

## CHAPTER 4

### TYPES OF TEMPORAL ADVERBIALS

#### 1. INTRODUCTION

The interpretation of temporal adverbials is one of the most complex issues in semantics. It raises numerous questions, for example:

- (a) What types of temporal adverbials are there?
- (b) What functions do temporal adverbials have in sentence semantics, i.e. what can they specify and how do they contribute their interpretation to the semantics of their clause?
- (c) How do the different types of temporal adverbials interact with each other?
- (d) How can the semantics of particular temporal adverbials be characterized, i.e. what is their specific semantic contribution?
- (e) How does the internal semantic composition of particular temporal adverbials work?
- (f) Do they occupy different syntactic base positions, and if so, how do their base positions correlate with their semantic function? Which factors govern what syntactic surface positions they can take?
- (g) How do they interact with information structural factors?

In this chapter, we will focus on one of these questions. Its aim is to sketch the classification of temporal adverbials into three types: position adverbials, duration adverbials, and quantificational adverbials. Such a classification and its most important consequences is crucial for the chapters to follow, in which a survey of the interactions of perfect constructions with temporal adverbials is provided and these interactions are to be explained.

Our main concern in chapter 5 will be questions (b) and (c), i.e. what functions temporal adverbials can have in perfect constructions, what their semantic contribution is, and how temporal adverbials can interact with each other in these constructions. Questions (d) and (e), i.e. the semantic contribution of certain specific adverbials, will be investigated in chapters 6 and 7. Chapter 8 will then tackle the question what syntactic base positions temporal adverbials occupy and how they interact with information structural factors.

#### 2. QUANTIFICATIONAL ADVERBIALS, POSITION ADVERBIALS, AND DURATION ADVERBIALS

What types of temporal adverbials are there? - Temporal adverbials are either quantificational or nonquantificational. Nonquantificational temporal adverbials are traditionally classified as either position adverbials or duration adverbials.

Quantificational adverbials like *immer* ('always') quantify over (temporal) entities. Position adverbials like *gestern* ('yesterday') locate entities temporally. And duration adverbials like *eine Stunde lang* ('for an hour') specify the duration of entities. Each of these three types of adverbials can be either definite or indefinite, cf. (2.1).<sup>92</sup>

- (2.1) a. QUANTIFICATIONAL (or 'frequency') adverbials:  
       (i) definite: *zweimal* ('twice'),...  
       (ii) indefinite: *immer* ('always'), *manchmal* ('sometimes'),...  
   b. POSITION ('inclusive' (Vlach (1993)), 'location' (Kamp and Reyle (1993)) adverbials:  
       (i) *jetzt* ('now'), *um vier Uhr* ('at four'), *gestern* ('yesterday'), *am Montag* ('on (this/that) Monday'),...  
       (ii) *kürzlich* ('recently'), *am Montag* ('on (a) Monday(s)'),...  
   c. DURATION ('durative' (Vlach (1993)), 'temporal measure' (Kamp and Reyle (1993)) adverbials:  
       (i) *zwei Monate lang* ('for two months'), *von zwei bis fünf Uhr* ('from two to five'),...  
       (ii) *eine Zeit lang* ('for some time'),...

The position and duration adverbials in (2.1) refer to times directly. But this need not be the case. Adverbials can also primarily mention situations and allow for using the time of the situation secondarily for fulfilling their temporal function. This is illustrated in (2.2). While the temporal adverbial *gestern* ('yesterday') in (2.2a) mentions the time interval of yesterday directly, the temporal adverbial *während des Spiels gegen Ravenclaw* ('during the game against Ravenclaw') in (2.2b) mentions the game against Ravenclaw directly. From this situation, a time interval is derived, namely the time during which the game took place.

- (2.2) a. *Gestern hatte Harry einen Unfall.*  
       *yesterday had Harry accident*  
   b. *Während des Spiels gegen Ravenclaw hatte Harry einen Unfall.*  
       *during the game against Ravenclaw had Harry an accident*

The distinction between position and duration adverbials depends on whether the entity they specify must cover only part of the interval the adverbial in question refers to or the whole interval. Generally speaking, position adverbials provide a temporal frame within which the entity they specify is located. The position adverbial *gestern* in exampl (2.2a), provides the time interval of yesterday, and Harry's accident is temporally located within this time interval. In contrast to this, duration adverbials characterize a time interval of a particular length; a situation that is specified by a duration adverbial is asserted to cover the whole time referred to by the adverbial. The situation of Harry's bones growing that is mentioned in (2.3), for instance, is asserted to have taken place for at least one whole night at least by the duration adverbial *eine Nacht lang* ('for a night').

<sup>92</sup> Across these type distinctions, some finer-grained distinctions may be drawn, e.g. one between calendaric vs. context-dependently calendaric vs. context-dependent (nondeictic vs. deictic), distinctions concerning the syntactic realization, or other distinctions (cf. Ehrich (1992:108ff), Fabricius-Hansen (1986:171ff)).

- (2.3) Harrys Knochen wuchsen eine Nacht lang.  
*Harry's bones grew a night long*

In this respect duration adverbials differ from position adverbials, which cut out a subinterval of the time they introduce.

### 3. DURATION ADVERBIALS AND SITUATION TYPES

From what was said in the preceding section, it follows that a duration adverbial needs to be applied to a situation that is able to cover the time interval characterized by the adverbial, i.e. to a situation that is long enough.

As a consequence, duration adverbials like *eine Stunde lang* ('for an hour') cannot apply to achievements and accomplishments in the same way as they do apply to states or activities/processes (3.1a, b). With atelic situations, i.e. states and activities/processes, duration adverbials specify the duration of a situation that is built up by subintervals of the same situation type. But accomplishments consist of a process phase and a culmination point; hence, they do not have the SUB-INTERVAL PROPERTY, and duration adverbials cannot apply to them as a whole. As a consequence, (3.1c) is somewhat marked. And as far as achievements are concerned, they are simply too short by definition as to be able to cover noninstantaneous time intervals. Therefore, the example in (3.1d) is not very good under the intended reading, where the discovery of the formula is to be understood as lasting for an hour. Clauses referring to achievements and accomplishments that are modified by duration adverbials can be saved, however, when appropriate reinterpretations can be coerced. Thus, (3.1c, d) are (more or less) acceptable when the adverbial is understood as characterizing the duration of the preparatory phase of Maria building a house and of Maria's discovery of the formula.<sup>93</sup>

- (3.1) a. STATE:  
       Maria war eine Stunde lang müde.  
       *Maria was an hour long tired*  
       b. ACTIVITY/PROCESS:  
       Maria rannte eine Stunde lang.  
       *Maria ran an hour long*  
       c. ACCOMPLISHMENT:  
       (?) Maria baute eine Stunde lang ein Haus.  
       *Maria built an hour long a house*  
       d. ACHIEVEMENT:  
       (?) Maria entdeckte eine Stunde lang die Formel.  
       *Maria discovered an hour long the formula*

Similarly, (3.2a, b) are (more or less) acceptable when the adverbial is understood as characterizing the duration of the result or target-state of Maria building a house and of Maria's discovery of the formula, respectively - at least to the extent to which the resulting readings make sense; i.e. under this reading, (3.2a) suggests that the house broke down after an hour, and (3.2b) suggests that after an hour the formula was forgotten or lost again.

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<sup>93</sup> For details, see, for instance, Dowty (1979), Krifka (1989), Parsons (1990), and Vendler (1957), where situation types and the role of duration adverbials for identifying situation types are discussed.

- (3.2) a. ACCOMPLISHMENT:  
 (?) Maria baute für eine Stunde ein Haus.  
*Maria built for an hour a house*  
 b. ACHIEVEMENT:  
 (?) Maria entdeckte für eine Stunde die Formel.  
*Maria discovered for an hour the formula*

In order to represent such reinterpretations semantically, it is necessary to refer to items contained in the lexical meaning of the accomplishment or achievement predicates.

Similarly, adverbials like *in einer Stunde* (in the sense of 'within an hour'), which set a time-limit are usually not acceptable with atelic situations but fine with accomplishments and achievements under the reading where they set a limit for reaching the final point of the situation denoted by the VP, e.g. the moment of finishing building a house or the moment of discovering the formula. However, the unacceptable sentences can again be saved by appropriate reinterpretations: sentences (3.3a, b) are fine when the adverbial measures the time from some evaluation time before the situations of Maria's being tired and her running, respectively.

- (3.3) a. STATE:  
 (?) Maria war in einer Stunde müde.  
*Maria was in an hour tired*  
 b. ACTIVITY/PROCESS:  
 (?) Maria rannte in einer Stunde.  
*Maria ran in an hour*  
 c. ACCOMPLISHMENT:  
 Maria baute in einer Stunde ein Haus.  
*Maria built in an hour a house*  
 d. ACHIEVEMENT:  
 Maria entdeckte in einer Stunde die Formel.  
*Maria discovered in an hour the formula*

Thus, if an adverbial does not find an element it can apply to appropriately, one of two alternatives is possible: either the respective clause is unacceptable or a reinterpretation of the clause is coerced so as to provide an appropriate element the adverbial can apply to. These restrictions on the applicability of duration adverbials have to be kept in mind for an investigation of their behavior.

#### 4. DISTINGUISHING POSITION AND DURATION ADVERBIALS

Before we deal with the question how position and duration adverbials are interpreted, let us reconsider the traditional distinction between them.

Kamp and Reyle (1993:650) observe that the distinction between duration adverbials and position adverbials is not clear-cut. They argue that some adverbials can be classified as both because they contain durational as well as positional components. The adverbial *for the last three years* in (4.1) is an example in case.

- (4.1) Mary has lived in Amsterdam for the last three years.

First, it provides the (minimal) duration of Mary having lived in Amsterdam. Second, it locates this interval with regard to the time of utterance - hence, it is also positional.

Position adverbials in the typical case appear to contain an existential quantification over times; within the time referred to by a position adverbial there must be a time characterized by some property. Contrasting with this, duration adverbials seem to contain a universal quantifier over times; for the entire period of time referred to by a duration adverbial, a certain property holds. This is illustrated by the sentences and paraphrases in (4.2a, b).

(4.2) a. POSITION/EXISTENTIAL:

This afternoon, John took a walk.

= There is a time *t* included in this afternoon such that John took a walk at *t*.

b. DURATION/UNIVERSAL:

For three hours, John took a walk.

= For all times *t* included in some three-hour-interval, John took a walk.

However, recall the Principle of Frame Time/TS-Proportion that was introduced in chapter 3, section 4. When this principle is active, it tries to extend the duration of the situation time at hand so that it is proportionate to its frame time that can be provided by a positional adverbial. In the extreme case, the time of the situation aligns with the duration of the frame time - Consequently, in this case a universal-like, or PSEUDO-UNIVERSAL, reading as in (4.2c) can arise.

(4.2) c. POSITION/EXISTENTIAL WITH THE PRINCIPLE OF FRAME TIME/TS-PROPORTION:

This afternoon, John took a walk.

= John walked all afternoon.

= There is a time *t* included in this afternoon such that John took a walk at *t* and *t* covers all afternoon.

In this way, the Principle of Frame Time/TS-Proportion may blur the existential quantification that is often associated with the interpretation of position adverbials.

The above considerations point in the following direction: it seems quite plausible to treat position and duration adverbials at least sometimes as extremes of a supertype of temporal adverbial which contains a position as well as a duration component. These components can, but need not, be explicit. If they are not explicit, they amount either to vague or to existential interpretations. Thus, the duration component in (4.2a) is not made explicit; consequently, the length of the situation time interval is vague and can be assigned a long duration by means of the Principle of Frame Time/TS-Proportion. Similarly, the position component in (4.2b) is left open; (4.2b) mentions some three-hour-interval whose location is unclear. In (4.1), however, both components are explicit.

If this approach is correct, then it is to be expected that certain adverbials exhibit ambiguities between position and duration readings, depending on how the implicit components are interpreted. Moreover, these readings are expected to depend on the linguistic and nonlinguistic context of the adverbials.

These expectations are borne out: Vlach (1993:256) points out that certain adverbials are ambiguous between a positional ('inclusive' in his terminology) and a

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