-state of an event is selected (prospective aspect) or the initial boundary (ingressive), it may be inferred that the event will indeed take place (although

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\(^{13}\) There is a fourth and even a fifth possible interpretation, in which *will* is not interpreted as a future tense marker, but as a prediction marker, in which case the post-state may overlap the moment of speech or even precede it. This will be discussed in Chapter 4.
this implicature may be denied). There is thus a close relationship between
prospective or ingressive and with future tense. Second, when TT is in the
present, and the predicate refers to a dynamic event, it is quite “natural” to
select the middle part of the temporal structure, by using a progressive,
continuative or imperfective aspect marker, as it happens very rarely that a
complete event occurs exactly at the speech time interval. Cases where this
might occur in English will be discussed in section 6.2.3.2. When the speaker
wants to refer to a stative event at the present time, it will in most cases overlap
S; when it is a permanent state, an imperfective marker might be used to select
the relevant interval of the state for the conversation, and when it is a resultant
state, following from a telic event, the speaker may use a perfect or resultative
marker to select the post-state of the event. There are thus close relations
between states, present tense and imperfective aspect, between dynamic events,
present tense and imperfective or progressive aspect and between telic events,
present tense and perfect or resultative aspect. Finally, the selection of the final
boundary or the post-state by an egressive, perfective, perfect or resultative
aspect may often imply that the event has taken place, or in other words, that it
is located in the past tense. Telic events seem to be prime candidates for
‘perfective’ aspects and past tense: these operators imply that the inherent
endpoint of such an event type is reached, which is a rather crucial piece of
information. Similar claims are made by Chung and Timberlake (1985):

The different temporal locations of an event—past, present, and future—are
inherently correlated with differences in mood and aspect. An event that will
occur after the speech moment is non-actual and potential. Hence there is a
correlation between future tense and non-actual potential mood and, by
implication, between non-future tense and actual mood. An event that is ongoing
at the speech moment has not been completed. Hence there is a correlation
between present tense and incomplete (imperfective or progressive) aspect and,
by implication, between past tense and complective (perfective or non-progressive)
aspect. (p.206)

The relation between aspect, tense and situation type will be a returning topic in
later chapters, especially Chapter 9.

3.4.6 Summary
Tense expressions contribute to relating the set of possible events to the
concrete event the speaker has in mind. They locate the part of the event that is
relevant to the discourse on the temporal axis in relation to some t. Tense
expressions leave the description of the state of affairs intact and do not change
the internal dynamics of the state of affairs nor any of the other elements that
build up the description of the state of affairs (the arguments, the property or
relation, the additional participants). They therefore function as \( \pi_2 \)-operators in
the second layer of the semantic representation, which is the standard approach in FG.

3.5 QUANTIFICATION

3.5.1 Defining quantification

The third domain to be discussed is quantification. In FG, it is traditionally referred to as a specific category of aspectuality, but since quantification has a different function than aspect, I will refer to it as a separate domain.

There are two types of quantification. Both Klein (1994) and Anstey (2002) distinguish between expressions that indicate the frequency of a property or relation and expressions that indicate the frequency of an entire event. Anstey shows that some languages have expressions that mark the iteration or intensity of the predicate. For example, Biblical Hebrew employs phonological modifications of the verbal stem to indicate that a relation or property is intense or iterated. For example, 'break' may be modified to , meaning 'break into pieces' (Anstey 2002: 6). I will refer to these types of functions as property quantification. This domain is defined in D3:

D3. Property quantification modifies the internal structure of the property or relation, ascribed to the arguments, by adding a sense of iteration or intensity.

Expressions of property quantification modify the temporal structure of the property or relation designated by the predicate. They thus function as $\pi_1$-operators, with scope over the predicate only.

The second type of quantification is event quantification (Anstey 2002: 6) that indicates the frequency of an entire event, for example a habitual or frequentative. Only this type of quantification was recognized in the standard approach of FG. The definition presented here is a slight adaptation of Dik’s definition (1997a: 236):

D4. Event quantification situates the event (in different ways) with respect to its frequency, without entering into the definition of the event itself.

Markers of event quantification function as $\pi_2$-operators. They do not change the description of the event and contribute to the situating function of the utterance: there are several instances of an event that are relevant to the discourse. The speaker does not refer to one specific event in the real or
imaginary world, but to a sequence or group of events. In section 3.5.2 and 3.5.3 the different operators within the domain of quantification will be discussed in more detail.

### 3.5.2 Property quantification

Possible categories of property quantification (π1) are:

- **Iterative**: the property or relation ascribed to the arguments denotes a repeated action (on one occasion),
- **Intensity**: the property or relation ascribed to the arguments denotes an intense action.
- **Semelfactive**: the property or relation ascribed to the arguments denotes a single action.

In English, these categories are not expressed by grammatical means. Lexical equivalents for the iterative meaning in English would be *jump (one jump)* vs. *jump repeatedly, hit vs. hit several times*. For the intense meaning, one may think of the distinction between *look around* and *look around thoroughly or read and read through and through*. For the semelfactive aspect, it is explicitly specified that some action is performed only once instead of the default iterative interpretation, such as *He bounced the ball (repeatedly) vs. He bounced the ball once*. Modifications of iterative and intensity markers on the structure of the property or relation may be represented as in Figure 3-17:

![Figure 3-17. Representations of an unmodified (left), an iterative (middle) and an intense (right) property or relation: jump, jump up and down, make big jumps](image)

Property quantification falls within the scope of aspect: the former modifies the property or relation and the latter selects the part of this modified property or relation that is relevant to topic time. They both specify what is predicated of the arguments, therefore, they both function as π1-operators.
3.5.3 Event quantification

Possible operators of event quantification ($\pi_2$) are:

- Habitual: the same state of affairs recurs on different occasions, potentially due to a habitual propensity of the participants involved, (adapted from Dik 1997: 236)
- Repetitive: the same state of affairs occurs again on a different occasion,
- Frequentative: the same state of affairs occurs several times on different occasions,
- Distributive: the same state of affairs occurs several times, with different participants.

What is most crucial to this thesis is first, that the internal structure of the event is not changed by expressions of event quantification and second, that event quantification relates the description of the set of possible events to several concrete events the speaker has in mind. Consider Figure 3-18 for a general representation of event quantification:

![General representation of event quantification](image)

**Figure 3-18.** General representation of event quantification

The scope relation between aspect and event quantification is opposite to the relation between aspect and property quantification: aspect falls within the scope of event quantification; the complete event may be described as occurring frequently, but also the initial or terminal boundary, the pre- or post-state or the interval in the middle: *He frequently draws a still life, He frequently started to draw a still life, He was frequently drawing a still life, He has drawn a still life frequently, etcetera.* Furthermore, event quantification falls within the scope of tense, ‘since for an event to occur at all, it must occur at some time’ (Anstey 2002: 20).

What is the relation between the set of events and topic time for a habitual? There are different proposals. In Klein’s analysis (1994: 47) a speaker chooses to speak about a series of topic times, and for all of these topic times, the event
holds. The representation of a habitual is presented in Figure 3-19, for an event with boundaries. The event is repeated. Note that the topic time may overlap the entire event, as in this representation, but it may also overlap only part of the event, which is the case when aspect is also expressed.

Figure 3-19. Representation of a habitual following Klein's analysis

An alternative way to represent a habitual is provided by Bohnemeyer (1998: 338). He assumes that the topic time is an extended interval, which is included in the interval of a sequence of the target event. Consider Figure 3-20:

Figure 3-20. Representation of a habitual following Bohnemeyer's analysis

In my view, Bohnemeyer’s account is the best way to represent a habitual. The topic time interval is mutually understood by the interlocutors and a habitual expression indicates that the event referred to consists of a repeated sequence of events. I assume that the same kind of representation could be used for a frequentative. In the representation of a distributive, the events should occur simultaneously or overlap partly, as they may occur at the same time, whereas in the representation of a repetitive, there are only two events involved, that occur sequentially. The second event overlaps topic time.

3.5.4 Summary

I made a distinction between property quantification ($\pi_1$) and event quantification ($\pi_2$). Expressions of property quantification specify that the property or relation ascribed to the argument(s) is constituted of a repeated or intense action. They function as $\pi_1$-operators. Expressions of event quantification specify that the speaker does not have one concrete event in
mind, but a set of concrete events. They thus contribute to situating the state of affairs and they function as π2-operators.

Finally, the scope-relations between the different domains were discussed. Operators may have scope over another operator at the same layer since several operators may contribute to the different communicative functions of an utterance at the same time. Event quantification has scope over aspect and falls itself within the scope of tense. Property quantification falls within the scope of aspect. The outcome of this discussion is presented in (30):

\[
\pi_2 \text{ tense } \pi_2 \text{ event quantification } \pi_1 \text{ perspectival aspect } \pi_1 \text{ (im)perfective / phasal aspect } \pi_1 \text{ property quantification } [\text{Pred}]]]]]
\]

The scope relations between operators of the same type are not further relevant to this thesis.

3.6 Conclusion

In this chapter, I considered the semantics of grammatical expressions of aspect, tense and quantification. The semantics are crucial in deciding where the grammatical categories should be located in the underlying representation of the clause. They determine the communicative function of the expressions, whether they contribute to the description of the property or relation (π1) or to situating the event (π2). I proposed alternative definitions for aspect, tense and quantification for those presented in the standard FG-approach (Dik 1997a). Therefore, the notion of topic time was introduced; ‘the time span to which the speaker’s claim on this occasion is confined’ (Klein 1994: 4).

Firstly, the definition of aspect used in this thesis is: aspect selects the relevant part of the temporal structure of a property or relation, including the pre- or post-state (D1). The relevant part is the part that holds at topic time. The speaker only ascribes this selected part of the temporal structure of the property or relation is to the argument(s). Aspect markers modify what is ascribed to the argument(s) and thus function as π1- or predicate operators. It was also shown that there is no difference in the communicative function of perspectival aspect, phasal aspect and (im)perfective aspect. Although perspectival aspect may have scope over other aspectual markers, the resulting interpretation is still a selection of the temporal structure of the property or relation designated by the predicate. There is furthermore no difference between the communicative function of phasal aspect operators and (im)perfective operators: the latter express a less fine-grained binary opposition (either the temporal structure with or without the boundaries is selected) whereas the former can make more specific selections.
Secondly, the definition of tense was refined: tense locates the part of the event relevant to topic time on the time axis in relation to the speech time interval (D2). It does not change the internal structure of the event: tense does not modify the descriptions of the designated entities nor of the designated property or relation. It relates the description of the set of possible events temporally to the concrete event the speaker has in mind. Tense expressions thus contribute to situating the event and they function as \( \pi_2 \)-operators.

Thirdly, a distinction was made between expressions of quantification that specify the frequency or intensity of a property or relation (property quantification) and operators that specify the frequency of the state of affairs (event quantification). Property quantification modifies the internal structure of the property or relation that is ascribed to the arguments, by making it iterated or intense (D3). Property quantification helps to build up a proper description of the event and belongs to the category of \( \pi_1 \)-operators. Event quantification relates the description of the set of possible events to a set of concrete events in the real or imaginary world (D4). Operators of event quantification contribute to the situating function within an utterance and are predication operators (\( \pi_2 \)): they do not change the description of the event, but situate the event in terms of frequency of occurrence. The resulting categorization is presented in Table 3-3.

The TMA domains in this table all belong to the representational level in FG. There is, however, a significant difference between the domains that function as \( \pi_1 \)-operators and those that function as \( \pi_2 \)-operators, because \( \pi_2 \)-operators have scope over \( \pi_1 \)-operators. In general, \( \pi_1 \)-operators can be interpreted independently of contextual information, whereas \( \pi_2 \)-operators can only be interpreted by pragmatic inferences about topic time, based on context, speech situation and world knowledge.

Table 3-3. Classification of aspect, tense and quantification according to scope

<table>
<thead>
<tr>
<th>TMA Domain</th>
<th>Scope over</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspect</td>
<td></td>
</tr>
<tr>
<td>prospective, ingressive, continuative, progressive, egressive / completive, (im)perfective, perfect</td>
<td>Predicate (( \pi_1 ))</td>
</tr>
<tr>
<td>Property quantification</td>
<td></td>
</tr>
<tr>
<td>iterative, intensity, semelfactive</td>
<td></td>
</tr>
<tr>
<td>Tense</td>
<td></td>
</tr>
<tr>
<td>past, present, future, non-past, non-future, ± specification of temporal distance</td>
<td>Predication (( \pi_2 ))</td>
</tr>
<tr>
<td>Event quantification</td>
<td></td>
</tr>
<tr>
<td>habitual, frequentative, repetitive, distributive</td>
<td></td>
</tr>
</tbody>
</table>