

From Space to Time

Temporal Adverbials in the World's Languages

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I dedicate this book to Teresa.

Abbreviations

ABIL	abilitative	INESS	inessive
ABL	ablative	INSTR	instrumental
ABS	absolute	LOC	locative
ACC	accusative	LSit	located situation (§2.1)
ADESS	adessive	NEG	negation
ALL	allative	NOM	nominative
ANTIC	anticausative	PASS	passive
AOR	aorist	PAST	past
ART	article	PERF	perfect
ATTR	attributive marker	PF(V)	perfective
AUX	auxiliary	PL	plural
CAUSAT	causative mood	POSTR	posterior
CONDIT	conditional mood	PRES	present
CONV	converb	PREV	preverb
COP	copula	PRTV	partitive
DECL	declarative	PT	particle
DENOM	denominalizer	PTCP	participle
DEST	destinative case	PURP	purposive
DISTR	distributive	QSit	quantified situation
DO	direct object	REM	remote
DU	dual	RefT	reference time (§2.1)
DUR	durative	SG	singular
E	example	SPEC	specific
ELAT	elative	SS	same subject
ERG	ergative	SUPERDIR	superdirective
ESS	essive	SUPEREL	superrelative
FIN	finite	SUPERESS	superessive
FUT	future	TERM	terminative
GEN	genitive	TNS	tense
HOD	hodiernal	TOP	topic
ILL	illative	TRANSL	translative case
IMPF	imperfective	TU	time unit (§2.1)
INDEF	indefinite	VERB	verbalizer

Chapter 1

Introduction

1.1. Space and time in language

Space and time are the two most important basic conceptual domains of human thinking. Neither space nor time are part of a more basic conceptual domain, and neither can be reduced to the other. But space and time seem to show a peculiar relatedness that is perhaps not evident to a naive philosophical observer: Human languages again and again express temporal and spatial notions in a similar way, as for instance in E1-3.

- E1. a. (orientation) The priest stood **before** the altar.
b. (sequence) St. Michael's day is **before** Christmas.
- E2. a. (movement) Pepito **is going to** the village to help his granny.
b. (future) The rain **is going to** help the farmer.
- E3. a. (extreme part) We are still far from the **end** of the queue.
b. (last moments) You will be tired at the **end** of the day.

This phenomenon is so widespread in different languages across the world, and in different parts of the vocabulary, that we have to conclude that space and time are linked to each other in human thinking as well. One common way of conceiving of this relationship is by saying that temporal expressions are based on spatial ones, and that the transfer is a kind of conceptual metaphor (e.g. LAKOFF & JOHNSON 1980, CLAUDI & HEINE 1986).

That more abstract domains of language (and cognition) may be modeled on the spatial domain is an old insight, which goes back at least 150 years (see HJELMSLEV (1935) on the localists of the 19th century), and probably much further. But it is only fairly recently that linguists have begun the systematic study of the world's languages in order to verify whether the transfer from space to time is limited to languages of a particular cultural sphere (Europe) or a language family (Indo-European), or whether it is a widespread, perhaps universal phenomenon, found across the globe in languages of diverse families.

Such systematic typological investigations became more urgent when the old assumption of universality was challenged. In particular, Benjamin Lee Whorf, the famous student of Hopi and author of the "linguistic relativity hypothesis", claimed that Hopi (a Uto-Aztecan language of Arizona and New Mexico) does not show the metaphor from space to time: "The absence of such metaphor from Hopi speech is striking. Use of space terms when there is no space involved is NOT THERE - as if on it had been laid the taboo teetotal!" (WHORF 1956:146).

For the grammatical marking of time on verbs, i.e. the domain of tense and aspect, there is now a sizable body of cross-linguistic research which shows, among other things, that the use of spatial periphrastic expressions is by no means geographically, genetically or typologically limited (cf. ANDERSON 1973, TRAUOGOTT 1974, 1975, 1978, DAHL 1985, BYBEE et al. 1994). Of course, not all temporal and aspectual expressions are based on spatial ones, but on the basis of the large-scale cross-linguistic surveys we now have a much clearer picture of their distribution.

But the use of spatial expressions for temporal notions is even more salient in temporal adverbials which relate a situation to a reference time expressed by a noun phrase. In E4-7, some examples from different languages are shown. In all these cases, a preposition is used both in a spatial and in a temporal sense.

E4. English

- a. *I visited my uncle **in** Odessa.*
- b. *I visited my uncle **in** the spring.*

E5. German

- a. *Annemarie stand **vor** der Kirche.*
'Annemarie stood in front of the church.'
- b. *Annemarie wurde **vor** vier Monaten geboren.*
'Annemarie was born four months ago.'

E6. Russian

- a. *Ona snjala šljapu s golovy.*
'She took her hat off from her head.'
- b. *Ona ždet s pervogo dekabrja.*
'She has been waiting since December first.'

E7. Italian

a. *Il monastero si trova **tra** Ivrea e Biella.*

'The monastery is between Ivrea and Biella.'

b. *Partiremo per Pavia **tra** dieci mesi.*

'We'll leave for Pavia in ten months.'

Such prepositional temporal adverbials have not been investigated systematically across languages yet. This book is devoted to their study. I examine the most important grammatical markers expressing such adverbials (i.e. adpositions and cases) in 53 languages from around the world, hoping to contribute in this way to the larger problem of the conceptualization of time through language.

The data confirm the universalist's expectation that spatial expression of temporal notions is extremely widespread in the world's languages, being limited neither genetically (e.g. to Indo-European), nor geographically (e.g. to Europe), nor typologically (e.g. to languages with SVO word order). In this sense, the transfer from space to time can be said to be universal.

1.2. NP-based time adverbials

Not all temporal adverbials based on noun phrases are straightforward metaphorical extensions from spatial adverbials. This is clear from examples like E8 from English, where markers are used that have no corresponding use in spatial expressions: the prepositions *after* and *for*, the postposition *ago*, and the use of a bare NP (indicated by "Ø" in E8d).

- E8. a. ***After the wedding***, the couple went to the Baltic Sea coast for their honeymoon.
 b. Peace was concluded finally **three weeks ago**.
 c. Jacob served his father-in-law Laban **for fourteen years**.
 d. Most trees bear fruit Ø **every year**.

Nevertheless, such non-spatial markers have been included in this study, because it is only by way of contrast with non-spatial markers that we can appreciate the role of spatial markers for temporal adverbials. Similarly, tense and aspect forms that are not based on spatial metaphor were included in cross-linguistic studies, because we need those other forms as a background.

Thus, the present book is intended as a study in the tradition of **partial typology**, where one limited area of grammar is studied in a large number of languages with the goal of discovering cross-linguistic generalizations. The main goal of this work is to assemble cross-linguistic evidence for the hypothesis that temporal notions are conceptualized in terms of spatial notions, but in addition I discuss a fair number of additional points that arise in connection with the data.

As far as I can tell, this book is the first typological study of NP-based time adverbials.¹ As I mentioned above, typological investigations of tense and aspect have already been undertaken (DAHL 1985, BYBEE et al. 1994), but so far nobody has looked in detail at grammatical marking of time through noun phrases. It is perhaps natural that linguists should have focused on the marking of time on verbs first, because tense and aspect are generally obligatorily expressed in every sentence and are therefore much more salient than temporal relations expressed by adverbials.

Furthermore, because of their generally primary nature with respect to temporal adverbials, spatial adverbials are more salient, and spatial markers have already been the subject of a systematic typological study (SVOROU 1994).

And finally, another area of grammar that is adjacent to my topic are temporal adverbial clauses. These have also received considerable attention from linguists, perhaps because of their greater complexity when compared to NP-based time adverbials. However, I know of no systematic cross-linguistic study of temporal clauses, although there are typological treatments of adverbial clauses in general, including temporal clauses (cf. THOMPSON & LONGACRE 1985, KORTMANN 1997, HENGEVELD 1997). Thus, NP-based time adverbials have so far been upstaged by tense and aspect, spatial adverbials and temporal adverbial clauses, but the program of partial typology will remain incomplete until all areas of grammar are illuminated by the cross-linguistic point of view.

The fact that this study is the very first attempt at a typological investigation of time adverbials expressed by noun phrases also determines some of the features of the work. First, my goal is a broad survey of the phenomena, not a detailed examination of particular problems. Thus, I study a fairly wide range of temporal relations that can be expressed by NP-based adverbials, rather than focusing on a few select ones. Second, I did not attempt to construct a bias-free world-wide sample of languages as the data base of my investigation.

¹ KUČERA & TRNKA (1975) present a very thorough study of time adverbials in three languages (Czech, Russian, English), but their main concern is with cooccurrence restrictions rather than with the typology of form-meaning pairings.

While representative samples are certainly desirable in principle, they are not yet a realistic goal for many areas of language structure because there is simply not enough information available. This is certainly true of NP-based temporal adverbials: While probably all grammars have something to say on tense, aspect and spatial adverbial markers, many grammars are very incomplete with respect to NP-based temporal adverbials. Thus, my generalizations are based on a sample of fifty-three languages in which all continents are represented, but which is heavily biased toward European languages. It simply did not seem reasonable to me to exclude languages about which relevant information is readily available only in order to have a balanced sample, which would then have to be much smaller. But of course we have to keep in mind that from this sample we do not get a picture that faithfully reflects the situation in the languages of the world. Thus, the present work must be seen as a first approximation to the typological study of NP-based time adverbials, which should be followed by a more balanced study that truly reflects the current linguistic diversity on our planet.

In the remainder of this introductory chapter I will first give a definition of the subject matter of this study (§1.3), followed by an overview of the secondary goals that I hope to reach (§1.4). Section 1.5 discusses the criteria for determining the main semantic sub-types of time adverbials around which the presentation will be organized, and §1.6 deals with the sources of my data, especially the sample of fifty-three languages. In §1.7, I discuss a number of views on the relation between space and time in language that are found in the literature, and I conclude this chapter with some thoughts about the mapping of spatial structure onto temporal structure.

1.3. Definition of the domain of inquiry

The domain of inquiry of this book consists of adverbials based on noun phrases which serve as temporal qualifications of situations.²

As I have argued elsewhere (HASPELMATH 1997), studies in partial typology must be based on mixed functional-formal definitions, i.e. the phenomena that are compared across languages are delimited by both functional (or semantic) and formal conditions.

² I use the term *situation* as a cover term for events (actions, processes) and states, following COMRIE (1985:5), HERWEG (1990:12-13), BYBEE et al. (1994:55). Sometimes the terms *action* or *event* are used, confusingly, for the same purpose. An equally appropriate but clumsier term would be *state-of-affairs*.

This view is again confirmed in the present work. It would be quite impossible to give a purely notional definition of the expressions which fall in the scope of the investigation. Notionally we are concerned with temporal qualifications of situations (answering 'when?' questions), in particular expressions that serve to locate situations in time, expressions that measure the temporal extension of situations (answering 'how long?' questions), and expressions that indicate the regular recurrence of situations (answering 'how often?' questions). But it would hardly make sense to include all expressions in these notional domains in the cross-linguistic investigation, because the phenomena would be formally quite heterogeneous. Consider the boldfaced portions in E9a-f, a small selection of expressions serving to locate situations in time.

- E9. a. I visited my uncle **in the spring**.
 b. **While the government prepared the attack on Jaffna**, the Tamil Tigers deported the population from the town.
 c. **Much later** he realized that she had been right **all along**.
 d. **Coming home**, he immediately began to play with the kids.
 e. World War II **was followed by** a 45-year period of "Cold War".
 f. The **simultaneity** of these two conferences makes it impossible for her to attend both.

As these examples show, temporal location may not only be expressed by NP-based adverbials (*in the spring*), but also by tense (E9a), temporal adverbial clauses (E9b and E9d), adverbials based on adverbs or adjectives (E9c), by verbs (E9e), and by nouns (E9f).

A typological study of such a diverse set of phenomena would hardly be fruitful, and has in fact never been undertaken, even by those linguists who claim that typological studies must be based on purely functional definitions. Thus, COMRIE's (1985:9) definition of tense as "grammaticalized expression of location in time" does not correspond to the much narrower set of phenomena that he goes on to treat in his book, although he adds the non-notional, formal condition "grammaticalized". Under all reasonable definitions of "grammaticalized", the preposition *in* in *in the spring*, or at the very least the Latin Ablative case in *vere* 'in the spring', would qualify as grammaticalized, but COMRIE does not discuss such expressions in his book on tense. Thus, the definition must be made more specific, e.g. "grammaticalized expression of location in time on verbs", or perhaps, if we want to include the nominal tense that has occasionally been reported, "grammaticalized expression of temporal location of a situation, marked on the main word expressing this situation".

Whatever the more precise formulation, it must contain another crucial formal condition.

The formal condition on the temporal expressions that are in the scope of this study is that they must be adverbials based on noun phrases. The qualification "based on noun phrases" excludes adverbial clauses and adverbials based on adverbs. Adverbial clauses are of course often related to NP-based adverbials, and in many languages adverbial subordinators and adverbial adpositions overlap to a large extent. On the basis of English words doing double duty (e.g. *after her arrival/after she arrived*), JESPERSEN (1924:89) goes so far as to deny the theoretical distinction between prepositions and adverbial conjunctions. But not all languages show the same degree of overlap as English, and in any case including adverbial conjunctions would have extended the scope of this work dramatically. In addition, if there is a close parallel between adverbial adpositions and adverbial subordinators, the subordinators are generally derived from the adpositions (cf. KORTMANN 1997:§5.2.2), so that it is easier to exclude subordinators in a study of adpositions than vice versa.

On the other hand, we must exclude adverbials based on adverbs. Adverbs like English *now, then, when?, yesterday, tomorrow, afterwards*, Albanian *vjet* 'last year', Modern Greek *apóψε* 'this evening', German *heuer* 'this year' are common in all languages, and they are probably more frequent in texts than more complex NP-based adverbials such as *three weeks ago* or *on a Sunday morning*. But since they are essentially indivisible lexical items, they largely fall outside the scope of grammatical typology.³ Temporal adverbials based on adjectives (*earlier, previously*) must also be excluded, but they are not common anyway.

This leaves us with noun phrases serving as time adverbials, such as *every morning, last Friday*, and adpositional phrases, such as *in the winter* and *three hours ago*. The reason why I throw these together into the single category of "NP-based" adverbials (instead of using the conjunction "adverbial NPs and PPs") is that there is a continuum from adverbial NPs to adverbial PPs. This continuum is not visible in a morphologically impoverished language like English, but many languages have adverbial noun phrases marked by various oblique cases, e.g. Hungarian *kedd-en* 'on Tuesday', *január-ban* 'in January', *kilenc óra-kor* 'at nine o'clock'; Korean *yelum-ey* 'in the summer', *welyoil-kkaci* 'until Monday', *cinan cwu-puthe* 'since last week'. Adpositions and case markers

³ Of course, a lexical-typological study of expressions for 'yesterday/today/tomorrow', 'last year/this year/next year' etc. would be very interesting and might yield implicational universals such as "If a language has a special adverb for 'last year', it also has a special adverb for 'last day', i.e. 'yesterday' ". But in this book my topic is grammatical typology.

are on the same synchronic grammaticalization path, and due to the gradience of grammaticalization there are bound to be unclear cases. The notion of "NP-based adverbials" has the advantages of being non-disjunctive and simultaneously avoiding the artificial issue of distinguishing between oblique NPs and PPs.

After this preliminary discussion, it is now time to give a first list of the major semantic sub-types of NP-based temporal adverbials, shown in Table 1. Each of these **semantic functions**, as I will call them, is discussed in greater detail from a semantic point of view in chapter 2. For now the English examples given in the table should be sufficient to make clear what is meant by each of them. In these examples, the markers of the time adverbials are highlighted by boldface.

Table 1: The major semantic functions of NP-based time adverbials

I. Location in time

1. Simultaneous location (ch. 7)

- | | |
|--------------|---|
| (a) Hour | <i>at five o'clock</i> |
| (b) Day part | <i>in the morning, at night</i> |
| (c) Day | <i>on Tuesday, on the first day</i> |
| (d) Month | <i>in February, Ø next month</i> |
| (e) Season | <i>in the summer, Ø last fall</i> |
| (f) Year | <i>in 1962, Ø this year</i> |
| (g) Festival | <i>at Christmas, at Easter, at Passover</i> |

2. Sequential location (ch. 4)

- | | |
|---------------|------------------------|
| (a) Anterior | <i>before the meal</i> |
| (b) Posterior | <i>after the war</i> |

3. Sequential-durative (ch. 5)

- | | |
|------------------------|---|
| (c) Anterior-durative | <i>till midnight</i> |
| (d) Posterior-durative | <i>since the Middle Ages, from now on</i> |

4. Temporal distance (ch. 6)

- | | |
|---------------------|---|
| (a) Distance-future | <i>(I will return) in three weeks(' time)</i> |
| (b) Distance-past | <i>two hours ago</i> |

II. Temporal extent (ch. 8)

- | | |
|------------------------|---|
| (a) Atelic extent | <i>for two months</i> |
| (b) Telic extent | <i>(I wrote the letter) in two hours</i> |
| (c) Distance-posterior | <i>(German:) seit drei Jahren</i>
lit. 'since three years ago' |
-

1.4. Subsidiary goals of this book

The formal expression of each of the sixteen semantic functions of Table 1 has been investigated for the fifty-three languages of the sample, with the purpose of uncovering generalizations in the data that inform us about the way in which human language in general, and hence human cognition, structures the conceptual domain of time. As was made clear at the outset, the results strongly confirm the initial hypothesis that temporal relations are based on spatial relations in the large majority of cases. This result is of course what we expected from the beginning, but along the way quite a few other interesting observations are made, and a number of subsidiary goals are pursued.

First, we need to determine which temporal relations of NPs are expressed at all by grammatical means in languages, i.e. which **conceptual distinctions** are commonly made in the grammatical sub-system of language (cf. TALMY 1988 for the general research program). As elsewhere in the domain of grammatical semantics, the list of concepts expressed by grammar is quite limited. Those distinctions that recur reasonably often have been included in the list of semantic functions in Table 1, and some further subdivisions are discussed in later sections (cf. §1.5 for discussion of how these distinctions have been isolated). There are also some semantic distinctions that have not been included in my cross-linguistic study but that need to be recognized from the point of view of universal grammatical semantics; they are mentioned briefly in §3.2.

My second goal is to provide some **guidelines** for the investigation of NP-based adverbials in individual languages, especially in newly described languages. Many fieldworkers have made the experience that a knowledge of the attested space of variation in other languages is of great help for charting the grammar and lexicon of a new language. And this is true not just for exotic languages – even in the study of well-known European languages, a look across the fence at what other languages do is often helpful for a deeper understanding of a phenomenon. In order to make such comparison possible, a first requirement is a **terminological grid** that can be applied independently of the language. A complete terminology for time relations of NPs is provided here for the first time in a theoretical work.⁴

And third, as in any cross-linguistic work, I have been looking not only for confirmation of an absolute universal (NP-based temporal adverbials are not limited genetically, areally or typologically), but also for possible **typological**

⁴ A terminological grid is also found in the questionnaire of the COMRIE-SMITH grammars ("Lingua Descriptive Studies"/"Routledge Descriptive Grammars"), and my terms were in part inspired by it.

connections, i.e. implicational universals. However, there is generally no connection between the expression of NP-based time adverbials and other parts of the grammar,⁵ so there are few concrete results in this respect. Of course, in languages with grammatical and spatial prepositions, temporal NP markers will also tend to be prepositions, whereas languages with spatial postpositions will also have temporal postpositions; languages with rich morphology are more likely to have a terminative case (rather than an adposition) than isolating languages; and so on. But these are generalizations that pertain to the purely formal side of language structure, and a different kind of study would have to be undertaken to pursue these issues. In this study I will focus on those generalizations that relate to the temporal meaning of the markers and constructions in question. Of course, it is theoretically possible that semantic properties cluster in a way similar to morphosyntactic properties, so that we could distinguish, say, languages whose temporal relators are systematically based on spatial relators, whereas this is not the case in another class of languages (as is implied by WHORF's (1956) hypothesis that Hopi differs from Standard Average European in this respect, cf. §1.1). However, I have found no evidence for such a hypothetical semantic typology. Different semantic functions show a greater or lesser tendency to be based on spatial terms, but different languages do not.⁶

1.5. Criteria for isolating the semantic functions

The list in Table 1 contains the major semantic functions of temporal NPs that recur in languages, and it will be taken as a point of departure for the organization of this work. Thus, it becomes important to give the criteria which have guided me in including conceivable semantic distinctions in the domain of temporal adverbial qualification in this list.

A semantic function has been isolated when there is a significant number of languages which clearly distinguish this type from related ones in their means of expression. Thus, the main criterion is a typological one, not a semantic one. It would be very difficult to base such a list on semantic criteria alone, because then there would be no way of constraining the possible proliferation of

⁵ An interesting exception is discussed in §6.1 (E81-87), where word order typology appears to have an effect on the expression of temporal distance markers.

⁶ Whorf's claims regarding Hopi time expressions have been refuted in a comprehensive manner by MALOTKI (1983).

functions. Consider the examples in E10a-d, all of which show the German preposition *vor*, governing the Dative case.

- E10. a. *Die Dinosaurier sind vor der Eiszeit ausgestorben.*
'The dinosaurs died out before the ice age.'
- b. *Vor seinem Tod bat Mitterrand, in Jarnac beerdigt zu werden.*
'Before his death Mitterrand asked to be buried in Jarnac.'
- c. *Rebecca wurde vor Konradin geboren.*
'Rebecca was born before Konradin.'
- d. *Thomas ist vor einem Jahr nach Cambridge gegangen.*
'Thomas went to Cambridge a year ago.'

A priori, these four specific uses could be assigned to one, two, three or four different semantic functions. In fact, I have set up two different semantic functions for these uses, anterior (E10a-c) and distance-past (E10d). Why are E10a-c collapsed in one semantic function? From a purely semantic point of view, E10a and E10b could easily be distinguished: In E10a, the time that has elapsed between the main event and the ice age is much longer than in E10b, so one might distinguish a remote anterior from a recent anterior (much like in the literature on tense, cf. e.g. COMRIE (1985:Ch. 4) on remote past tenses). But to all appearances, a distinction along these lines is made very rarely in the world's languages (an example is the Russian distinction between *do* and *pered*, see §4.4). An even more obvious semantic distinction is that between E10a-b and E10c: In the former, the NP governed by the preposition *vor* denotes an event, whereas in the latter, it denotes a person. Thus, *vor* clearly has a very different semantic interpretation in E10c, which is best described by a clausal paraphrase (*Rebecca wurde geboren, bevor Konradin geboren wurde*). A priori, we might expect that some languages would have different expressions depending on this semantic distinction. However, I have not found a good example of such a distinction. Thus, there is still no reason to set up a separate semantic function for E10c.

Matters are different with E10d. Again, the NP governed by *vor* denotes not an event, but a time span, and the semantic contrast between E10d and E10a-c is readily felt. Like E10c, E10d can be paraphrased in a way that makes its semantic structure transparent: *Thomas ist ein Jahr vor dem Sprechzeitpunkt nach Cambridge gegangen* 'Thomas went to Cambridge a year before the moment of speech'. But in contrast to E10c, E10d is expressed by a different marker in many languages, e.g. in English (*ago* in E10d, *before* in E10a-c). There are also many languages that express E10d in the same way as E10a-c, so German is not

at all exceptional in this regard. Still, the fact that many other languages are like English means that this semantic distinction is highly relevant for a typological study and is therefore given the status of a separate semantic function.

The foregoing discussion naturally leads to the question of how to describe the various uses of this preposition, in terms of homonymy, polysemy or vagueness. Given the paraphrase relation between the 'before' and 'ago' senses of *vor*, we can probably exclude the first option, homonymy – there is little doubt that 'ago' is semantically related to 'before' (see the discussion in §6.1 below). Polysemy and vagueness are more difficult to distinguish (see, e.g., GEERAERTS 1993), but in the light of the discussion above one might be tempted to propose that the typological criterion of cross-linguistic distinguishability is also a strong argument for polysemy rather than vagueness at the level of an individual language. This, however, is clearly not the case, as has been extensively shown for other grammatical domains. Thus, nobody would say that the Russian past tense is polysemous rather than vague between the simple past and the perfect reading just because the perfect meaning is a semantic function that is widely distinguished in the world's languages. I will give just two examples from the domain of NP-based time adverbials. Consider the German sentence in E11, which has two readings, corresponding to the English sentences in E12a-b (cf. KÖNIG 1974:554 for some discussion).

E11. German

Die Kneipe wird bis zehn Uhr offen sein.

E12. English

- a. *The pub will be open until ten o'clock.*
- b. *The pub will be open by ten o'clock.*

As will be discussed below in §5.5, there are quite a few languages that make the English distinction between 'until' and 'by', so by the cross-linguistic criterion there should be two separate semantic functions for these two meanings. Nevertheless, there are very good reasons for saying that E11 is simply vague with respect to this distinction, because a semantic analysis that covers both interpretations is possible. An even clearer example is the following contrast between English and Finnish:

E13. Finnish

a. *helmikuu-ssa*
February-INESS

b. *kevää-llä*
spring-ADESS

E14. English

a. *in February*

b. *in the spring*

Finnish uses two different case forms for locating situations in months and in seasons, and many other languages do the same. Thus, I have distinguished these two cases as separate semantic functions for my cross-linguistic study. But it would hardly be satisfactory to say that therefore English *in* has two different meanings in E14a-b. Thus, clearly not all languages must make semantic distinctions that are widely made in the world's languages. As a result, our cross-linguistic study is of no help in telling polysemy apart from vagueness.

However, cross-linguistic studies do help in distinguishing between homonymy and polysemy. If two different meanings are expressed by the same form in many unrelated languages, we can exclude the possibility that this is due to accidental homonymy (cf. HAIMAN (1974) for an early formulation of this principle). Consider the German preposition *in* in E15a-b.

E15. German

a. *Das Fest ist **im** Sommer.*

b. *Das Fest ist **in** sechs Monaten.*

The interpretation of *in* is so different in these two cases that it is not obvious that there is a common element of meaning. But German is paralleled by other languages, including unrelated ones, in showing the same marker in these two cases (cf. §6.2.2 below), so the use of *in* in these two different meanings cannot be due to an accident. The cross-linguistic facts force us to look harder for a possible analysis in terms of polysemy. However, it must be admitted that cross-linguistic replicability is still not a hard and fast proof of polysemy. It could still be that synchronically speakers no longer perceive a relation that has existed earlier, and that the cross-linguistic similarities are due to common diachronic paths. Typological studies can exclude accidents and can demonstrate the existence of facts that need to be explained, but these facts are not necessarily synchronic.

**Table 2: The languages of the sample of fifty-three languages,
by genetic grouping**

INDO-EUROPEAN

GERMANIC	German English Swedish
ROMANCE	French Italian Spanish Romanian Latin Haitian Creole
BALTO-SLAVIC	Russian Polish Croatian/Serbian Bulgarian Lithuanian Latvian
CELTIC	Irish Welsh
GREEK	Modern Greek
ALBANIAN	Albanian
ARMENIAN	Armenian
INDO-IRANIAN	Persian Punjabi

BASQUE

Basque

TURKIC

Turkish

FINNO-UGRIAN

UGRIAN	Hungarian
BALTIC FINNIC	Finnish Estonian
PERMIC	Udmurt

NAKH-DAGHESTANIAN

DAGHESTANIAN	Lezgian
NAKH	Chechen

ABKHAZ-ADYGHEAN

Abkhaz

KARTVELIAN

Georgian

AFRO-ASIATIC

SEMITIC	Hebrew Arabic Maltese
CHADIC	Hausa

NIGER-CONGO	
GRASSFIELDS	Babungo
BANTU	Swahili Nkore-Kiga
DRAVIDIAN	Kannada Tamil
SINO-TIBETAN	Chinese
KOREAN-JAPANESE	Korean Japanese
MANCHU-TUNGUSIC	Nanay
AUSTRONESIAN	
SUNDIC	Indonesian
PHILIPPINE	Tagalog
OCEANIC	Maori
EAST NEW GUINEA HIGHLANDS	Kobon
ESKIMO-ALEUT	Greenlandic
UTO-AZTECAN	Hopi
CARIBAN	Hixkaryana
ANDEAN	Imbabura Quechua

1.6. The data: language sample and sources

In this section I will say a few words about the language sample on which my observations and generalizations are based, as well as on the sources of my data. The data themselves are given in the Appendix.

The major criteria for the selection of the languages of the sample were genetic diversity and availability of data. The latter constraint tends to be very strong in any typological study, and my study is no exception. The members of my sample of fifty-three languages are listed in Table 2 on the opposite and this page.

As can be seen from this Table, the sample is heavily biased toward European languages. Close to half of the languages, twenty-four, are spoken in Europe, as against eighteen languages from Asia, four languages from Africa, five languages from the New World, and two languages from Oceania. This bias is unavoidable given my aim to investigate the expression of a wide range of temporal relations. The relevant data are simply not available for many languages because they are not included in an average reference grammar. In fact, the only descriptive grammars that I could rely on were the grammars written

according to the Comrie-Smith questionnaire ("Lingua Descriptive Studies"/"Croom Helm/Routledge Descriptive Grammars"), which contains detailed questions on the expression of temporal location. The existence of descriptions in this series accounts for the inclusion of fairly inaccessible languages such as Abkhaz, Babungo, Nkore-Kiga, Greenlandic, Hixkaryana and Kobon in my sample.

Given this bias of the sample, it is clear that quantitative statements should be treated with great caution – a sample that is as little representative of the world's languages as this one simply does not allow such extrapolations. But on the other hand, the sample contains languages from most major regions of the world (an exception being Australia), and within each continent the genetic spread is considerable. For instance, the fifteen Asian languages represent eleven unrelated families, and none of the five New World languages is genetically or areally related to any other sample language. Thus, the data used for this study do give us a good first approximation to the linguistic diversity found in the world. I hope that the cross-linguistic data discussed in this study will inspire field workers and researchers of little-known languages to investigate this little-studied phenomenon in the language of their expertise.

The data assembled here (and presented in list form in the Appendix) come from three different types of sources: Native-speaker answers of a questionnaire, published reference material (grammars and dictionaries), and translations of the New Testament. The first source, native speakers, was consulted for the following languages (for acknowledgments see the preface): German, Italian, Russian, Bulgarian, Estonian, Armenian, Georgian, Persian, Hausa, Chinese, Japanese, Korean.

The second source, reference materials, was used to a greater or lesser extent for all other languages. Descriptive grammars were an important (and often the only) source of data for those languages for which grammars of the Comrie-Smith series are available (for bibliographical references, see the Appendix): Romanian, Modern Greek, Punjabi, Abkhaz, Arabic, Babungo, Nkore-Kiga, Maori, Kannada, Greenlandic, Hixkaryana, Basque, Japanese, Imbabura Quechua, Tamil, Kobon. Just a few other grammars were detailed enough to yield a substantial amount of the data: QUIRK et al. (1985) for English, KÜHNER & STEGMANN (1914) for Latin, KING (1993) for Welsh, BUCHHOLZ & FIEDLER (1987) for Albanian, HASPELMATH (1993) for Lezgian, SCHACHTER & OTANES (1972) for Tagalog, and of course MALOTKI's (1983) monographic treatment of time expressions in Hopi. For a number of languages, dictionaries were an important source of data, especially for Hungarian, Udmurt, Indonesian, Basque, Nanay, and Chechen.

The most innovative source of data, which has not to my knowledge been made use of in typological work before, are translations of the New Testament. This was my most important source of data for the following languages: Swedish, Latin, Spanish, Lithuanian, Polish, Croatian, Bulgarian, Irish, Modern Greek, Hungarian, Turkish, Arabic, Maltese, Hebrew, Swahili, Indonesian, Haitian Creole. All the semantic functions of NP-based adverbials that are investigated here occur in the New Testament, so it is not difficult to extract the relevant information from a translation. Of course, occasionally a translation is not literal so that it does not provide an answer to the question of the researcher, but this does not create more difficulties than in the case of published reference materials (even the Comrie-Smith grammars occasionally disappoint the reader because the authors sometimes misinterpret questions of the original questionnaire). Perhaps the trickiest problem with older translations is that they tend to be very literal, and one may suspect that the text not always reflects the naturally occurring language. However, this problem is probably not greater than in the case of native speakers who are asked to translate a sentence into their language. And it is mostly restricted to older translations of European languages, for which generally other sources of data are available as well. In modern translations into languages such as Indonesian and Haitian Creole, I found enough examples of very free translations to make me confident that the less free examples are not unnatural in the language.

1.7. Theoretical prelude: The relation between space and time

That the expression of temporal relations is often similar to that of spatial relations has often been observed. I have not been able to trace the origin of this observation; it may be that this has been known to linguists and philosophers for many centuries, or that it is so evident that it has often been rediscovered independently. In this section I will examine a number of views from the literature, showing that claims of different degrees of strength have been made.

The following quotations, more or less randomly selected, are illustrative of the kinds of views that have been expressed on the relation between temporal and spatial expressions:

- E16. a. MEYER-LÜBKE (1899:492): "Wenn die Sprache zur Darstellung zeitlicher, mehr abstrakter Verhältnisse sich zumeist der konkreteren örtlichen Anschauungsmittel bedient,... so sind doch die zeitlichen Beziehungen sehr viel einfacher und weniger mannigfaltig als die örtlichen..."
- b. GAMILLSCHEG (1957:245): "...die Ortsvorstellung [hat] anderen Bestimmungen gegenüber eine besondere Vordringlichkeit... Auf ihren Bezeichnungen beruhen auch die temporalen und modalen Entsprechungen. Der Übergang von der Vorstellung des Ortes zu der der Zeit spielt sich immer wieder von neuem ab."
- c. CLARK (1973:48): "For a long time, linguists have noted that the spatial and temporal terms in English and other related languages overlap considerably."
- d. WIERZBICKA (1973:624): "In many, if not all languages, such words as 'before', 'long', 'beginning', 'end' refer to both time and space."
- e. LYONS (1977:718): "...the incontrovertible fact that temporal expressions, in many unrelated languages, are patently derived from locative expressions... The spatialization of time is so obvious and so pervasive a phenomenon in the grammatical and lexical structure of so many of the world's languages that it has been frequently noted..."
- f. JACKENDOFF (1983:189): "It has often been noticed that prepositions of time are on the whole identical to spatial expressions and that temporal PPs are attached to sentences in the same way as PPs of location."
- g. WUNDERLICH (1985:72): "Zeitliche Ausdrücke können oft nach dem Vorbild von räumlichen gebildet werden."
- h. LANGACKER (1987:148): "The fact that we often conceive and speak of time in spatial terms..."

In these quotations, different degrees of strength can be distinguished. First, with respect to the nature of the claim (degrees of qualitative strength):

- E17. a. Temporal expressions are identical with spatial expressions
(Wierzbicka, Clark, Jackendoff)
- b. Temporal expressions are based on spatial expressions
(Meyer-Lübke, Gamillscheg, Lyons, Langacker, Wunderlich)
- c. Speakers conceive of time in terms of spatial concepts (Gamillscheg, Langacker)

In addition, the claims also differ with respect to quantitative strength. Again, different degrees can be distinguished in the quotations in E16:

- E18. The claim in E17 is true
- a. for English and other related languages (Clark)
 - b. (implicitly) more generally than just for the language that is immediately under discussion (Jackendoff, Langacker)
 - c. for many languages (Lyons)
 - d. possibly for all languages (Wierzbicka)
 - e. for language in general (Meyer-Lübke, Gamillscheg)

The systematic cross-linguistic study of temporal adverbials allows us to evaluate the impressionistic claims in E18 quite directly, although due to the bias in my sample the answer will still not be conclusive. The evidence will be presented throughout the empirical part of this work (chapters 4-8 and the Appendix), but let me anticipate the main conclusion here: There is little reason to doubt that the strongest claim E18d is correct, i.e. that all languages have temporal expressions identical with spatial expressions. However, not all temporal relations expressed by NP-based time adverbials need be marked by spatial markers, and some temporal relations even show a preference for non-spatial markers.

With regard to the claims in E17, the cross-linguistic evidence is also very important, although it can be used only indirectly to argue for the two stronger positions. The strongest position E17c, that time is conceptualized in terms of space, can hardly be proved on the basis of linguistic data alone. Nevertheless, if 17b is true, i.e. if temporal expressions are (to a significant extent) based on spatial expressions, then E17c receives support. Conversely, if speakers conceive of time in term of spatial concepts, then it would not be surprising that temporal expressions are commonly based on spatial expressions. Since I have found sufficient support for E17b in my data, I will also assume the correctness of E17c.

But what does it mean for temporal expressions to be "based on" spatial expressions, and how can this be observed? The mere identity of related temporal and spatial markers is not sufficient – this merely amounts to claim E17a. Of course, E17a follows from E17b: If time adverbials are based on space adverbials, they will often be formally identical with them, but the reverse is not true. Space adverbials could also be based on time adverbials, or it could be, as JACKENDOFF (1983:210) suggests, that the spatial conceptual machinery is not transferred to the notional domain of time, but that both spatial structure and temporal structure are instantiations of "an abstract organization that can be applied with suitable specialization to any field". Thus, the distinction between E17a and E17b is important. If the stronger E17b can be shown to be correct,

then JACKENDOFF must be wrong and the hypothesis of a conceptual transfer from space to time (i.e. E17c) is justified.

One kind of formal indication of a "based on" relation would be that temporal markers are systematically characterized by an additional element that is absent in spatial markers. This kind of formal asymmetry can be observed, for instance, in indefinite and interrogative pronouns, as I show in HASPELMATH (1997). Indefinites and interrogatives may be identical (e.g. German *was* 'what; something') or the indefinite may be characterized by an additional indefiniteness marker (German *irgend-was* 'something'), but not vice versa. However, this kind of asymmetrical relation is not found in our current domain – time expressions are never derived from space expressions by a special "time marker".

Instead, the "based on" relation must always be understood in terms of metaphor or conceptual shift: German *vor* 'before' is based on *vor* 'in front' in that the spatial sense of *vor* is chronologically primary. At some point speakers decided to use *vor* 'in front' also in the temporal sense 'before'. Synchronically there may be no indication of the diachronically asymmetric relation between the two, but if evidence can be found that temporal markers are often diachronically secondary with respect to spatial markers, and if that relation is never the reverse, this constitutes a strong argument for the hypothesis of conceptual transfer.

The diachronic primariness cannot of course be directly read off from the synchronic data. However, for quite a few of the languages etymological information is available, and this consistently points in the same direction. The details will be provided in the relevant sections.

Although it is widely assumed that humans conceive of time in a way analogous to space, other views have been expressed. Thus, WIERZBICKA (1973) proposed that temporal location should be analyzed semantically in terms of the primitive notions 'world', 'become' and 'part of'.⁷ Thus, she proposed the following explications of simultaneous location, anterior and anterior-durative:

E19. a. *John played the piano on Monday.*

= The world of which John playing the piano was a part was the world called 'Monday'.

b. *Buddha lived before Socrates.*

⁷ In the meantime, the author has abandoned this analysis (cf. WIERZBICKA 1993:453, GODDARD & WIERZBICKA 1994:45-46). The reason why I discuss her proposal here is that it helps us see clearly what a possible alternative to the "spatialist" conception of time would be, even though this conception is apparently uncontroversial nowadays.

= The world of which the living Buddha was a part was a world that was becoming the world of which the living Buddha was a part.

c. *Carmen played until six o' clock.*

= The worlds of which the playing Carmen was a part were the worlds which were becoming the world of six o'clock.

WIERZBICKA contrasts this explication with one proposed by some philosophers according to which the world is four-dimensional, and a time span can be thought of as a part of this world. According to this view, things have both spatial and temporal parts, so that, for instance, a woman would be said to consist of a a baby, a girl, a young woman and an old woman. WIERZBICKA correctly observes that "this conception is alien to common intuition" (1973:618), but the same is true, in my view, of her conception of location in time. We do not say of particular points or time spans that they are worlds, and we do not speak of the changing world as a series of successive worlds. In our ordinary language (and hence conceptualization), the world changes, i.e. its properties become different, but the world remains the same. Indeed, the very notion of 'becoming', a semantic primitive in WIERZBICKA's theory, seems to be derived from the notion of movement, judging by the number of cases in which a 'become' verb is derived from a movement verb.⁸ If WIERZBICKA's hypothesis were correct, we should expect in addition that at least in some languages the 'before' expression would be based on the expressions for 'world', 'become', and 'part'. However, I have not come across a single language in which this is the case.

1.8. Mapping the spatial axes onto the time line

If spatial notions or expressions are carried over to temporal ones, there are a priori three simple ways of doing this, because corresponding to the single time line of one-dimensional time there are three axes of three-dimensional space: the frontal axis (front-back), the vertical axis (up-down), and the lateral axis (right-left). It has often been observed that it is overwhelmingly the frontal axis that is used for this purpose. CLARK (1973:49) notes this property of English, but it is true in general of human languages, as this

⁸ E.g. English *become* (cf. *come*), Polish *zostać* (cf. *stać* 'stand'), German *werden* (cf. Latin *vertere* 'turn'). For additional cases, cf. MICHAELIS (1997).

study shows. I know of no single example of the use of the lateral axis for temporal relations (such as 'to the left of Monday' or 'to the right of the discovery of America'), and the use of the vertical axis is very rare. A well-known example is the use of 'up' and 'down' in Chinese for 'last' and 'next' (e.g. *shàng* 'up', *shàngnián* 'last year', *xià* 'down; next'). However, I know of no language whose regular 'before' or 'after' expression is derived from 'above/on top' and 'below/under' (but see BICKEL (1994) on Belhare, a Tibeto-Burman language of Nepal, where something similar seems to occur). In European languages, the up-down axis is usually restricted to marginal uses, as in the French cases discussed by ANSCOMBRE (1993), e.g.

- E20. a. *Sur ce bon mot, il partit.* (sur = 'on')
 'After this good word, he left.'
 b. *Sous le règne de Louis XIV, les arts avaient fleuri.* (sous = 'under')
 'During the reign of Louis XIV, the arts had flourished.'

The reason why speakers of human languages so consistently choose the frontal axis for expressing sequential location is of course that the passing of time is conceived of in the same way as movement through space. In this way an immediate link with the frontal axis is established, because this axis, too, is defined with respect to movement. By contrast, the vertical axis is determined only with respect to gravity on earth, and gravity is effective also if no movement takes place. Of course, gravity becomes visible especially when things move toward the earth, but crucially this movement is bounded (falling things cannot fall further than the ground), whereas the passing of time is unbounded. The lateral axis is clearly secondary with respect to the frontal axis, because only objects that have a front-back orientation can be said to have a right-hand side and a left-hand side. The frontal axis is often defined in terms of the direction of canonical movement through space,⁹ so there is a close association between this axis and movement. Thus, given that the passing of time is assimilated conceptually to movement through space, the choice of the frontal axis is well-motivated and well-understood.

⁹ Cf., e.g., LYONS (1977:691): "[Man] has his principal organs of perception directed towards the region in front of him; he normally moves in the direction in which he is facing...". Note that Lyons's first criterion is not as general as the second one because it does not apply to things that move but do not have organs of perception (e.g. arrows, shooting stars). See also the definition in FILLMORE (1971). CLARK (1973) defines the frontal axis in terms of the "canonical encounter" situation, which also has a movement component.

Chapter 2

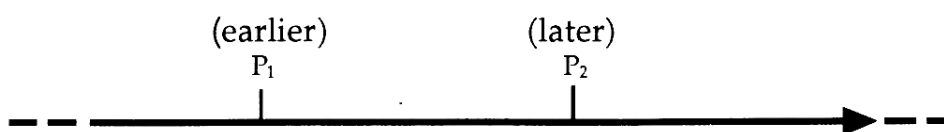
Semantic functions of time adverbials

In this chapter we look in some detail at the semantic properties of each of the various temporal qualifications that are the topic of this study. This discussion of the semantics is intended as a preparation for the presentation of the cross-linguistic patterns in later chapters. It does not claim to be an independent contribution to semantic theory. In order to make the chapter maximally accessible, the presentation will be fairly informal.¹ However, I would expect that the cross-linguistic patterns discovered in this work will eventually be useful for a deeper understanding of the semantic structures of time adverbials. Before the individual temporal relations are discussed, I will say a few general words about the semantics of time.

2.1. The semantics of time

Time is semantically very simple. It can be thought of as a sequence of points which are located on an imaginary time line (or "time axis"). In contrast to three-dimensional space, time is **one-dimensional** and has nothing analogous to the vertical axis (up-down) or the lateral axis (left-right). In addition, time is **unidirectional** in that for two points on the time line that do not coincide (i.e. are not simultaneous), one is unambiguously earlier and the other is later. Stretches of time (called *time spans* in this work) can be evaluated quantitatively, i.e. as shorter and longer, and they can therefore be measured. Finally, time is not bounded on either side. This description exhausts the properties of time itself that are relevant for a linguistic description of temporal notions. Schematically the properties of time can be represented as in Figure 1.

Figure 1: *The time line*



¹ For formalized treatments of the semantics of time and temporal adverbials in the logical-semantic tradition, see, e.g., VET (1980), BÄUERLE (1979), HERWEG (1990).

Of course, talking about time gets somewhat more complicated and more interesting because of the way in which positions on the time line are determined and temporal extent is measured. The purpose for which we need time in language is to characterize situations, i.e. entities thought of as variable in time, in terms of their temporal location or extent. Situations can be located only with respect to other situations, and the temporal extent of situations can be measured only by comparing it to the extent of other situations.² Modern technology has made it possible to measure time in abstract units of measurement, but even the most sophisticated of measuring methods ultimately relate situations to other situations (e.g. the regular swinging of a pendulum, or the oscillations of certain crystals). The main reason why temporal expressions are often complicated in languages is that the situations that speakers can conceive of are so diverse with respect to their temporal structure and can be related temporally to each other in multiple ways.

The most common characterization of situations is with respect to the speech situation: Many languages have obligatory grammatical markers in every sentence (i.e., tense) that characterize the situation as occurring in the past (earlier than the speech situation), in the present (coinciding or overlapping with the speech situation), or in the future (later than the speech situation). Since there is such an enormous experiential difference between the past, which can be remembered in minute detail, and the future, of which only vague outlines are known to people on earth, one might think that the past and the future are treated in radically different ways in languages. To be sure, there are often asymmetries between past and future in linguistic expressions, but on the whole it is surprising to what a high degree past and future temporal expressions are symmetrical. The temporal relation of situations to the speech situation, or time deixis, is more relevant to the study of tense than to the study of time adverbials, but deixis will play a role at various places in this study. A general discussion of deictic properties of time adverbial markers can be found in §3.1.

Temporal characterization is also possible by relating a situation to another individual situation, e.g. *The baby was born before her great-grandfather died*, or

² This is quite evident when temporal adverbial clauses are used, but in all other cases of temporal characterization reference must be made, however indirectly, to some other situation. This is not always recognized, cf. HERWEG (1990:16-17): "Während die "eigentlichen" Zeitadverbiale immer ein Element enthalten, das direkt, d.h. ohne den Umweg über ein Ereignis, einen Zustand oder einen Prozess, auf eine Zeitspanne oder einen Zeitpunkt referiert, bestimmen temporale und durative Nebensätze die zeitliche Einordnung bzw. Dauer der im Hauptsatz eingeführten Situation mit Bezug auf eine andere Situation..." But there is no "direct" way of locating or measuring time, because the only way of identifying times is through the situations that take place at them.

I will be happy as long as you are with me. Individual situations are generally represented by clauses, so the linguistic expression for this kind of temporal characterization are usually temporal clauses, which fall outside the scope of this work. However, in most languages nouns can also be used to denote situations. In the most common case, deverbal action nouns fulfill this function, e.g. *after my arrival, during the strike of Metro employees, before the birth of Jesus Christ*, etc. There is no clearcut boundary between deverbal action nouns used in time adverbials and temporal adverbial clauses, because in many languages subordinate clauses are more or less nominalized, or action nouns have a number of clausal properties, or both. Thus, while expressions like *after my arrival* in a language like English clearly fall in the scope of this work, they are not prototypical cases.

Many languages also have nouns denoting specific situations that are not derived from verbs, e.g. *war, festival, flood, lunch, ceremony*, etc. In the familiar European languages there is nothing special about these nouns, and in these languages they are the most typical nouns occurring in NP-based time adverbials. However, it must be kept in mind that such nouns are in all likelihood not universal.

The most common type of situation-denoting nouns are undoubtedly nouns denoting what I call here **canonical time periods**. The major cyclic events of the human natural environment on earth have probably always served as the main means of locating and measuring other situations: in particular, the alternation of light and dark, changes in the shape of the moon, and changes in the path of the sun across the sky (accompanied by marked climatic differences). We do not usually think of days, months and years as events, because we are so used to these cyclic events that we mostly focus on their function as measuring units. It appears that all languages have nouns denoting (at least a subset of) these units of time measurement, and if this is true, then all languages must have NP-based time adverbials. A true counterexample would be a language that consistently used expressions like 'when it has gotten light three times' (for 'in three days' time'), or 'the leaves have fallen seven times since' (for 'seven years ago'). It could also turn out that there are languages whose speakers do not use higher numbers and are satisfied with lexical adverbs like 'today', 'yesterday', 'this-month', 'next-year', etc. Such a language would still make use of the canonical time units, but would not have NP-based adverbials falling under the definition of my study. I have not found such a language, but I will point out cases where a grammatical description indicates that an NP-based time adverbial in our European languages corresponds to something very different in the languages described (cf. §3.3).

In addition to the natural time units, there are culture-bound artificial time units. In the currently dominating culture, this is the week, as well as finer subdivisions of the day (*hours, minutes, seconds*) and larger groupings of years (*decade, century, millennium*). But more importantly, the cycles of the year and the day are naturally divided into qualitatively different periods, the parts of the day (*morning, afternoon, evening, night, dawn, etc.*) and the seasons (minimally *summer* and *winter* in regions distant from the equator, often *rainy* and *dry seasons* in regions near the equator). Probably all languages have expressions locating situations in a part of the day or in a season, but again this does not necessarily mean that all languages use noun phrases for this purpose. Since there are very few of these qualitatively different periods and they are overwhelmingly used for temporal location³, adverbs may well be more suitable for expressing such qualitative periods than nouns (cf. §7.4). Finally, some time units located in a particular calendar position have special names, e.g. months within the yearly cycle (*January, February,...*), and days within the weekly cycle (*Sunday, Monday,...*). Other time units are merely numbered, e.g. days within the monthly cycle (*March 1st, 2nd, etc.*), and hours within the daily cycle (*one o'clock, two o'clock, etc.*).

Table 3 on the next page lists the major cyclic time periods as used in our culture (see LEECH (1969: ch. 7), FILLMORE (1971: 28-37) for further discussion).

Three different sub-types of canonical time periods must be distinguished for the purposes of this study:

- (A) **time units**, such as *hour, day, month, year*
- (B) **calendar unit names**, such as *January* and *Sunday*
- (C) **qualitative periods**, such as *spring* and *morning*

³ I.e. expressions such as 'in the winter' are universally much more frequent than expressions like 'The last winter almost ruined us', or 'Children love the winter'.

Table 3: The canonical time periods

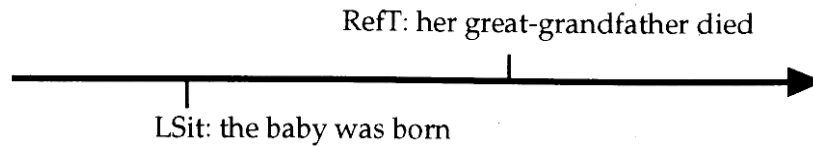
<i>millennium</i>	(= 10 centuries = 1000 years)	
<i>century</i>	(= 10 decades = 100 years)	
<i>decade</i>	(= 10 years)	
<i>year</i>	(≈ 365 days, ≈ 12 months)	
	seasons:	<i>spring, summer, fall, winter</i>
<i>month</i>	(≈ 28 days, ≈ 4 weeks)	
	names of months:	<i>January, February, March, April,...</i>
<i>week</i>	(= 7 days)	
	names of days:	<i>Sunday, Monday, Tuesday,...</i>
<i>day</i>	(= 24 hours)	
	parts of the day:	<i>morning, afternoon, evening, night,...</i>
<i>hours</i>	(= 60 minutes)	
<i>minute</i>	(= 60 seconds)	
<i>second</i>	(= 1000 milliseconds, etc.)	

The **time units**, which are listed in the left-hand column of Table 3, can be used both for temporal location ('in the next millennium', 'during the first seconds after the Big Bang') and for measuring temporal extent ('for nine months', 'two months ago'). The **calendar unit names** and the **qualitative periods**, listed in the right-hand column of Table 3, can only be used for temporal location, not for measuring temporal extent ('*for two Aprils/winters', '*five Wednesdays/afternoons ago'). Of course, in order to be interpretable, the canonical time periods must be related either to the moment of speech, i.e. must contain a deictic component (e.g. 'this Saturday', 'next year', 'in the last century'), or to some conventional constant temporal reference point, e.g. Christ's birth, the beginning of a revolution, etc. (see FILLMORE 1971). The relevance of deixis for temporal location will be taken up again in §3.1.

Before turning to the individual temporal relations, let me briefly explain the conventions used here for representing these relations in diagrams. I will show the situation that is characterized by an NP-based time adverbial (the **characterized situation**) below the time line, and the situation or time unit with respect to which the main situation is characterized (the **reference time**, abbreviated RefT) is shown directly above the time line. This is exemplified in

Figure 2, where the characterized situation is located with respect to the situation, so it is a **located situation**, a special case of a characterized situation.⁴

Figure 2: *The baby was born before her great-grandfather died.*



Bounded events whose extension is irrelevant in the context are represented by a simple vertical line, as in Figure 2. Durative situations, i.e. atelic and habitual situations, are represented by a parallel horizontal line below the main time line. A vertical line at the boundary of the horizontal line indicates that the situation or time unit is bounded. When the reference time does not locate, but measures the time of the characterized situation, it is called **quantified situation** here (QSit, another special case of a characterized situation). It is represented as a parallel horizontal line above the time line, divided into equal portions (the *time unit* (TU) is given in parentheses). These conventions are illustrated in Figures 3 and 4:

Figure 3: *I was sick for two months.*

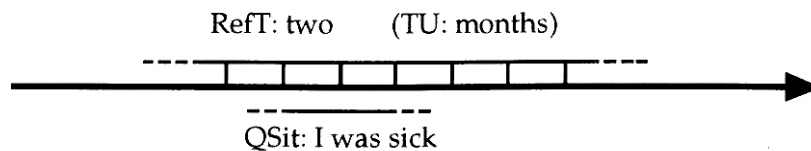
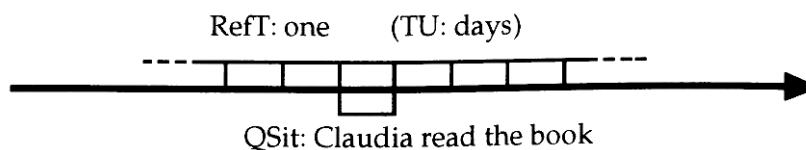


Figure 4: *Claudia read the book in one day.*



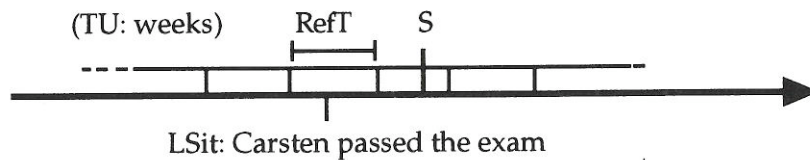
Further notational conventions will be explained below.

⁴ The terms *reference time* and *characterized/located situation* are not widely used, but I hope that they are self-explanatory. My terms are completely analogous to those used in HERSKOVITS (1986) in a spatial context (*reference entity*, *located entity*). SNOOK (1988) uses *locating term* and *located term*, and the Prague Academy grammar of Russian (BARNETOVÁ et al. 1979) uses *vremennyj orientir*, a felicitous term whose English translation (roughly, 'temporal orientation mark') is unfortunately not nearly as elegant.

2.2. Simultaneous location

The label 'simultaneous location' refers to markers that locate a situation with respect to a reference time (i.e. another situation or canonical time period) which is simultaneous with the situation. In many languages the same markers are used for this function as for interior spatial location ('in'), but in contrast to the spatial interior function, the reference time need not properly include the located situation. This is perhaps the prototypical case, but it is by no means the only possibility. An example of inclusion is *Carsten passed the exam last week*, illustrated in Figure 5 (here and below, S represents the moment of speech):

Figure 5: *Carsten passed the exam last week.*



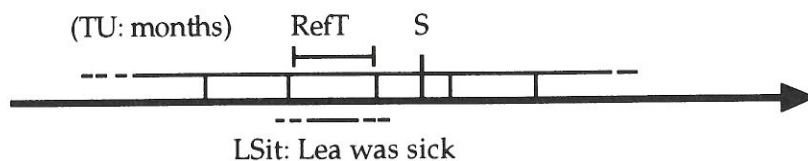
Here the located situation is punctual and is therefore included in the reference time, which is a time span. However, the relation may also be the reverse: The reference time may be a point in time, and the located situation may be durative and take up a longer time span. In this case, it would be more appropriate to say that the located situation includes the reference time. An example is shown in Figure 6.

Figure 6: *I was asleep at 4.15 a.m., when the earthquake began.*



Things get even more complicated when both the located situation and the reference time are non-punctual. An example of this is given in Figure 7:

Figure 7: *Lea was sick last month.*



This sentence is clearly true if Lea was sick for a period of less than a month which completely fell into last month (this reading corresponds to proper inclusion of Figure 5), but it is also true if Lea has been sick for three months and is still sick, i.e. if the located situation includes the reference time rather than vice versa. This is indicated by the dots at both ends of the horizontal line representing the located situation in Figure 7. Thus, the necessary and sufficient condition for the possibility of using expressions like *last month, at 4.15* is that the located situation and the reference time should overlap, i.e. be (at least partially) simultaneous. Hence, the term "simultaneous location" seems to be the best term (cf. COMRIE & SMITH's (1977:32) term "general temporal location", which is less specific but would also be appropriate).

Simultaneous location is generally marked by the most grammaticalized locative markers, as is the case in English (*in, on, at, Ø*). In addition, some European languages have a preposition corresponding to English *during* (French *pendant*, Italian *durante*, German *während*), which emphasizes the duration of the reference time. *During* indicates simultaneity with the reference time like *in, on, and at*, but it is only appropriate if the reference time has a certain duration. Thus, it is possible to say *I fell asleep during the speech of our president*, but **I had lunch during noon* is completely impossible. It is tempting to distinguish a special semantic function "simultaneous-durative" for *during* and its equivalents, perhaps analogous to the posterior-durative ('until') and anterior-durative ('since') functions. However, this would not be correct: In contrast to 'until' and 'since', the preposition *during* does not require that the located situation be durative.⁵ Thus, we can say *Irene died during the war*, whereas **She died until 1945/since Monday* is unacceptable. Conversely, *during* cannot be used in all cases in which the reference time is a time span. For instance, with calendar unit names (*??during Monday, ??during December*) it is quite odd. In other cases, the semantic distinction between *during* and the more grammaticalized location markers is quite subtle, as the contrasts in E21-22 show.

- | | |
|---|----------------------------------|
| E21. a. <i>during the vacation</i> | b. <i>in the vacation</i> |
| E22. a. <i>during the 1980s/that year</i> | b. <i>in the 1980s/that year</i> |

⁵ As was mentioned in the previous section, I use the term *durative* for stative, atelic dynamic, and habitual situations. Thus, *durative* is not the same as 'having a certain duration' (as in the terminology of QUIRK et al. (1985:201)). However, my use of *durative* seems to be close to its traditional sense.

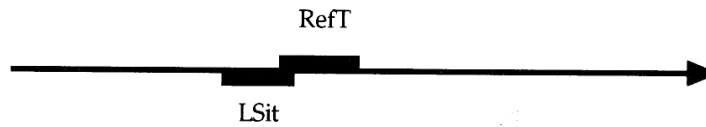
This contrast is not only difficult to describe, it is also difficult to find an analog of *during* outside of Standard Average European (i.e. Germanic, Romance, Slavic). This is the reason why I have not distinguished a separate semantic function for *during*. Its special properties can be illuminated by the cross-linguistic point of view only to a limited extent.

Within the semantic category of simultaneous temporal location, I distinguished seven special cases, six of which correspond to the most important canonical time periods of Table 3: (1) hour, (2) part of day, (3) day, (4) month, (5) season, (6) year. The seventh special case is (7) festival. These are not only the cases for which it was easiest to get data (in the Comrie-Smith grammars, there are sections for each of them, and all of them are represented in the New Testament), but they are also presumably the most frequent cases,⁶ and are hence the most likely to show special behavior. Thus, it is unlikely that a language would use a special adposition or case marker for 'in the third millennium', different from the marker used in 'in the third century'. Among these categories, (2)-(6) are unproblematic from a semantic point of view: They all denote cyclically recurring time spans. Many languages of course make finer distinctions, which will be discussed when the cross-linguistic data are presented (Ch. 7).

Somewhat special are the cases of the hour and the festival. The hour is also a cyclically recurring time span (cf. Table 3), but when it is used for temporal location, reference is usually made not to this time span, but to the completion of an hour, i.e. to a point in time. Thus, it is not surprising that location at an hour is treated in a special way in many languages (§7.3). Festivals are special in that they typically recur cyclically within the annual cycle, like the seasons, but they usually occupy only one day or at most a few days.

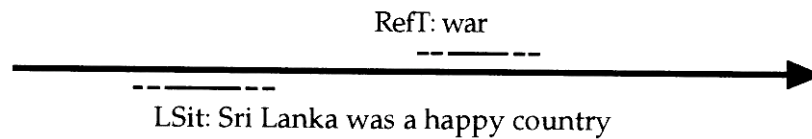
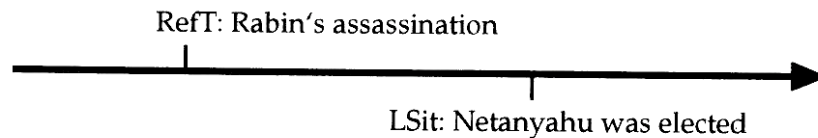
Summing up, we can represent the semantic function of simultaneous location schematically as in Figure 8. The black blocks representing the reference time and the located situation in this Figure are intended to neutralize the distinction between points and spans of time.

⁶ The figures from FRANCIS & KUČERA (1982), a frequency dictionary of English, are as follows: *year* 1661, *day* 1077, *week* 425, *month* 327, *hour* 325, *minute* 242, *decade* 80, *second* 57, *millennium* 8.

Figure 8: Schematic representation of "simultaneous location"

2.3. Sequential and sequential-durative location

In this section, I will discuss four semantic functions in which the located situation is related to the reference time in that one is earlier and the other is later, i.e. that they occur in a sequence (hence my general term *sequential*, which was suggested to me by TRAUGOTT's (1978:379) *sequencing*). In the **anterior** and **posterior** functions, nothing more is conveyed: An anterior marker locates the situation earlier than the reference time, and a posterior marker locates the situation later than the reference time.⁷ The semantic relations are thus quite simple, and examples are shown in Figures 9-10.

Figure 9: Sri Lanka was a happy country before the war.**Figure 10: After Rabin's assassination, Netanyahu was elected prime minister.**

As in the case of simultaneous location, the punctual/bounded or durative nature of the located situation is immaterial.

But there are two related semantic functions with more specific meanings which require that the located situation be durative: The **anterior-durative** ('until') and **posterior-durative** ('since') functions. In addition to specifying a

⁷ In KORTMANN (1997), the terms *anteriority* and *posteriority* are used in the opposite way: *After* is said to be a conjunction of anteriority, *before* is a conjunction of posteriority. KORTMANN describes the meaning of these conjunctions as follows (1997: 84-85): Anteriority: 'after *p*, *q*: *p* simply precedes *q* in time'; Posteriority: 'before *p*, *q*: *p* simply follows *q* in time'. Thus, for KORTMANN the reference times are before ("anterior") and afterwards ("posterior"), whereas for me the located situations are before and afterwards. My usage is not only in conformity with the forms of the markers (in Latin, *ante* denotes anterior, *post* denotes posterior, in my terminology), but also accords with the intuition that markers of time adverbials serve to characterize situations in terms of reference times, not reference times in terms of situations.

relation of sequence, these indicate that the duration of the located situation overlaps with the reference time. For instance, in E23a the located situation of Cameron's being in Glasgow is not only characterized as being later than the reference time February, but also as overlapping with February, i.e. the sentence would not be true if Cameron's being in Glasgow began only in March. By contrast, *Cameron has been in Glasgow after February* would also be true in this latter case.

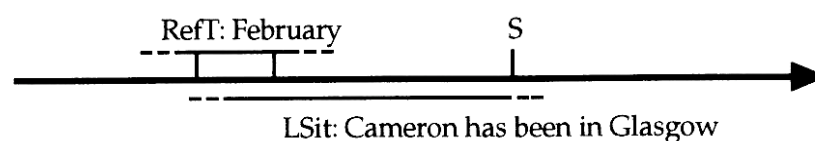
- E23. a. *Cameron has been in Glasgow **since** February.*
 b. *Henriette worked **until** the summer.*

Analogously, E23b implies that Henriette worked not only before, but also in the summer. More precisely, it implies at least that Henriette worked at the beginning of the summer. Whether the reference time is included or not depends on the context. Thus, in E24a *until* is more likely to be inclusive, while in E24b it is more likely to be exclusive.⁸

- E24. a. *The student went home on the day before Christmas Eve and stayed there **until** New Year's Day.*
 b. *The old regulations will remain in force **until** July 1st.*

The two sentences in E23a-b are depicted in Figures 11-12.⁹

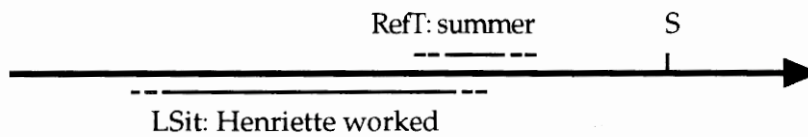
Figure 11: *Cameron has been in Glasgow since February*



⁸ In some languages, the exclusive/inclusive distinction is reflected in the use of different prepositions. In American English, *until/through* show this contrast, and in Russian the corresponding prepositions are *do/po*:

- | | | |
|-------|--|--------------------------|
| (i) | <i>We camped there from June till September.</i> | (inclusive or exclusive) |
| (ii) | <i>We camped there from June through September.</i> | (inclusive) |
| (iii) | <i>Ja budu rabotat' tam do sentjabrja.</i>
'I'll work there till September.' | (inclusive or exclusive) |
| (iv) | <i>Ja budu rabotat' tam po sentjabr'.</i>
'I'll work there through September.' | (inclusive) |

⁹ For more discussion of the semantics of sequential-durative (especially posterior-durative), see GIAUFRET-COLOMBANI (1989), LYSEBRAATE (1982), SNOOK (1988), MANZOTTI & RIGAMONTI (1983).

Figure 12: *Henriette worked until the summer*

The semantic functions anterior-durative and posterior-durative are often characterized in terms of an end point and a beginning point,¹⁰ but as SNOOK (1988:256) points out, the termination of the situation is only an implicature which can be canceled, e.g. *She worked until six o'clock and in fact even longer*, or *Bremen has been an important town since the times of the Hanseatic League and even earlier*.

The dual semantic condition of anteriority/posteriority and overlap (i.e. simultaneity) with the reference time means that the verb of the located situation cannot be punctual/bounded, but must be durative, because a situation that is thought of as having no temporal extension cannot both be simultaneous with and prior/subsequent to a reference time.¹¹

In the case of the posterior-durative function, many languages make an additional meaning distinction, which relates the located situation also to the moment of speech. For instance, English *since* is only appropriate if the located situation is in the past and overlaps with the moment of speech (or a different deictic center, as in narration), and thus it can be said to have two deictic meaning components (past and overlap with the present). If Cameron's stay in Glasgow extended from February to June and the moment of speech is on September 28th, one cannot say **Cameron has been/was in Glasgow since February*. Instead, one must say *Cameron was in Glasgow from February on*. Similarly, if the moment of speech precedes the located situation, *since* cannot be used because it is confined to past situations, independently of whether the located situation overlaps with the moment of speech. Thus, one cannot say **Cameron will be in Glasgow since February* if the moment of speech is in January,

¹⁰ E.g. QUIRK et al. (1985:691) ("terminal point"), BENNETT (1975:119) ("the notion 'end'"), KORTMANN's (1997:84-85) terms *terminus ad quem*, *terminus a quo*; and the case name *terminative* (Russian *predel'nyj*), which is employed, e.g., in Udmurt and in Hungarian grammar.

¹¹ In some languages, a secondary use of a posterior-durative marker is possible in which it comes close to the simple posterior use (cf. TEN CATE 1989), e.g.

- (i) English: *Since your last encounter with her she has gotten married.*
- (ii) German: *Seit seiner Heirat haben sie zwei Kinder bekommen.*

In these examples, the usual posterior preposition (*after/nach*) could also have been used (requiring a change of the tense in English). The semantic distinction in these cases is quite subtle. I have no data on the extent to which this secondary use occurs cross-linguistically.

or **Cameron will be in Glasgow since now* if the moment of speech is in February. English must use *from* (*..onward*) in these situations.

To sum up, here are the generalized representations of the anterior, posterior, anterior-durative and posterior-durative functions:

Figure 13: Anterior

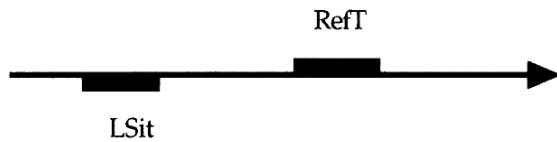


Figure 14: Posterior



Figure 15: Anterior-durative

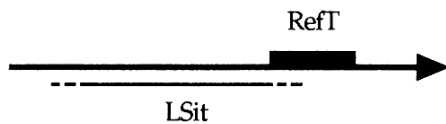
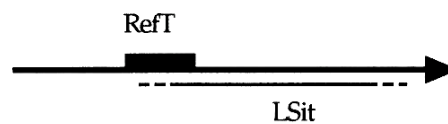
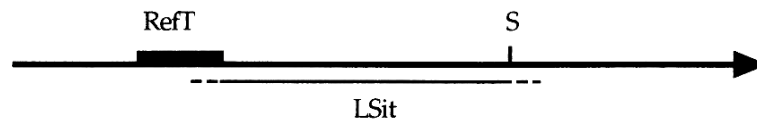


Figure 16: Posterior-durative



The more specific meaning of English *since* (which we may call *posterior-present-perfect*) can be represented as in Figure 17.

Figure 17: Since (Posterior-present-perfect)



2.4. Temporal distance

In addition to locating situations by marking them as simultaneous with, prior to or subsequent to other situations, we can locate situations even more accurately by indicating their temporal distance from a prior or subsequent reference point. This of course presupposes that temporal distance can be measured. In almost all cultures counting is used, and we have already seen that the cyclic time units (day, month, year, etc.) can be used for quantifying temporal extent. When measuring temporal extent, these units are used somewhat differently compared to their use in locating situations. When *year* is used to locate a situation, it denotes a period with a fixed initial point (January 1st) and a fixed terminal point, i.e. it is used **calendrically**. Thus, the time adverbial *last year* can refer to the day before the moment of speech if spoken

on January 1st. By contrast, when used to measure temporal extent, *year* denotes a period of 365 days (or 360 days, in the bankers' convention) with no fixed beginning, i.e. it is used non-calendrically or **mensurally** (see LEECH (1969:113ff.) and FILLMORE (1971:31) for discussion of this distinction). Most time units can be used both calendrically and mensurally, although the calendric use of the smaller time units (hour, minute, second) is less likely. The qualitative periods (seasons and parts of the day) and calendar unit names (Wednesday, March, etc.) cannot of course be used mensurally.

Time units indicating temporal distance may be used alongside with the regular anterior and posterior markers, as in E25-26(a-b).

E25. Croatian/English

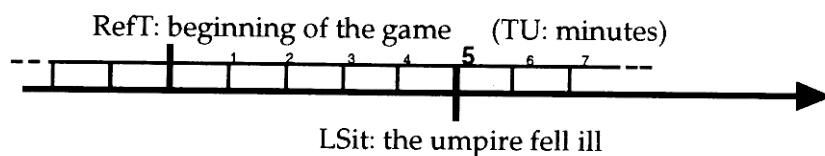
- a. *A Isus prije vazma na šest dana dodje u Betaniju.* (John 12.1)
and Jesus before passover by six days came in Bethany
- b. *Then Jesus six days before the passover came to Bethany.*

E26. Russian/English

- a. *Čerez pjat' minut posle načala metča sud'ja zabolet.*
through ten minutes after beginning match.GEN umpire fell.ill
- b. *Five minutes after the beginning of the game the umpire fell ill.*

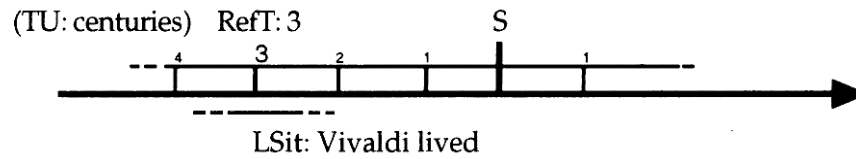
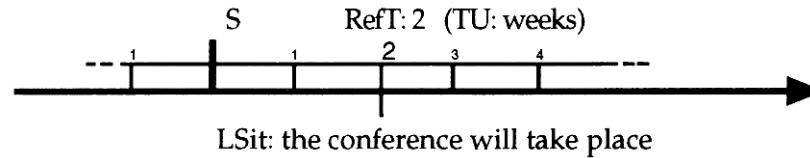
The situation in E26 can be represented as in Figure 18:

Figure 18: *Five minutes after the beginning of the game the umpire fell ill.*



Cross-linguistic variation in the marking of distance expressions in cases like these is treated briefly in §6.3, but in general my data on this construction are very scant. Distance expressions of this type are probably very rare in naturally occurring speech.

But there is a type of distance marking that is much more common and for which it is not difficult to obtain descriptions: marking of distance from the moment of speech. Depending on whether the located situation precedes or follows the moment of speech, I distinguish the two functions **distance-past** ('ago') and **distance-future** ('in'). They are illustrated in Figures 19-20:

Figure 19: Vivaldi lived three centuries ago**Figure 20: The conference will take place in two weeks' time**

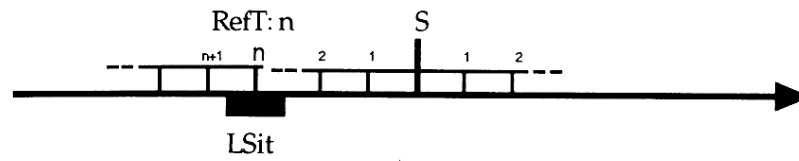
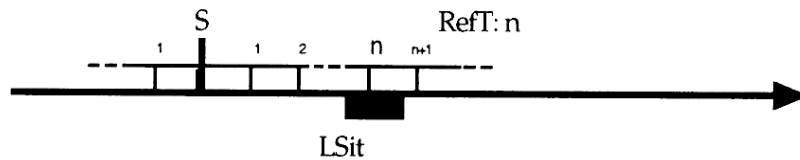
This is thus another semantic function which crucially involves a deictic component. It is interesting that in quite a few languages the formal marking of distance with respect to the moment of speech should be so different from the marking of distance with respect to an explicitly indicated point of time. The cross-linguistic marking of the distance functions will be discussed in detail in chapter 6.

Before leaving temporal distance, I would like to mention another semantic sub-type, which is similar to the distance-past and distance-future functions, but in which the deictic center is not the moment of speech. Examples are given in E27a-b.

- E27. a. Next year's elections are scheduled for September 29th. The election campaign will begin **two months before**.
- b. Our dog fell ill on our wedding day. **Three days later** she had to undergo hysterectomy surgery.

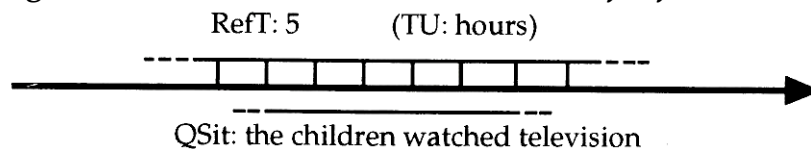
In these examples, the distance is measured with respect to a reference point which is different from the moment of speech. I call these semantic functions **distance-retrospective** and **distance-prospective**, respectively. In English, the formal marking is different from that of the distance-past/future functions. Other languages make no such distinction, as will be discussed in greater detail in §6.3 below.

To sum up, here are the generalized representations of the distance-past and distance-future functions:

Figure 21: distance-past ('ago')**Figure 22: distance-future ('in')**

2.5. Temporal extent

Adverbials marking temporal extent are like temporal distance adverbials in that time is measured, but unlike all the adverbials discussed so far in §2.2-4, extent adverbials characterize a situation not by locating it in time, but by indicating its length. This means that only durative situations can be qualified by an extent adverbial. The most common kind of extent adverbial is the semantic function that I call **atelic extent**, i.e. an adverbial that indicates the length of an atelic situation.¹² A typical example is *The children watched television for five hours*. This is represented in the diagram in Figure 23:

Figure 23: *The children watched television for five hours*

As in the case of the anterior-durative and the posterior-durative functions, there is no entailment that the situation began or ended at a particular time.

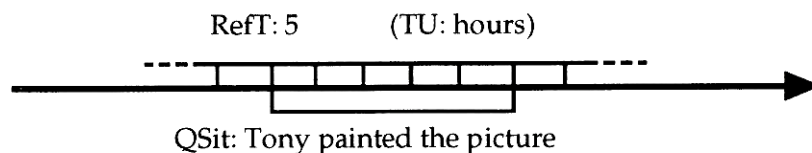
¹² My terms *atelic extent* and *telic extent* are innovations. They have the disadvantage of suggesting that the extent is telic or atelic, whereas in fact it is the verbal situation that is telic or atelic. However, I know of no better pair of terms in English. I have encountered the following terms in the literature:

<i>atelic extent</i>	<i>telic extent</i>	(this work)
<i>durative adverbial</i>	<i>frame adverbial</i>	(e.g. PUSTEJOVSKY 1991, HERWEG 1990:37)
	<i>Frist-Adverbial</i>	(NERBONNE 1985)
<i>Zeitdauer</i>	<i>Zeitbedarf</i>	(EKKEHARD KÖNIG, p.c.)
<i>Duration-Measuring Adverbial</i>		(VERKUYL 1973:583)

The beginning and the end can be inferred by implicature, but this implicature can be canceled, e.g. *The children watched television for five hours, and in fact all day.*

Another kind of extent adverbial is the semantic function that I call **telic extent**, i.e. an adverbial that indicates the length of time that it takes for a telic situation to be completed. A typical example is *Tony painted the picture in five hours*. In contrast to atelic extent adverbials, telic extent adverbials always characterize a bounded, telic situation, and it makes no sense to say **The children watched television in three hours*, or **I slept in twenty minutes*. It is not easy to specify the difference in the meanings between the two types of extent adverbials, but the different combinatory possibilities are so salient that the distinction between telic and atelic extent adverbials has become one of the most important tests for telicness (VENDLER 1957, DOWTY 1979). The diagrammatic representation of a telic extent adverbial is thus very similar to that of atelic extent adverbials:

Figure 24: *Tony painted the picture in five hours.*



In Figure 24, the boundedness of the situation is indicated by the vertical lines at both ends of the horizontal line that symbolizes the quantified situation.

Atelic extent adverbials are most often used with stative quantified situations (e.g. *They lived in Harare for five years*), and since atelic extent adverbials are completely impossible here, the two functions are easy to distinguish. However, telic situations in which atelic-extent adverbials are impossible are not so easy to find. Thus, in English the choice of the indefinite article makes E28a acceptable, and in German the object preposition *an* atelicizes the verbal situation (cf. E28b).

E28. a. English

*Tony painted *the/a picture for five hours.*

b. German

*Tony malte *das Bild/an dem Bild fünf Stunden lang.*

Thus, telic extent adverbials are not easy to recognize when only positive data are available. Only ungrammatical combinations like **I slept in twenty minutes* can give us certainty that we are dealing with a telic extent adverbial, not an atelic extent adverbial. Coupled with the lack of data on telic extent adverbials

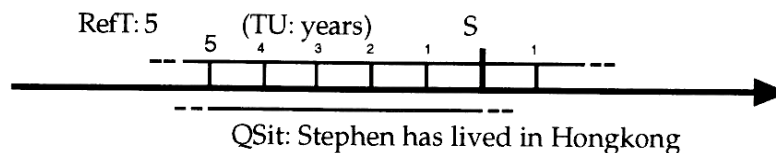
in the Comrie-Smith grammars and their rarity in the New Testament, this means, unfortunately, that my data on telic extent adverbials are fairly incomplete.

There is a third type of extent adverbial which I want to discuss here, although it is actually a mixture of location, distance and extent adverbial. Some typical examples are given in E29. I call this function **distance-posterior**, a choice which will be explained below.

- E29. a. (English) *Stephen has lived in Hongkong for five years.*
 b. (German) *Stephen lebt seit fünf Jahren in Hongkong.*
 Stephen lives since five years in Hongkong
 c. (Spanish) *Stephen vive en Hongkong desde hace cinco años.*
 Stephen lives in Hongkong since ago five years
 d. (Persian) *Stephen az panj sâl-e piš dar Hongkong zendegi*
 Stephen from five year-ATTR ago in Hongkong life
mi-kon-ad.
 IMPF-do-3SG

If we just look at English, it appears that nothing special is going on – this is just a regular atelic extent adverbial combined here with a verb in the present perfect tense, which yields the meaning that the five-year period in question extends into the present, i.e. that it began five years before the moment of speech. The diagrammatic representation is shown in Figure 25:

Figure 25: *Stephen has lived in Hongkong for five years.*



In German, by contrast, the adverbial *seit fünf Jahren* looks more like a posterior-durative adverbial, because it shares the preposition *seit* ('since') with the posterior-durative function (cf. *seit 1994* 'since 1994'). And indeed, Figure 25 is also basically compatible with the posterior-durative function, and more particularly with the posterior-present-perfect meaning of English *since* and German *seit* (cf. §2.3, Figure 17). The only difference is that the reference time is an independently specified point or period in the posterior-durative function, but a point identified by retrospective distance measurement in the distance-posterior extent function. Literally E29a could be paraphrased by 'Stephen has lived in Hongkong since five years ago'. Thus, the distance-posterior function

can be thought of as a combination of the posterior-durative ('since') function and the distance-past ('ago') function, which explains my choice of the name (*distance-posterior*). Interestingly, there are languages such as Spanish and Persian, where the overt marking is transparently composed of these two markers, as shown in E29c-d (*desde* 'since', *hace* 'ago'; *az* 'since', *piš* 'ago').

One might ask whether the counterpart of the distance-posterior type exists as well. A priori, we would certainly expect this, because precedence and subsequence, past and future are typically fairly symmetric in languages. A "distance-anterior" function would occur in a sentence like 'I will live in this cheap apartment until in two years'. I know of no language that has a special marker for this meaning. To express this meaning naturally, English would again use the simple atelic extent marker (cf. E30a), but so would German (cf. E30b).

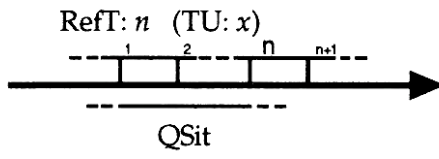
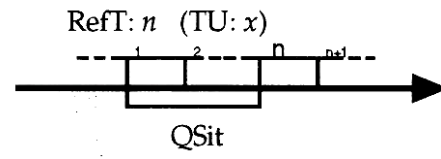
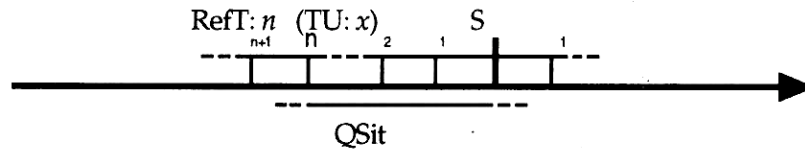
E30. a. (English) *I will live in this cheap apartment for two years.*

b. (German) *Ich werde zwei Jahre lang in dieser billigen Wohnung leben.*

The overlap with the moment of speech is not expressed in these sentences, but it would be possible to make it explicit by adding *more* in English (*two more years*) and *noch* in German (*noch zwei Jahre lang*), with a result that would be parallel to E29a-b for most purposes. However, I do not distinguish a special "distance-anterior" function because I am not aware that any language deviates from the pattern in E30a-b in an interesting way in expressing this meaning (but see §5.5, footnote 5, for two French prepositions with a related meaning).

The three functions atelic extent, telic extent and distance-posterior are shown in the generalized diagrams on the following page:¹³

¹³ For more discussion of the semantics of extent adverbials, see TEN CATE (1984), DEHON (1993), LENARDUZZI (1993).

Figure 26: *Atelic extent*Figure 27: *Telic extent*Figure 28: *Distance-posterior*

Chapter 3

General issues

In this chapter I will discuss a few further general points: First, I will discuss the extent to which markers of NP-based time adverbials are deictic (§3.1); second, I will list a few semantic functions of time adverbials that have not been included in the cross-linguistic study but that should at least be mentioned (§3.2); finally, I will discuss a number of languages that do not employ NP-based time adverbials for some of the semantic functions, resorting to alternative constructions instead (§3.3).

3.1. Deixis in temporal adverbials

Temporal adverbials often include a deictic meaning component. This is evident with adverbs like *today*, *yesterday* (contrasting with non-deictic or anaphoric *on that day*, *the day before*), but there are non-lexical markers which signal a deictic distinction, too. In English, the presence or absence of the definite article may be significant, as pointed out by ALLEN & HILL (1979) (e.g. *Two weeks ago Frank promised to come the/∅ next Monday*).

However, in this section I will concentrate on deictic meaning expressed by the adverbial marker itself. In chapter 2 we saw that among the various semantic functions of NP-based time adverbials, it is particularly the distance functions that commonly incorporate a deictic meaning component, i.e. contain a reference to the moment of speech (cf. ch. 6 for more details). The anterior and posterior functions are never combined with deictic meaning, as far as I can determine - i.e. no language has different expressions for 'after the storm' depending on whether the storm precedes, follows or coincides with the moment of speech. But we also saw that deixis is often present in the posterior-durative function, where e.g. English has a contrast between *since* and *from (...onward)*, and in the distance-posterior function (cf. §2.3 and §5.4).

The function to be highlighted in this section is the simultaneous location function and its deictic properties. As a rule, NP-based simultaneous adverbials are non-deictic, i.e. the forms of 'at five o'clock', 'at Christmas', 'in the morning' do not depend on the relation between the reference times and the moment of speech. This contrasts with time adverbs, which are often deictic, e.g.

'yesterday', 'tomorrow', 'now', 'soon'. However, there are interesting exceptions to this generalization.

Four languages of my sample have clear examples of simultaneous location markers containing a deictic meaning component: Maori, Tagalog, Swedish and Greenlandic Eskimo. Maori and Tagalog are both Austronesian, so conceivably these two cases are related (although they are fairly distant from each other, both genetically and geographically). Maori has different prepositions for past and future location: *i* or *noo* express past simultaneous location, while *a* or *hei* express future simultaneous location. The marker *kei* is used for both present and future location. This is illustrated in E31-32.

Maori (BAUER 1993)

- E31. a. *I te Mane, ka haere atu raatou ki Rotorua.* (p. 341)
 at.PAST the Monday TNS move away they to Rotorua
 'On Monday, they went to Rotorua.'
- b. *A te Raatapu, ka hoki ia ki te kaainga.* (p. 342)
 at.FUT the Sunday TNS return s/he to the home
 'She will return home on Sunday.'
- E32. a. *Noo te marama o Mahuru ka mate ia.* (p. 342)
 at.PAST the month of September TNS die s/he
 'She died in the month of September.'
- b. *Kei te tau 1990, ka tuhi ahau i teetahi pukapuka.* (p. 343)
 at.PRES the year 1990 TNS write I DO a.SPEC book
 'In 1990, I am writing a book.'
- c. *Kei te haere koe ki hea a te Aranga?* (p. 344)
 TNS < move you to where at.FUT the Easter
 'Where are you going at Easter?'

That temporal prepositions incorporate an element of temporal deixis is unusual, but Maori has an even more surprising related feature: Its spatial prepositions, too, have a meaning component of temporal deixis. Past spatial location is marked by *i*, present location by *kei*, and future location is marked by *kei/hei/ko* (see BAUER (1993:309-313), where further details are provided). Clearly, the Maori deictic temporal prepositions are based on the deictic spatial prepositions. However, this differentiation is found only in non-verbal sentences where the prepositional phrase is the predicate:

- E33. a. *I te kura ia.* 'She was at school.'
 at.PAST the school s/he
- b. *Kei te kura ia.* 'She is at school.'
 at.PRES the school s/he
- c. *Kei/Hei/Ko te kura ia.* 'She will be at school.'
 at.FUT the school s/he

In view of the restriction of this tense variation to non-verbal sentences, one might suspect that the prepositions in E33 are really locational verbs (*i* 'was at', *kei* 'is at', *kei/hei/ko* 'will be at').¹ The sentences in E31-32 could then perhaps be regarded as biclausal (E31a: 'It was on Monday, they went to Rotorua'). However, some temporal location markers lack corresponding spatial tense-marked prepositions (e.g. *noo*, *a*). I must leave the deeper analysis of these fascinating facts to the specialists of Maori.

In Tagalog, the usual locative marker, the preposition *sa*, is often restricted to future time reference. When past time reference is intended, the preposition *noong* (*noon* 'then' plus linker *-ng*) is used:

- E34. Tagalog (SCHACHTER & OTANES 1972:440-42)
- a. *sa Lunes* 'on Monday, next Monday'
 noong Lunes 'on Monday, last Monday'
- b. *sa Enero* 'in January (of next year)'
 noong Enero 'in January (of last year)'
- c. *sa makalawa* 'the day after tomorrow'
 noong makalawa 'the day before yesterday'
- d. *sa isang linggo* 'next week, in one week (from now)'
 noong isang linggo 'last week, one week ago'

This restriction of *sa* to future time contexts concerns only a sub-class of expressions for reference times: calendar unit names, *makalawa*, and expressions like E34d. With other reference times, *sa* can also refer to the past, e.g. E35.

- E35. Tagalog (SCHACHTER & OTANES 1972:440)
- Dumating kami roon sa umaga.*
 come we there in morning
 'We arrived there in the morning.'

¹ There is probably also some relation to the system of tense-aspect markers. The particle *i* also occurs as a past tense marker.

The Swedish deictic component is quite restricted. With days of the week and seasons, the preposition *i* 'in' (governing the old genitive in -s) refers to the past, whereas the preposition *på* 'on' refers to the future:

E36. Swedish

<i>i måndags</i>	'last Monday'	<i>på måndag</i>	'next Monday'
<i>i vintras</i>	'last winter'	<i>på vintern</i>	'next winter'

However, with parts of the day *i* may also refer to the future (but within the same day), whereas *på* is used more generally. (Thus, *i* is similar to English *to in today, tonight*.)

E37. <i>i natt</i>	'tonight'	<i>på natten</i>	'at night'
<i>i kväll</i>	'this evening'	<i>på kvällen</i>	'in the evening'

And finally, in Greenlandic the qualitative periods (parts of the day and seasons) are used in their base form when the reference is to the past or present (the demonstrative *manna* 'this' is added in the latter case), and take the affix *-gu* when the reference is to the future:

E38. Greenlandic Eskimo (FORTESCUE 1984:237-40)

a. <i>unnuk</i>	<i>unnuk manna</i>	<i>unnu-gu</i>
'(earlier) this evening'	'(later) this evening'	'this (coming) evening'
b. <i>ualiq</i>		<i>uali-ru</i>
'this afternoon'		'this (coming) afternoon'
c. <i>upirnaaq</i>	<i>upirnaaq manna</i>	<i>upirnaa-ru</i>
'last spring'	'this spring'	'next spring'

In addition, in clausal expressions of temporal relations, the difference between the Causative mood and the Conditional mood also results in a deictic distinction:

E39. Greenlandic Eskimo (FORTESCUE 1984:238)

a. <i>ataasi-nngur-mat</i>	'last Monday'
one-become-CAUSAT.3SG	
b. <i>marlu-nngur-pat</i>	'on (next) Tuesday'
two-become-CONDIT.3SG	

These four languages are sufficient to show that temporal location markers may be associated with a deictic meaning component, although this is not very common. More cases from different families must be examined before any cross-linguistic generalizations can be ventured.

3.2. Some additional semantic functions

The semantic functions that were discussed in chapter 2 are the major semantic distinctions made in NP-based time adverbials, but there are a number of additional semantic functions that I have not investigated systematically and that will not play a prominent role in this work. For the sake of completeness, I mention here some of the distinctions that I have encountered in several languages and briefly discuss their properties.

3.2.1. Medial

Most languages seem to have a way of locating a situation between two reference times, e.g. *Tuva was an independent nation between 1921 and 1944*. Two further examples are shown in E40a-b.

E40. a. Finnish

joulu-n ja uuden vuode-n välillä
 Christmas-GEN and new year between
 'between Christmas and the New Year'

b. Japanese

kurisumasu to sinnen no aida-ni
 Christmas and New.Year GEN between-DAT
 'between Christmas and the New Year'

The spatial concept 'between' is a readily available and unproblematic model for expressing temporal intervals. I have not come across a language that does not use its spatial 'between' expression in the temporal sense, so I did not consider this semantic function sufficiently interesting to warrant a detailed study.

3.2.2. Approximative

Some languages have a special adposition marking approximate simultaneous location in time. Particularly with times and periods of the day it is often useful to have such a marker which corresponds to 'near' in the spatial domain. However, the spatial 'near' is not commonly extended to a temporal sense. Rather, the spatial concept 'toward, against' is often used in Europe (e.g. German *gegen*, Italian *verso*, French *vers*, Russian *k*, Turkish *doğru*). Another spatial source is the concept 'around' (Russian *okolo*, English *around*). A few examples are shown in E41-42.

E41. a.	German	<i>gegen zehn Uhr</i>	lit. 'toward ten o'clock'
	b.	Turkish <i>akşama doğru</i>	lit. 'toward evening'
	c.	Italian <i>verso mezzogiorno</i>	lit. 'toward noon'
E42. a.	Russian	<i>okolo desjati časov</i>	lit. 'around ten o'clock'
	b.	German <i>um die Mittagszeit</i>	lit. 'around noon'

3.2.3. Perdurative

Another meaning that is sometimes represented by a special adposition is that of English *throughout*, i.e. 'during the whole duration of' (*throughout the summer*). In English, the preposition *throughout* is clearly based on the spatial *throughout* (*The epidemic spread throughout the country*). In Dutch, the preposition *gedurende* has this function, but its source is analogous to that of English *during*, Italian *durante*, etc. (Dutch *duren* 'to last'). According to VERKUYL (1973:584), its meaning must be described by means of a universal quantifier, like English *throughout*: *Gedurende de vergadering zat hij te lezen* 'Throughout the conference he sat reading'. Thus, both a spatial and a non-spatial model can give rise to the perdurative meaning.

3.2.4. Purposive extent

An example of the function that I call *purposive extent* is *They went to Vilnius for two years*. Here the preposition combines with a noun phrase denoting a time span, but its meaning is not entirely temporal. The sentence can be paraphrased by 'They went to Vilnius in order to stay there for two years'. Thus, the meaning of purpose is also a semantic component of *for* in this function. Purposive extent adverbials very often occur with verbs of movement, but it is

not possible to say that *for x time units* generally means 'in order to stay for *x* time units'. For instance, E43a-b are unacceptable.

- E43. a. **I bought a ticket to Vilnius for two years.*
 (...in order to stay there for two years')
 b. **I sent a letter to Cairo for two weeks.*
 ('in order to spend two weeks there')

I propose the following semantic description of purposive-extent *for (x time units)*: 'in order to preserve the effect of the action for (*x* time units)'. Thus, *I borrowed the book for two months* means 'I borrowed the book in order to keep it (=preserve the effect of borrowing) for two months'. In fact, while E43a-b cannot have the paraphrases given above, they are possible on a different, though pragmatically unlikely reading: 'I bought a ticket in order to keep it for two years', and 'I sent a letter to Cairo to remain there for two weeks'.²

It appears to be typical of purposive extent markers that they are based on purposive markers. This is the case in English, but also in the languages in E44.

- E44. a. German

Irgendwann fahren wir für drei Tage nach Hiddensee.

'Some day we'll go to Hiddensee for three days.'

- b. Abkhaz (HEWITT 1979:147)³

y̆ḁ-mčəbʒa h̆a s-aa-yt'
 two-week say 1SG-come-FIN

'I came for two weeks.'

- c. Basque (-*rako*: Destinative case)

Astebete-rako etorri naiz.

week-DEST come 1SG.ABS.AUX

'I have come for a week.'

- d. Finnish (SULKALA & KARJALAINEN 1992:262; -*ksi*: Translative case)

Marja lähtee vuode-ksi Somalia-an.

Marja go.3SG year-TRANSL Somalia-ILL

'Marja is going to Somalia for a year.'

² More discussion of the semantics of purposive extent (French *pour*) is found in BERTHONNEAU (1991).

³ *h̆a* 'say' occurs elsewhere in purposive function.

e. Romanian

A plecat pe o lună.
 has left for a month
 'He left for a month.'

f. Swedish

Sandra resade bort på några dagar.
 Sandra traveled away for some days
 'Sandra left for a couple of days.'

g. Latvian (NICOLE NAU, p.c.)

Es uz pāris stund-ām aiz-ie-šu uz bibliotēk-u.
 I for couple hour-PL.DAT away-go-FUT.1SG to library-ACC
 'I'm going to the library for a couple of hours.'

3.2.5. Regular recurrence

Many languages have a special adposition or case for the canonical time periods when they qualify a regularly recurring event, e.g. 'every day', 'every Sunday', 'every morning', etc. Some examples are shown in E45-46.

E45. a. Russian (distributive preposition *po*)

Po subbotam my xodim v kino.
 DISTR Saturdays we go to cinema
 'On Saturdays we go to the movies.'

b. Swedish (preposition *om*)

om lördagarna 'on Sundays'
om morgnarna 'in the mornings'

c. Polish (preposition *na*)

na każdy miesiąc 'every month' (vs. *w miesiącu* 'in the month')
na każdy sabat 'every Sabbath' (vs. *w sabat* 'on Sabbath')

d. Tagalog (*kung* lit. 'when')

kung umaga '(reg.) in the morning' (lit. 'when it's morning')
kung Linggo 'on Sundays' (lit. 'when it's Sunday')

e. Udmurt (distributive postposition *byde*)

minutly byde 'every minute'
nunally byde 'every day'

f. Hixkaryana (postpositions *rye* 'uniformly the same', *yohI* 'regularly')

sekunta rye ho 'on Mondays'
sekunta yohI 'regularly on Monday'

- E46. a. Turkish (special suffix *-leyin*)
sabah-leyin '(regularly) in the morning'
akşam-leyin '(regularly) in the evening'
- b. Abkhaz (special prefix *es-*, or Instrumental case *-la*; HEWITT 1979:146)
es-k'ərsa/k'ərsa-la 'every Christmas'
es-yanâr/yanâr-la 'every January'
- c. Greenlandic Eskimo (Prosecutive case *-kkut*; FORTESCUE 1984:240)
ukiu-kkut '(regularly) in the winter'
ataasinngurni-kkut 'on Mondays'
ullaa-kkut '(regularly) in the morning'

In principle, it should be possible to distinguish between a universal-distributive meaning, e.g. 'every Sunday', and a meaning that merely involves regular recurrence but does not require universality, e.g. 'on Sundays'. However, in practice it is very difficult to keep these two strictly apart.⁴ The option of using a universal-distributive quantifier seems to be available in most languages, so I will not illustrate it further here (see also §7.6, E146, for further examples). Sometimes the marker used for regular recurrence is used more generally in the distributive function, e.g. Russian *po*, Udmurt *byde* (see HASPELMATH (1995) for the connection between distributive adpositions and universal quantifiers). In other cases, the plural of the time unit is sufficient to denote regular recurrence (of course, this is possible only with calendar unit names and qualitative periods, not with time units):

- E47. a. Basque
asteazken-etan (Wednesday-PL.LOC) 'on Wednesdays'
arratsalde-etan (afternoon-PL.LOC) ' (reg.) in the afternoon'
azaro-etan (November-PL.LOC) '(reg.) in November'
- b. Maori (BAUER 1993:345)
i ngaa ata at the.PL morning *i ngaa ahiahi* at the.PL morning
 '(reg.) in the morning' '(reg.) in the evening'
- c. Latvian (NICOLE NAU, p.c.)
vakaros (evening.LOC.PL) '(reg.) in the evening'
pirmdienās (Monday.LOC.PL) 'on Mondays'
- d. Udmurt
žyt-jos-y (evening-PL-ILL) '(reg.) in the evening'
subbota-os-y (Saturday-PL-ILL) 'on Saturdays'

⁴ In the Comrie-Smith grammars, section 2.1.1.6.2 is entitled "frequentative". The authors of the grammars give examples glossed sometimes by 'every', sometimes by English plurals.

3.3. Alternatives to NP-based time adverbials

There is no denying that there is an ethnocentric bias in the choice of the semantic functions for this study. Many non-industrialized cultures are not as obsessed with time as we are, and many languages outside of Europe have traditionally lacked the rich nomenclature for calendar units and temporal relations that we find in European languages. Due to the European bias in my sample, this is not sufficiently reflected in my data, and to make up for this shortcoming I will use this section to highlight some languages spoken far away from the centers of Western technology and capitalist economy. In most cases, the available descriptions of such languages are simply silent about the more complex temporal units and relations, but some of the Comrie-Smith grammars explicitly say that certain constructions are not possible. In the present final subsection of this chapter I will discuss languages in which some of the core semantic functions cannot be expressed by NP-based time adverbials, so that they have to resort to alternatives in order to render the same ideas.

I begin with simultaneous temporal location. This is probably the least problematic temporal relation, and I know of no language that completely lacks NP-based simultaneous adverbials. However, not all of the canonical time periods occurring in expressions of simultaneous location are universal. According to DERBYSHIRE (1979:120-23), Hixkaryana has traditionally lacked words for 'hour', days of the week, months of the year, and expressions for particular years, and the concept of specific festivals on certain days or occasions is a new one. Similarly, speakers of Kobon (a language of Papua New Guinea, DAVIES 1981:140-45) have not traditionally known hours and weeks, and the lunar cycle has not been related to the solar cycle, so that months could not be identified by their position within the year. Not surprisingly, the words for 'hour' and 'week' are often the youngest words in a language, and were often borrowed from a dominant culture with more concern for time (e.g. Chechen *saht*, Nkore-Kiga *eshaaha*, Swahili *saa* from Arabic *saa* *ʕOat*; English *hour*, German *Uhr* from Latin *hora*, etc.). However, all of these considerations are of less concern to linguistics than to anthropology, and there is a rich anthropological literature on time measuring in non-Western cultures (e.g. HALLOWELL 1939, FETTWEIS 1958, MÜLLER 1962, ALVERSON 1994). Just for illustration, let me mention a few of the alternatives to precise time-of-day specifications in non-Western cultures.

DAVIES (1981) cites a rich array of expressions in Kobon for the time of day, e.g.

E48. Kobon (DAVIES 1981:141-43)

- a. *Ram jin par#k-ab (yad warak-em au-bin)*
 [earth star cover-PRES.3SG] I stand-SS.1SG come-PERF.1SG
 '(I got up) as the stars were disappearing' (4.30-4.00 h)
- b. *Ram ru-n#g g-ab*
 [earth dawn-PURP do-PRES.3SG]
 'just before daybreak' (about 5.30 h)
- c. *Ru mailö l-öp*
 [dawn daylight put-PERF.3SG]
 'at daybreak' (about 6.00 h), etc.

Similarly, SCHAUB (1985) cites a number of expressions from Babungo (Grassfields Bantu, northwestern Cameroon), e.g.

E49. Babungo (SCHAUB 1985:164)

- a. *ŋwá nú jwì fáŋ vəkì fúu būsē*
 he PAST come.PF [when women go.out.IMPF farm]
 'He came at the time when women go to the farm.' (ca. 8-9 h)
- b. *ŋwá nú jwì fáŋ yizɔ kwà fɛ bũ'tə*
 he PAST come.PF [when sky release.PF from noon]
 'He came when the sky got away from noon.' (ca. 13 h)
- c. *ŋwá nú jwì fáŋ vəkì kúuná fɛ būsē*
 he PAST come.PF [when women return.IMPF from farm]
 'He came at the time when women return from the farm.' (ca. 17 h)

Thus, speakers may be fairly specific about the time of the day even if no clock technology is available to them. However, since all these expressions are adverbial clauses rather than NP-based adverbials, they fall outside the scope of this study.

In Hixkaryana, even the borrowed expressions of time of the day take the form of an adverbial clause:

E50. Hixkaryana (DERBYSHIRE 1979:122)

- setxe yoras me eh-toko, #teko*
 [seven hours DENOM be-TEMP] I.went
 'I went at seven o'clock.' (Lit. 'I went when it was seven o'clock.')

While NP-based simultaneous location markers are probably universal, the same cannot be said of sequential markers. In three languages of my sample, the usual way of saying 'before X' and 'after X' is 'before X happened', 'after X was' and similar adverbial clauses. Examples from Nkore-Kiga and Tagalog are given below (the third language is Babungo, SCHAUB 1985:170-71).

E51. Nkore-Kiga (TAYLOR 1985:121)

- a. *n-ka-ba n-di aha orw'okubanza ru-ta-ka-izire*
 I-REM.PAST-COP I-be here [Monday it-not-yet-come.PF]
 'I was here before Monday.'
 (Lit. 'I was here when Monday had not yet come.')
- b. *n-dya-ba n-di aha [orw'okubanza rw-a-hingwire*
 I-REM.FUT I-be here [Monday it-REM.PAST-pass.PF]
 'I'll be here sometime after Monday.' (Lit. 'I'll be here when Monday passes.')

E52. Tagalog (SCHACHTER & OTANES 1972:474-76)

- a. *Magpasyal tayo bago mag-alauna.*⁵
 take.walk we [before VERB-one.o'clock]
 'Let's take a walk before one o'clock.' (Lit. '...before it's one o'clock.')
- b. *Ang balak ni Herodes ay iharap siya sa bayan pagka-tapos*
 TOP plan GEN Herodes PT lead he.TOP at people [CONV-pass
ng pista (Acts 12.4)
 GEN festival]
 'Herodes intended to bring him forth to the people after passover.'
 (Lit. '...when passover has gone by.')

E53. Kobon (DAVIES 1981:146)

- a. *Hon nöd aui m†d-aj-un hainö Oktoba ten ar-öp.*
 we before here be-DUR-PAST.1PL [after October tenth go-PERF.3SG]
 'We were here before the tenth of October.'
 (lit. 'We were here before, October tenth came afterwards.')
- b. *Made lug-n†g g-ab hon aui m†d-ei-nab-un.*
 [Monday fall-PURP do-PRES.3SG] we here be-DUR-FUT-1PL
 'We will be here after Monday.'

A number of languages also employ clausal adverbials for the distance-past and distance-future functions. For Hixkaryana, DERBYSHIRE (1979) finds no way of expressing the distance-past function, and he only gives a biclausal example

⁵ *mag-ala-una* is a verb derived from *ala-una* 'one o'clock' (borrowed from Spanish *a la una*).

for distance-future (E54 below). For Babungo, SCHAUB (1985:169) notes that the two distance functions "cannot be expressed in a single phrase, only by a separate clause or sentence".

E54. Hixkaryana (DERBYSHIRE 1979:124)

Duwas oras me exe-txhe komokyaha harha.
 [two hours DENOM be-POSTR] I.come back

'I'll return in two hours.' (Lit. '...when it's two hours.')

E55. Babungo (SCHAUB 1985:169)

a. *ɲwá taa jwì fáj vəshī vəbɔɔ shɔɔ*
 he FUT come [when days two pass.IMPF]

'He'll come in two days.' (Lit. '... when two days have passed.')

b. *ɲwá kú. ndwá lùu ɲú'sā bɔɔ*
 [he die] [now be years two]

'He died two years ago.' (Lit. 'He died. It's now two years.')

Although these clausal circumlocutions may seem fairly exotic at first sight, we will see in later chapters that there are in fact fairly similar constructions in some of the familiar European languages (e.g. Italian *Maria è venuta due anni fa* 'Maria came two years ago', lit. '...it makes two years'). The only difference is that in many of these languages the "biclausal constructions" show some degree of grammaticalization, so that the resulting constructions can also be regarded as NP-based time adverbials. The greater degree of grammaticalization in European languages is presumably due to the greater frequency with which such time adverbials are used in Western culture.

Chapter 4

Sequential location

The first notional domain that will be discussed from a cross-linguistic perspective is that of the anterior and posterior functions, i.e. sequential location. These two functions are formally parallel in many ways.

4.1. Anterior/posterior based on spatial front/back

The space-to-time hypothesis can be tested quite easily on the expressions used for the temporal anterior and posterior functions. These two notions are among the simplest temporal relations because neither the nature of the reference time nor the nature of the located situation is relevant for them. The cross-linguistic evidence overwhelmingly confirms the view that time is conceptualized in terms of space, more particularly in terms of the frontal axis. A large number of languages from a wide variety of families show this association either synchronically or diachronically. In almost all cases, the front is associated with 'before' and the back is associated with 'after'. Table 4 on the next page lists those languages in which at least one of the 'before' and 'after' expressions are synchronically identical to the corresponding 'in front of' and 'behind' expressions.

In addition, there are a number of cases in which 'before' and 'after' adpositions are originally derived from spatial 'front' and 'back' expressions, but synchronically the two adpositions are not identical for one of a number of reasons. These cases are discussed below in §4.3. Altogether there are thirty-three languages in my sample for which a current or earlier identity (or near identity) of spatial and temporal sequential markers can be established, contrasting with just seven languages in which at least one of the markers is clearly not based on a spatial expression. (In the other languages, the original meaning of the anterior/posterior markers is spatial but not anterior/posterior, or it is not known.) These seven languages and their markers are discussed in §4.4 below.

Table 4: Languages with identical spatial and temporal anterior/posterior markers

	'before' = 'in front'	'after' = 'behind'
German	<i>vor</i>	
Latin	<i>ante</i>	<i>post</i>
Russian	<i>pered</i>	
Polish	<i>przed</i>	
Albanian	<i>para</i>	<i>pas</i>
Hungarian	<i>előtt</i>	
Lithuanian	<i>prieš</i>	
Basque	<i>aurrean</i>	
Lezgian	<i>wilik</i>	<i>q'uluq^h</i>
Hebrew	<i>lifney</i>	
Maltese		<i>wara</i>
Hausa		<i>baayan</i>
Japanese	<i>mae ni</i>	
Tamil	<i>munnaale</i>	<i>pinnaale</i>
Maori	<i>mua</i>	<i>muri</i>
Greenlandic	<i>siurn-a-</i>	<i>kingurn-a-</i>
Chechen	<i>halxa</i>	
Nanay	<i>žulieleni</i>	
Udmurt	<i>ažyn</i>	

The data of my study thus largely confirm HILL's (1978:524) claim that "in most languages the lexical resources used for representing orientation along the front/back axis in horizontal space are also used for temporal orientation". But while the cross-linguistic data do show a clear preference for the spatial option, it is also clear that it is not the only option. We thus cannot simply say that humans think of sequential relations in terms of the spatial frontal axis – we have to say that there is a strong tendency for them to do so.

4.2. The front/back orientation of the time line

In §1.8 I provided an explanation for why the time line is usually modeled on the frontal axis of space, rather than the lateral or the vertical axis. A further question concerns the orientation of the time line, i.e. why the temporal notion

'before' is systematically associated with 'in front', and 'after' is associated with 'behind'.

Before attempting an answer to this question, we have to characterize the meaning of 'in front of' and 'behind'. When the reference object is an animate being, this is straightforward: 'In front of' means 'near the side of the primary organs of perception' and/or 'near the side which arrives earlier at places when the animate being moves' (cf. FILLMORE 1971). This side is called the front side, and the opposite side is the back side. With animates, 'in front of' simply means 'near the front side of'. In addition to animates, some inanimate objects which are closely associated with human individuals (e.g. shoes, chairs, bicycles, houses) also have front and back sides, defined analogously. However, these criteria cannot be applied to inanimate objects which do not move and are not connected closely to human individuals, e.g. trees, stones and tables. Yet it is possible to say 'in front of the tree', 'behind the stone', 'in front of the table' in many (perhaps most) languages. The reason is that in addition to the **object-based** use of the front/back concepts, there is also a **subject-based** use,¹ in which objects are treated as if they were a mirror image facing a conscious subject. Thus, in Figure 29 person A would say that the soccer ball is in front of the tree, whereas person B would say that the soccer ball is behind the tree, although the tree does not have an inherent front or back side.

Figure 29.



When the reference object has an inherent front/back orientation, both the object-based and the subject-based descriptions are possible. Thus, in Figure 30 person A could say that the ball is in front of the bike (object-based), or that the ball is behind the bike (subject-based).

¹ In these terms, "subject" and "object" have their non-technical senses. Other term pairs have been employed for these two uses:

<i>object-based</i>	<i>subject-based</i>	(this work)
<i>non-deictic</i>	<i>deictic</i>	
<i>field-based</i>	<i>participant-based</i>	ALLEN & HILL (1979)
<i>nonegocentric</i>	<i>egocentric</i>	CLARK (1973)
<i>in tandem</i>	<i>mirror image</i>	VANDELOISE (1991)
<i>coincidence situation</i>	<i>encounter situation</i>	HERSKOVITS (1986:157)

Figure 30.



In order to predict how the meaning of the front/back axis is transferred to the time line, we have to determine whether reference times (reference situations) can be said to have inherent fronts and backs. Reference times of course are not animates, but they are commonly thought of as moving.

It has often been observed that there are two ways in which time can be conceptualized in terms of movement: Either time is stationary, and the observer in the world moves through it, or the observer in the world is stationary and time moves past him or her. These two models of conceptualization are called **moving-ego** and **moving-time** here, following CLARK (1973:50). Both models are attested elsewhere in the language, for instance:

E56. moving-ego

As we go through the years...
As we go further into the 1990s...
We're approaching the end of the year.
In the weeks ahead of us...
This coming Tuesday...
Bygone events

E57. moving-time

The time will come when...
The time for action has arrived.
Noon crept up on us.
Time flew by.
Thursday rushed by.

If time is thought of as moving, then points in time or time spans can also be thought of as having an inherent front-back orientation (CLARK 1973:50). Since time moves in the direction of the observer (or to the observer's now), earlier times are "in front" of later times. Thus, the two sentences in E58 are quite parallel:

E58. a. *The Christmas season is approaching, and Thanksgiving is before it.*

b. *The king's car is approaching, and the bodyguards' cars are in front of it.*

Given the moving-time model, the consistent relatedness of 'before'/'front' and 'after'/'back' is explained.

But now let us consider the other model of conceptualizing time, moving-ego. In this model, the observer moves from earlier moments to later moments and thus faces the future. In this situation, times do not have an inherent front-back orientation, so this axis can only be used in subject-based descriptions. Like objects in space, times and situations would be treated as occupying a mirror-image position. With regard to future situations, this would give the same result: If the observer "looks ahead" to a future event, say, his death, then situations that are earlier than his death are "in front" of his death. Thus, the use of a spatial 'in front' adposition in a sentence like *She wants to see her granddaughter before her death* can be explained both by the moving-time and by the moving-ego models. However, with regard to past situations, the moving-ego model makes a different prediction: If the observer "looks back" to a past event, say, his birth, then situations that are earlier than his birth are "behind" his birth. But recall from §3.1 that anterior/posterior adpositions are never sensitive to the deictic past/future distinction – there are no languages that invert their 'before' and 'after' adpositions in past situations. We can conclude that it is the moving-time model that is generally responsible for the use of spatial front/back terms as anterior and posterior markers.

Another interesting question is whether the transfer from the spatial domain to the temporal domain occurs equally often with anterior and posterior markers. Table 4 suggests that there is an asymmetry. 'Before' is identical to 'in front' in seventeen languages, but only eight languages show identity of 'after' and 'behind'. In eleven languages, only 'before' shows this identity, while there are only two languages where only 'behind' shows it. The data are not sufficient to prove conclusively that there is a significant asymmetry here, but such an asymmetry may well be motivated: According to VANDELOISE's (1991) semantic analysis, 'behind' is not defined purely by its topological position on the frontal axis, but additionally contains the functional meaning component 'hidden'. In the temporal domain, this meaning component has no place – earlier times or situations do not "hide" later times or situations. Thus, if VANDELOISE is right in his analysis of 'behind', this would provide an explanation for the slight asymmetry observed in Table 4: Due to its meaning component 'hidden', the spatial marker 'behind' is less suitable for transfer to the temporal domain than its counterpart 'in front'.

4.3. Diachrony and grammaticalization of sequential markers

In a number of languages, there is diachronic evidence showing that the 'before' and/or 'after' expressions were originally identical to the 'in front'/'behind' expressions, though this is no longer synchronically the case. In other instances the temporal expressions are only formally related to the spatial expressions, and it is not certain that the original meaning was spatial. But in each case the available evidence (synchronic or diachronic) is consistent with the hypothesis that temporal expressions are based on spatial expressions, never vice versa. The cases are shown in Table 5.

Table 5: Languages with related spatial and temporal sequential adpositions

English	<i>before</i>	< 'in front'
	<i>after</i>	< 'behind'
Swedish	<i>före</i>	'before' < 'in front'
	<i>efter</i>	'after' < 'behind'
French	<i>avant</i>	< * <i>ab-ante</i> , e.g. Old French <i>avant lui</i> 'in front of him' (GAMILLSCHEG 1957:248)
	<i>après</i>	< 'behind'
Italian	<i>dopo</i>	< * <i>de-post</i> , Latin <i>post</i> 'behind; after'
Bulgarian	<i>predi</i>	cf. <i>pred</i> 'in front'
Turkish	<i>önce</i>	cf. <i>ön</i> 'front' (- <i>ce</i> adverbial suffix)
Lezgian	<i>güǧüniz</i>	cf. <i>güǧüna</i> 'behind'
Udmurt	<i>bere</i>	cf. <i>beryn</i> 'behind'
Hebrew	<i>ʔaharey</i>	cf. <i>meʔahorey</i> 'behind'
Abkhaz	<i>-štax'-g'ə</i>	cf. <i>-štax'</i> 'behind'
Chinese	<i>qián</i>	cf. <i>qiánbian</i> 'in front'
	<i>hòu</i>	cf. <i>hòubian</i> 'behind'

These cases complement Table 4 in demonstrating the widespread occurrence of conceptual transfer from space to time. In addition, cases such as English *before* and French *avant* nicely illustrate another important point: In earlier English and French, these words were used in two senses, the spatial and the temporal sense.

When a new word denoting the concept 'in front' came into the language (in English, *in front* through complete lexical renewal; in French, *devant* through reinforcement by the prefix *de-*: **de-avant* > *devant*), they came to denote the temporal sense exclusively. This is not what one would expect under a *Gesamtbedeutung* approach (BENNETT 1975). Under such an approach the expectation would be that the new word would immediately have both the spatial and the temporal sense. The same point can be made with the Standard Arabic and Maltese posterior prepositions. In the more conservative Arabic, there is a contrast between *baʕda* 'after' and *waraaʕa* 'behind'. In the more advanced Maltese, *wara* (< *waraaʕa*) means both 'behind' and 'after' (*baʕda* has been lost from the language). This is again an example of a secondary temporal sense of a preposition.

A further observation relating to the diachronic dimension is that there is apparently a general tendency for temporal markers to be older, or more grammaticalized, than spatial markers. The cases of my sample are listed in Table 6. This Table includes only languages with different spatial and temporal markers of either the anterior or posterior function.

Table 6: Temporal markers are older than spatial markers

	anterior temporal/spatial	posterior temporal/spatial
English	<i>before/in front</i>	<i>after/in back</i>
Swedish	<i>före/framför</i>	<i>efter/bakom</i>
French	<i>avant/devant</i>	<i>après/derrière</i>
Spanish	<i>antes</i>	<i>de/delante de</i>
Romanian	<i>înainte/în fața</i>	<i>după/în spatele</i>
Modern Greek	<i>prin/brosta</i>	<i>meta/opiso</i>
Irish	<i>roimh/os comhair</i>	
Welsh	<i>cyn/o flaen</i>	
Armenian	<i>araj/arjevum</i>	
Hebrew		<i>ʔaharey/meʔahorey</i>
Maltese	<i>qabel/quddiem</i>	
Chinese	<i>(yi)qian/qianbian</i>	<i>(guo)hòu/hòubian</i>

In most of the pairs in Table 6, a purely phonological correlate of age can be observed: The spatial forms are in almost all cases longer, often by a whole syllable. The greater length of course results from the fact that the spatial markers have been reinforced more recently than the temporal markers (e.g. French *devant* < *de* + *avant*, Spanish *delante* < *de* + *el* + *ante(s)*, Swedish *fram* +

för(e), Chinese *qián + bian, hòu + bian*), or that they have been renewed more recently on the basis of new roots. This can best be seen in languages like English (*in front, in back*, contrasting with Indo-European *fore* and *aft*) or Romanian (*în fața* 'in front', lit. 'in the face', *în spatele* lit. 'in the back', contrasting with Latin-derived *înainte* and *după*), but "fresher" roots are also found in Greek *brostá* and *opíso*, and in Hebrew (*(me-)ʔaħor(-ey)*). Thus, on the whole temporal sequential location markers can be said to exhibit a greater degree of formal grammaticalization.² This is not surprising, because semantically, too, temporal meanings are more abstract and therefore more grammaticalized. CLAUDI & HEINE (1986) place time right after space on their universal schema of their grammaticalization paths: PERSON > OBJECT > ACTIVITY > SPACE > TIME > QUALITY (cf. also HEINE, CLAUDI & HÜNNEMEYER 1991:157). Space is more concrete and can therefore be renewed and reinforced more easily, an insight that goes back at least to GAMILLSCHEG (1957:246): "Gerade wegen der Vordringlichkeit der Ortsvorstellung können für diese expressivere Ausdrucksformen eintreten als für die entsprechende Zeitvorstellung".³

4.4. Further sources of anterior and posterior markers

In addition to the anterior and posterior markers which are based on spatial anterior and posterior markers, several other sources give rise to temporal sequential adpositions. These other sources are less symmetrical than the main source, spatial anterior and posterior adpositions.

In a number of languages the temporal anterior adposition is based on the ordinal number 'first' (or perhaps 'former'): Italian *prima di* (based on the adverb *prima* 'at first, earlier', from *primo* 'first'); Punjabi *páílāā* (< **prathīla-* 'first', a suffix variant of Old Indic *prathama-* 'first'); Latvian *pirms* 'before; earlier' (< *pirmis*, an adverbial form based on *pirmāis* 'first'); Kannada *modalu* 'before; first'. I have not come across an analogous use of 'last' (or 'later') for 'after'.

Another source are markers of the anterior-durative function 'until'. Russian *do* is both 'before' and 'until', and the priority of the 'until' meaning is clear from the original spatial meaning 'to' (cf. §5.1). This polysemy is not surprising

² However, there are three counterexamples to this trend in my sample: Russian posterior *posle/za*, Latvian posterior *pēc/aiz* and anterior *pirms/priekšā*. The first two are clearly areally related.

³ "It is precisely because of the predominance of the spatial conceptualization that more expressive forms can be used for these than for the corresponding temporal conceptualization."

because the anterior and anterior-durative meanings are fairly similar;⁴ what is perhaps surprising is that it is so rare (cf. §5.1 for further discussion). Russian *do* is also interesting in that it coexists with another anterior preposition, *pered* 'before', derived from the spatial anterior preposition. There is a clear semantic contrast between *do* and *pered*: *Do* has the more general meaning, *pered* refers to the location in time immediately before the reference time, e.g. *do vojny* 'before the war', *pered vojnoj* 'right before the war, on the eve of the war'. The only other language that shows this source is Abkhaz, which has the suffix *-nja* 'until', and the combination *-nja-g'ə* 'before' (*-g'ə* is the focus particle 'even'). It is not clear to me how 'before' results from 'even until'. In this respect, Abkhaz is quite symmetrical: 'after' is *-štax-g'ə* lit. 'even since' (but *-štax* 'also means 'behind', cf. Table 5).

A further interesting source is a particle meaning 'not yet'. In Indonesian, the preposition *sebelum* 'before' is derived from *belum* 'not yet', and in a parallel fashion *sesudah/setelah/sehabis* 'after' is derived from *sudah* 'already, finished', *telah* 'finished, already', *habis* 'finished'.

The posterior function is expressed by an adposition that originally means 'close to, near' in a number of languages: German *nach* (cf. *nahe* 'close', *nächster* 'closest; next'), French *après* (< AD PRESSUM, lit. 'at close'), Modern Greek *metá* (in Ancient Greek also 'with'), Basque *ondoan* (from *ondo* 'ground; vicinity; consequence'). By contrast, no anterior marker is based on a simple proximity word, as far as I know.

A fairly common source of posterior markers are nouns meaning 'track, trace' or similar notions. Again, these have no analog among anterior markers. Traces are phenomena that are found behind moving entities, so this source again seems to point to the moving-time model. Examples from my sample are Russian *posle*, Croatian *poslije* (< Common Slavic **poslědi* 'afterwards', based on **slědŭ* 'trace'), Bulgarian *sled* (directly from **slědŭ* 'trace'), Finnish *jälkeen* (cf. *jälki* 'trace, track'), Estonian *pärast* (Erelative of *pära* 'residue, rest, hind part'), Hungarian *után* (locative case of 3rd person agreement form of *út* 'path', so *húsvét után* is literally 'Easter path-its-on', i.e. 'after Easter'), Latvian *pēc* (< *pēdis*, Instrumental plural of *pēds* 'trace', i.e. 'in the traces (of)'). As these examples show, this source forms an areal cluster in eastern Europe.

⁴ In English, *before* and *until* are equivalent in negative contexts (EKKEHARD KÖNIG, p.c.):

(i) I cannot be back until noon. =

(ii) I cannot be back before noon.

A few languages have a posterior marker based on 'end, finish': Turkish *sonra* (cf. *son* 'end'); Nanay *xožiočiania/xožipia* (cf. *xoži-* 'finish, end'); Indonesian *sesudah/setelah/sehabis* 'after' (cf. *sudah/telah/habis* 'finished'). And finally, the verb 'pass' may also yield a posterior marker, cf. Lithuanian *praėjus* (converb of *praėti* 'pass'), French *passé* (e.g. *passé une heure du matin* 'after one o'clock in the morning'), English *past* 'after' (cf. *five minutes past twelve*).

Chapter 5

Sequential-durative

As we saw in §2.3, the anterior/posterior-durative functions are semantically closely related to the anterior/posterior functions, in particular as far as the meaning component of location is concerned. From this point of view, one might expect that this similarity would be reflected in similar markers of these functions. However, formal similarity of these two types of functions is very rare. Sequential-durative markers have their own characteristics, so a separate chapter is devoted to them.

5.1. Allative and ablative sources

The most important sources of anterior-durative markers ('until') and posterior-durative markers ('since, from') are spatial allative and ablative markers, i.e. goal and source markers. Again the priority of space over time is confirmed by the sources of temporal markers. The cases attested in my sample are listed in Tables 7-8.

Table 7: *Posterior-durative markers from ablative markers*

German	<i>ab</i>	< 'from, off'
Romanian	<i>de</i>	'from; since'
Latin	<i>a/ex</i>	(both:) 'from; since'
Russian	<i>s (+GEN)</i>	'from, off; since'
Polish, Croatian	<i>od</i>	'from; since'
Lithuanian	<i>nuo</i>	'from; since'
Greek	<i>apó</i>	'from; since'
Armenian	ABL	'from; since'
Lezgian	<i>-laj</i>	< localization <i>-l</i> + relative suffix <i>-aj</i>
Georgian	<i>-dan</i>	'from; since'
Maltese	<i>minn</i>	'from; since'
Persian	<i>az</i>	'from; since'
Punjabi	<i>tō</i>	'from; since'
Chinese	<i>cóng</i>	'from; since'
Kannada	<i>-inda</i>	'from; since'
Tamil	<i>-leruntu</i>	'from; since'

Table 8: Anterior-durative markers from allative markers¹

English	<i>till</i>	< Old Norse <i>til</i> 'to; until' (< <i>til</i> 'goal')
German	<i>bis</i>	< Middle High German <i>bî ze</i> ("bei zu") 'with to'
Swedish	<i>till</i>	'to; until'
Russian	} <i>do</i>	'to; until'
Croatian		
Bulgarian		
Lezgian	<i>-ldi</i>	< localization <i>-l</i> + directive suffix <i>-di</i>
Arabic	<i>ʔilaa</i>	'to; until'

Thus, when anterior/posterior-durative markers are based on simple spatial markers, these are generally markers that indicate a spatial direction rather than a spatial location. At first, this is surprising, because the spatial notion of a direction does not have a clear analog in the conceptual domain of time. But there is a straightforward explanation for the ablative and allative sources: the concept of "abstract motion" (cf. LANGACKER 1991). Even in the spatial domain, directional expressions are commonly used to denote location along a line which is scanned sequentially by the mind and is thereby assimilated to a directed path: *There are wheat fields from the lake to the forest; The highway goes all the way to the Arctic Sea; There are apple trees along many country roads.* In these spatial examples, the located entities occupy a large area of space, and it would not be possible to characterize compact objects in this way (??*There is a bike along the bike-lane*). Thus, ablative and allative sources are particularly well suited for expressing the location of situations with a large extension, i.e. durative situations.

It is also not difficult to explain why allative markers are associated with the anterior-durative function, whereas ablative markers are used for the posterior-durative function, rather than vice versa. We have here the model of the observer moving along a temporal path from earlier to later, and when situations are thought of as occupying a path in time, speakers scan them sequentially from their earliest part to their latest part (i.e. from their beginning to their end).² The alternative model of time moving past the stationary observer is not applicable here, because in this model it is only fixed reference times that are thought of as moving from the future to the past, not located

¹ In addition, a number of complex anterior-durative markers contain an allative component: French *jusqu'à*, Italian *fino a*, Irish *go dtí*, Polish *aż do*.

² With many physical objects that can be thought of as having a beginning and an end, it is not predetermined which extremity is the beginning and which is the end (e.g. strings, roads, peninsulas, baguettes). Due to the unidirectionality of time, this ambiguity does not arise with entities that are located in time.

situations. The situations that are characterized by time adverbials can only be thought of as moving in the same direction as the observer. Thus, in the case of the anterior-durative and posterior-durative functions the question of which model is chosen can again be answered unambiguously.

There is a slight asymmetry in Tables 7 and 8: It is apparently significant that more languages use an ablative marker for posterior-durative than an allative marker for anterior-durative. This latter function tends to have a separate marker which just means 'until'. I have no explanation for this asymmetry.

Before leaving the allative/ablative sources of sequential-durative markers, I would like to point out a further cross-linguistic generalization. The tendency for posterior-durative and anterior-durative markers to be similar to simple source and goal markers is even stronger when both markers are present together, i.e. in expressions specifying both a beginning and an end of a situation, e.g. 'from morning till evening', 'from five to eight'. In these expressions (henceforth, **beginning-to-end constructions**), the order is obligatorily iconic, i.e. the posterior-durative expression precedes the anterior-durative expression, and the two are preferably adjacent. These two properties are illustrated with English and German examples in E59-60. English usually has *since/from..on* and *until/till*, but in beginning-to-end constructions *from* and *to*, the simple ablative and allative prepositions, are sufficient.

E59. English

- a. *Susanne sang **from** 12 o'clock **to** 5 o'clock.*
- b. *Susanne sang {***to/till**} five o'clock.*
- c. **Susanne sang **to** 5 o'clock **from** 12 o'clock.*
- d. (?) *Susanne sang **till** 5 o'clock **from** 12 o'clock **on**.*
- e. ****From** 12 o'clock Susanne sang **to** 5 o'clock.*
- f. (?) ***From** 12 o'clock **on** Susanne sang **till** 5 o'clock.*

E60. German

- a. *Susanne hat **von** 12 Uhr **bis** 5 Uhr gesungen.*
- b. *Susanne hat **von** 12 Uhr {**an/*Ø**} gesungen.*
- c. **Susanne hat **bis** 5 Uhr **von** 12 Uhr gesungen.*
- d. (?) *Susanne hat **bis** 5 Uhr **von** 12 Uhr **an** gesungen.*
- e. ****Von** 12 Uhr hat Susanne **bis** 5 Uhr gesungen.*
- f. (?) ***Von** 12 Uhr **an** hat Susanne **bis** 5 Uhr gesungen.*

Similarly, German usually has *seit/von...an* and *bis*, but in beginning-to-end constructions *von* alone can be used (however, German does not allow the simple allative *zu* instead of *bis* here). The most frequent case is illustrated by the (a) sentences of E59-60. The (b) sentences show that the simpler markers *from...to* and *von* are not possible if only the beginning or the end of the duration are given. The difference in acceptability between the (c) and (d) sentences is due to the iconic order requirement, and the difference between (e) and (f) is due to the adjacency requirement.

Before venturing an explanation of these facts, let us look at the cross-linguistic data. Of course, I do not have data of the same level of detail for other languages, but since quite a few other languages show the same tendency for a less explicit form of beginning-to-end constructions, it may well be that restrictions similar to those in E59-60 also apply in other languages. Table 9 exemplifies beginning-to-end constructions in nine languages, contrasting them with the regular posterior-durative and anterior-durative markers.

**Table 9: Simple source and goal markers
in beginning-to-end constructions**

French	<i>du matin au soir</i> 'from morning till evening'	vs. <i>dès/depuis – jusqu'à</i>
Italian	<i>da Natale a Pasqua</i> 'from Christmas till Easter'	vs. <i>(fino) da – fino a</i>
Latin	<i>a mane ad vesperum</i> 'from morning till evening'	vs. <i>a –usque ad</i>
Latvian	<i>no sākuma līdz beigām</i> 'from the beginning to the end'	vs. <i>kopš – līdz</i>
Irish	<i>ó mhaidin go hoíche</i> 'from morning till evening'	vs. <i>ó – go dtí</i>
Welsh	<i>o fis Mehefin tan fis Madi</i> 'from June to September'	vs. <i>ers – tan/hyd</i>
Arabic	<i>min as-saaṣati θ-θaaniyata ṣašrata</i> <i>ṣilaa s-saaṣati θ-θaaliṯati</i> 'from the 12th to the 3rd hour'	vs. <i>munḏu/min – ḥattaa/ṣilaa</i>
Turkish	<i>on iki-den on beş-e dek</i> 'from 12 h to 15 h'	vs. <i>den beri/itibaren – dek</i>
Hungarian	<i>hétfő-től péntek-ig</i> 'from Monday to Friday'	vs. <i>-tól fogva – -ig</i>
Finnish	<i>aamu-sta ilta-an</i> 'from morning (ELAT) till evening (ILL)'	vs. <i>lähtien – asti</i>

In all cases of Table 9, at least one of the markers in the beginning-to-end construction is simpler than the regular sequential-duration marker and is identical to the usual (spatial) source or goal expression in the language. The explanation clearly lies in economic motivation: In beginning-to-end constructions, the lexical content of the expression, together with the iconic order and the adjacency (cf. E59-60), are by themselves so informative that simple source and goal expressions are often sufficient where otherwise a more explicit marker would be used. This economic aspect is particularly evident in cases where a complex sequential-durative marker consists of a simple source or goal marker plus an additional component (e.g. Italian *fino a*), and where this additional component is omitted in beginning-to-end constructions. Such cases are French (*jusqu'*) *à*, Italian (*fino*) *a*, Latin (*usque*) *ad*, Irish *go* (*dtí*), Turkish *-den* (*beri/itibaren*), Hungarian *-tól* (*fogva*).

5.2. 'Beginning' and 'end' as sources

In a number of languages, the words 'beginning' (or 'to begin') and 'end' (or 'finish') are the sources of the sequential-durative markers. The relevant data are summarized in Table 10a-b. When the source of the marker is a verb, this often takes the form of a converb (e.g. in Russian, Hungarian, Nanay), or occurs in a serial-verb construction as a co-verb in isolating languages (e.g. in Babungo, Chinese).

Table 10a: Posterior-durative markers based on 'begin(ning)'

French	<i>à partir de X</i>	< <i>partir</i> 'leave, start'
Italian	<i>a partire da X</i>	< <i>partire</i> 'leave, start'
Russian	<i>načínaja s X</i>	< <i>načínat'</i> 'begin'
Latvian	<i>sākot ar X</i>	< <i>sākt</i> 'begin'
Hungarian	<i>X-tól fogva</i>	< <i>fogva</i> lit. 'catching, taking', i.e. 'beginning'
Finnish	<i>X-sta lähtien</i>	< <i>lähteä</i> 'go, depart', i.e. 'begin'
Estonian	(<i>alates</i>) <i>X-st</i>	< <i>algama</i> 'begin'
Nanay	<i>X tepčiu xen žiji</i>	< <i>tepčiu-</i> 'begin'
Babungo	<i>shù fɸ</i>	< 'start from'
Kannada	<i>X-ABL hi dīdu</i>	< <i>hi dī-</i> 'begin'

Table 10b: Anterior-durative markers based on 'end, finish' or 'arrive'

Italian	<i>fino a X</i>	< Latin <i>finis</i> 'end'
Indonesian	<i>hingga X</i>	< 'limit, end'
Babungo	<i>zí</i>	cf. <i>zí</i> 'arrive'
Chinese	<i>(zhi)dao X</i>	cf. <i>dao</i> 'arrive'
Indonesian	<i>sampai X</i>	cf. <i>sampai</i> 'reach'

That sequential-durative markers are based on 'beginning' and 'end' is surprising in view of what we said above in §2.3 on the semantics of 'until' and 'since'. We saw there that 'since' and 'until' do not entail, but only conversationally implicate the beginning or end of a situation. Now of course it could be that in the languages where the lexical source is based on 'begin' or 'end', the semantics is simply somewhat different, i.e. that E61 in Russian and E62 in Italian are simply not acceptable, although their English equivalents are.

E61. Russian

Ja rabotaju nad ètoj stat'jej načínaja s dekabrja prošlogo goda, i na samom dele ja nad nej rabotal i ran'še. Ja načal nad nej rabotat' v oktjabre.

'I have been working on this article since last December, and in fact I worked on it even earlier. I began working on it in October.'

E62. Italian

Fino alle otto, Gianni ha lavorato; dopo, non so.

'Until eight, Gianni worked; after that, I don't know.'

But it is more likely that in the course of grammaticalization the original entailment got lost and persists nowadays as an implicature.

A source of 'until' that is related to 'end, finish' is the verb 'arrive, reach', which is employed in the anterior-durative function in a number of languages, which are also listed in Table 10b. Again, the notion of 'arrive' is transferred from the spatial domain to the temporal domain, and the semantic correspondence is quite transparent: If someone travels along a path and arrives at a place, this means that the path (which is analogous to the duration of a situation) overlaps with this place. The meaning of 'arrive' is also similar to

that of 'until' in that the notion of someone's arrival at a place does not exclude a continuation of the trip – one can arrive at intermediate goals, whereas one cannot continue a trip after finishing it.

5.3. 'Since' from 'later'

In a number of Germanic languages, the 'since' word is based on an original comparative form of an adjective meaning 'later', i.e. 'since X' comes from 'later than X':

- E63. a. English *since* < Old English *sibþpon, sīþ þām*
 b. German *seit* < Old High German *sīd*
 c. Swedish *sedan*
 (< Proto-Germanic **sīþiz*, cf. Latin *sētius* 'later')

Originally, these forms were only used as adverbs, i.e. without a reference time. This use is still current in English (*I met her last May, but I haven't seen her since*). The "transitive" use, which turned *since/seit/sedan* into a preposition, appeared only later. A form that is perhaps similar is Nanay *tawaNki* 'afterwards; since'.

This class of forms are clear cases of temporal markers that are not based on spatial relations. However, such expressions do not seem to be widespread in the world's languages. Furthermore, I have not found a counterpart for 'until' based on 'earlier'.

5.4. Deixis in the posterior-durative function: 'since' vs. 'from(..onward)'

We saw in §2.3 that English *since* and German *seit* have a deictic meaning component in addition to the posterior-durative function. *Since/seit* can only be employed if the reference time precedes the moment of speech or another contextually given deictic center. Furthermore, *since* and *seit* impose on the located situation the requirement that it must extend up to the moment of speech (or the contextual deictic center). This is illustrated by German examples in E64-66, and by analogous examples from French (*depuis*) in E67-69 (ROHRER 1981:159-163). If *seit/depuis* cannot be used, the markers *von..an/à partir de* are used. If the reference time is in the future, colloquial German also allows *ab*.

Thus, *seit*, *since* and *depuis* have the more specific function called "posterior-present-perfect" (cf. §2.3), covering only part of the domain of the posterior-durative function. Markers with this deictic meaning component are also attested in quite a few other languages. I do not have the same detail of information for other languages, but I can make a few generalizations and suggest some hypotheses. My data are not generally sufficient to determine whether a posterior-durative marker is analogous to German *seit* ("present perfect"), *von..an* ("past" or "future") or *ab* (only "future"), and in most cases all I can make is a past-future distinction.³

First of all, I will give a few examples of languages in which no distinction between the past and future versions of the posterior-durative function is made. Such languages are, for instance, Finnish, Korean, Imbabura Quechua, Georgian, Armenian, Persian, Punjabi, Tamil, and Tagalog. The first three are illustrated below.

E70. Finnish (JUHANI RUDANKO, p.c.)

- a. *Viime viiko-sta lähtien hän on ol-lut Nairobi-ssa.*
 last week-ELAT from he is be-PTCP Nairobi-INCESS
 'Since last week he has been in Nairobi.'
- b. *Ensi viiko-sta lähtien hän työskentelee toise-ssa yhtiö-ssä.*
 next week-ELAT from she works other-INCESS company-INCESS
 'From next week on she will work in another company.'

E71. Korean (SHIN-JA HWANG, p.c.)

- a. *Cinan cwu-puthe ku-nun nailobi-ey iss-ta.*
 last week-ABL he-TOP Nairobi-DAT be-DECL
 'Since last week he has been in Nairobi.'
- b. *Taum cwu-puthe kunye-nun talun haysa-eyse ilhal-kes-ita.*
 next week-ABL she-TOP other company-LOC work-FUT-DECL
 'From next week on she will work in another company.'

E72. Imbabura Quechua (COLE 1985:127)

- a. *Lunis-manda-ka mana ima-pash susidi-rka-chu.*
 Monday-from-TOP not what-INDEF happen-PAST.3-NEG
 'Since Monday nothing has happened.'
- b. *Lunis-manda-ka kay-pi ka-sha.*
 Monday-from-TOP this-in be-FUT.1
 'I'll be here from Monday on.'

³ In the COMRIE-SMITH grammars, sections 2.1.1.6.8 and 2.1.1.6.9 distinguish between "posterior-durative-past" and "posterior-durative-future". Note that the present seems to pattern with the future in general (**seit jetzt/von jetzt an*; **since now/from now on*; **depuis maintenant/à partir de maintenant*).

Since there are quite a few languages for which my information is insufficient (there is no relevant future context in the New Testament), I take the situation illustrated in E70-72 as the default, and the distinction between "posterior-present-perfect" markers and "posterior-durative-future" markers as the special case. The languages for which I have found a distinction between past and future and their markers are listed in Table 11.

**Table 11: Different markers
for posterior-durative-past and posterior-durative-future**

	past	future
English	<i>since</i>	<i>from..on/as of</i>
German	<i>seit</i>	<i>von..an</i>
Swedish	<i>sedan</i>	<i>från</i>
French	<i>depuis</i>	<i>à partir de</i>
Italian	<i>(fino) da</i>	<i>a partire da/da..in poi</i>
Modern Greek	<i>apó</i>	<i>apó..kj épita</i>
Latvian	<i>kopš</i>	<i>sākot ar</i>
Irish	<i>ó</i>	<i>ó..amach</i>
Hungarian	<i>óta</i>	<i>X-ABL fogva</i>
Abkhaz	<i>aa+xə̀s</i>	<i>à-štax', a-nà̀y°s, na+xə̀s, yə̀nark'nə̀</i>
Hausa	<i>tun</i>	<i>dàgà</i>
Chinese	<i>cóng</i>	<i>cóng..qǐ</i>
Maori	<i>mai i X raa</i>	<i>mai a X</i>
Japanese	<i>irai</i>	<i>kara [also past]</i>

In some languages the past marker is clearly the more specific one because the other marker is not restricted to future contexts. This is the case in Japanese, for instance.

E73. Japanese (KAORU HORIE, p.c.)

- a. *Kare-ga sensyuu kara/irai Nairobi-ni iru.*
 he-NOM last.week from/since Nairobi-in be
 'He has been in Nairobi since last week.'
- b. *Kanozyo-ga raisyuu kara/*irai betuno kaisya-de hataraku.*
 she-NOM next.week from/since other company-in work
 'From next week on she'll work for another company.'

To some extent, this is also true of German *von..an* and English *from..on*, although these are in complementary distribution with *seit* and *since*. But as shown above in E66, they are not restricted to future contexts.

However, there is also evidence that the past context is the more typical context for posterior-durative markers, because the future marker is sometimes transparently derived from the past marker. Thus, a number of languages have a structure like 'from X forward' in future contexts: Italian (*in poi*, lit. 'in then', i.e. 'later'), Modern Greek (*kj épita* 'and then'), Irish (*amach* 'away, out'), Chinese (*qǐ* 'up, rise'). Of course, the English and German pattern is similar to these, although *on/an* is not added to the past marker *since/seit*, but to the general source marker *from/von*.

But the reverse pattern also occurs, with the past marker being a more specific version of the general posterior-durative marker. This is the case, in particular, in languages that incorporate the element 'hither' in their past posterior-durative marker. Due to the presence of this element, we can be confident that these expressions are semantically much like *since*, i.e. posterior-present-perfect. Examples are given in E74-76.

E74. Lezgian (HASPELMATH 1993:100; 219) (*iniq^h* 'hither')

- a. *Ha i jiqa-laj xüpüq^hwi-jr-i čpi-n xürünwida-l*
 that day-SUPEREL Xüpüqian-PL-ERG selves-GEN covillager-SUPERESS
c'iji t'war ecig-na.
 new name put-AOR

'From that day on the people of Xüpüq called their co-villager by a different name.'

- b. *A č'awa-laj iniq^h 20 jis alat-nawa.*
 that time-SUPEREL hither 20 year pass-PERF

'Since that time 20 years have gone by.'

E75. Kannada (*īcege* 'on this side')

- a. *sōmavārad-inda* 'from Monday on, since Monday'
 Monday-ABL
 b. *beḷigge-yinda īcege* 'since the morning'
 morning-ABL hither

E76. Basque

- a. *astelehen-ez gero-z-tik*
 Monday-MOD after-MOD-ABL
 'from Monday on'
 b. *joanden aste-tik hona*
 past week-ABL hither
 'since last week'

By calling the function of *since* "posterior-present-perfect", I have already alluded to the well-known fact that English *since* always combines with the present perfect tense. We may now ask how widespread this phenomenon is, and the answer is that it is fairly uncommon. The only other languages in which I have found it are the Circum-Baltic languages Swedish, Finnish and Estonian. An example from Finnish was already given in E70a; Swedish and Estonian are illustrated below.

E77. Swedish

*Alltsedan världens skapelse har hans osynliga egenskaper...kunnat
since world's creation has his invisible properties been.able
uppfattas i hans verk (Rom 1.20)
be.perceived in his work*

'Since the creation of the world his invisible properties have been clearly perceivable in his actions.'

E78. Estonian (URMAS SUTROP, p.c.)

*Alates eelmise-st nädala-st on ta ol-nud Nairobi-s.
beginning last-ELAT week-ELAT is he be-PTCP Nairobi-INNESS*

'Since last week he has been in Nairobi.'

In all other languages, the present tense is used in these contexts. This may seem surprising, given that many other languages have a perfect tense-aspect form that is not unlike the English, Swedish and Baltic Finnic perfect in other respects. We must conclude that this use of the perfect in these languages is highly marked.

Finally, let us ask whether a contrast similar to the one between 'since' and 'from..on' could be found in the anterior-durative function. A priori, there is no reason why it should not be possible. There could be a language that distinguishes between 'until1' for a situation like Figure 31a, and 'until2' for a situation as depicted in Figure 31b.

Figure 31a: 'Until1'
(=anterior-durative-future)

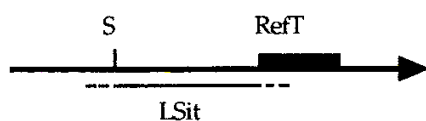
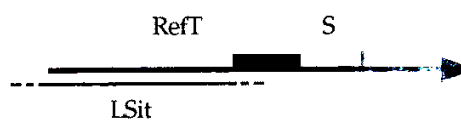


Figure 31b: 'Until2'
(=anterior-durative-past)



This distinction would be completely analogous to the distinction between 'since' and 'from...on', see Figure 16-17 in §2.3. However, such a distinction is unattested, and there are good reasons to think that it does not exist. Not only has no such distinction been noted for any of the well-documented European languages; even the Comrie-Smith grammars, which do include two separate sections for "anterior-duration-past" (2.1.1.6.6) and "anterior-duration-future" (2.1.1.6.7), do not record such a contrast, which was clearly anticipated by the authors of the questionnaire.

5.5. Anterior-durative and anterior-limitative

In this final subsection of this chapter I will introduce a semantic function that is related to the anterior-durative function and is expressed by the same marker in a number of languages. Two examples from English and Italian are given in E79.

- E79. a. *Bob has to finish the paper **by** March 30th.*
 b. *Il presidente dell'assemblea generale vuole un risultato **entro** giugno.*
 'The president of the general assembly wants a result by June.'

The temporal adverbials in these sentences can roughly be paraphrased as 'on March 30th or earlier' and 'in June or earlier'. I call this function **anterior-limitative**.⁴ I have not investigated this function systematically, but I have data for a number of languages. In some languages, this meaning is rendered by the anterior-durative marker, e.g. in German, Latvian, and Korean:

- E80. a. German
*Bob muss die Arbeit **bis** zum 30. März fertigstellen.*
 'Bob has to finish the paper by March 30th.'
- b. Latvian (NICOLE NAU, p.c.)
*Es to pabeig-šu **līdz** pirmdien-ai.*
 I that.ACC finish-FUT.1SG until Monday-DAT
 'I'll finish that by Monday.'
- c. Korean (SHIN-JA HWANG, p.c.)
*Ku chayk-ul phalwel-**kkaci** kkunnal-kes-ita.*
 he book-ACC August-until finish-FUT-DECL
 'He will finish the book by August.'

⁴ NICOLE NAU (p.c.) proposes the alternative term "ultimative/cumulative".

The anterior-durative and anterior-limitative functions are similar in that they say something both about the reference time and about the period before it. While anterior-limitative has the paraphrase 'at RefT **or** earlier', anterior-durative can be paraphrased as 'at RefT **and** (at all points) earlier'; thus, the difference boils down to the conjunction/disjunction in the paraphrase (see KÖNIG (1974) for a logical-semantic analysis of this distinction in terms of the duality of existential and universal quantification).

Table 12: Examples of special anterior-limitative markers

Japanese	<i>hatigatu made-ni</i> 'by August'	<i>sanzi made</i> 'until three o'clock'
Finnish	<i>elokunkun mennessä</i> 'by August'	<i>kello kolmeen asti</i> 'until three o'clock'
Estonian	<i>augusti-ks</i> 'by August' (-ks Translative)	<i>esmaspäeva-ni</i> 'until Monday'
Russian	<i>k avgustu</i> 'by August' (k 'to(ward)')	<i>do trëx časov</i> 'until three o'clock'
Basque	<i>eguerdi-rako</i> 'by noon' (purposive case)	<i>astelehen arte</i> 'until Monday'
Welsh	<i>erbyn hanner awr wedi saith</i> 'by half past seven' (erbyn 'against')	<i>hyd ddiwedd</i> 'until the end'
Hungarian	<i>kedd-re</i> 'by Thursday' (-re Sublative 'onto')	<i>vég-ig</i> 'until the end'

These are not enough cases for definitive generalizations, but it seems that there is a tendency for anterior-limitative markers to be based on directional spatial markers with meanings like 'toward, against, onto'. In this respect, too, the anterior-limitative function resembles the anterior-durative function.⁵

⁵ A related semantic function which I have only encountered in French so far is illustrated in (i) (cf. the discussion in BERTHONNEAU 1993a).

(i) *Il me faut une réponse avant deux jours.*
sous
'I need an answer within the next two days.'

Here the anterior-limitative function is combined with the distance-future function. Literally *avant deux jours/sous deux jours* could be translated as 'by in two days' time'. This combination is analogous to the one in the distance-posterior function (which combines posterior-durative and distance-past, cf. §2.5 and §8.3).

Chapter 6

Temporal distance

6.1. Distance markers based on sequential markers

The two semantic functions of temporal distance, distance-past and distance-future, are appropriately discussed right after the semantic functions of sequential location because they also involve temporal location in which the located situation and the reference time are in a sequential relationship. This semantic affinity is reflected in formal identity or similarity between the distance-past and the anterior functions, and between the distance-future and the posterior functions. Indeed, this similarity is much greater than that between the anterior/posterior functions and their durative counterparts, which a priori would seem to be more closely related semantically.

As in the other cases, there are a small number of different semantic sources for distance-past and distance-future markers. However, the majority type is clearly the formal identity between distance-past markers and anterior markers on the one hand, and distance-future and posterior markers, on the other hand. The twenty-five languages of the sample in which this occurs and their markers are listed in Table 13 on the next page.

What is the explanation for the frequent formal identity of the sequential and distance functions? First of all, we have to distinguish carefully between two sub-types of markers in Table 13. The first sub-type, exemplified by German *vor* (*vor Dezember, vor drei Minuten*), shows both morphological and syntactic identity. In the second sub-type, only the form, but not the syntax, of the two markers is identical.

Let us examine the case of Turkish *önce* 'before; ago', which belongs to the second type. In the sense 'before', this is a postposition governing the Ablative case (*-dAn*), as shown in E81a. However, in the distance-past function, *önce* does not govern the Ablative, but the Nominative case, as seen in E81b.

E81. Turkish

- | | | |
|----|-----------------------|------------------|
| a. | <i>harp-tan önce</i> | 'before the war' |
| | war-ABL before | |
| b. | <i>bir süre önce</i> | 'a while ago' |
| | one while(NOM) before | |

Table 13: Languages with identical anterior/distance-past and/or posterior/distance-future markers.

	'ago' = 'before'	'in' = 'after'
German	<i>vor</i>	
Polish	<i>przed</i>	<i>po</i>
Serbian/Croatian	<i>prije</i>	
Bulgarian	<i>predi</i>	<i>sled</i>
Lithuanian	<i>prieš</i>	
Latvian	<i>pirms</i>	<i>pēc</i>
Modern Greek	<i>prin apó</i>	
Albanian	<i>para</i>	<i>pas</i>
Hungarian	<i>előtt</i>	
Estonian		<i>pärast</i>
Udmurt		<i>bere</i>
Armenian	<i>ařař</i>	<i>heto</i>
Turkish	<i>önce</i>	<i>sonra</i>
Lezgian	<i>wilik</i>	
Chechen	<i>ħalxa</i>	
Abkhaz	<i>-āpx'a¹</i>	
Georgian	<i>c'in¹</i>	
Hebrew	<i>lifney</i>	
Hausa		<i>baayan</i>
Swahili		<i>baada ya</i>
Persian	<i>piš</i>	
Punjabi	<i>páílāā</i>	
Chinese	<i>(yi)qián</i>	
Japanese	<i>mae ni</i>	<i>go ni</i>
Korean	<i>cen-ey</i>	<i>hwu-ey, twi-ey²</i>

Postpositions do not normally govern the Nominative case in Turkish, so at first sight this behavior seems surprising. But everything falls into place once we realize that *önce* is best glossed as 'previously, earlier'. The Ablative case in E81a can now be understood as analogous to the Ablative that marks the

¹ Abkhaz *-āpx'a* is listed only as meaning 'in front of' in HEWITT (1979:130), and Georgian *c'in* only means 'in front of'. I have included these in Table 13 because they must have acquired the distance-past sense via the sense 'before'.

² *twi-ey* only means 'behind' according to my data, but it must have acquired the distance-future sense via a temporal posterior sense.

standard of comparison (*Ali'den daha akıllı* 'more intelligent than Ali'): *harptan önce* is literally 'earlier than the war'. The NP *bir süre* does not stand in the same semantic-syntactic relation to *önce*: It does not designate a standard, but an amount measuring the difference, analogous to the extent phrase in *10 cm taller than Ali*. Thus, *bir süre önce* is literally 'a while earlier', and the standard is implicitly understood as the moment of speech: 'a while earlier than now', i.e. 'a while ago'. In fact, this implicit standard may be made explicit, as in E82.

E82. Turkish

bun-dan on dört yıl önce (2 Cor 12.2) 'fourteen years ago'
 this-ABL ten four year before (lit. 'fourteen years before this')

This example makes it even more evident that we are dealing with the same lexical item *önce* in E81a-b, used in exactly the same sense. The different overall meaning, anterior vs. distance-past, results from the different syntactic environment and from contextual properties.

A fairly similar pattern for expressing the sequential and distance functions is found in the typologically similar languages Lezgian, Punjabi, Udmurt, Armenian and Hungarian (but note that Udmurt uses two slightly different forms of 'earlier, before', *ažym* and *ažlo*, so that Udmurt is not listed in Table 13):

E83. Lezgian (HASPELMATH 1993:216;305)

a. *däwedi-laj wilik* 'before the war'
 war-SUPEREL before
 b. *dümdüz 250 jis ida-laj wilik* 'exactly 250 years ago'
 exactly 250 year this-SUPEREL before (lit. 'exactly 250 years before now')

E84. Punjabi (BHATIA 1993:206ff.)

a. *mangalvaar tō pālāā*
 Tuesday from before
 'before Tuesday'
 b. *do saal pālāā asī Multaan gae*
 two year before we Multaan went
 'Two years ago we went to Multaan.'

E85. Udmurt

a. *aran ažyn* 'before the harvest'
 harvest before
 b. *odig ar ta-leś ažlo* 'a year ago'
 one year this-ABL before

E86. Armenian

- a. *k'rov-ic' a'raǰ* 'before the war'
 war-ABL before
- b. *erku žam a'raǰ* 'two hours ago'
 two hour before

In languages with different word-order patterns, the syntax of the two items may differ even more markedly, e.g. in Persian, which has prepositions rather than postpositions (E87a). Since extent phrases precede the modified adverb, the word order of *piš* 'before, ago' differs depending on the construction:

E87. Persian

- a. *piš az ĵang* 'before the war'
 before from war
- b. *do sâ'at-e piš* 'two hours ago'
 two hour-ATTR before

But there are some languages in which the identity of the 'before' and 'ago' expressions cannot be explained in this way. These languages represent the first sub-type mentioned above, displaying both morphological and syntactic identity. Examples are the prepositions *vor* in German and *prin apó* in Modern Greek. The complement of the preposition cannot be an extent phrase in these languages (yielding the meaning 'ago'), because extent phrases usually precede rather than follow their head (e.g. German *zwei Stunden zuvor* 'two hours before', contrasting with *vor zwei Stunden* 'two hours ago'). In addition, extent phrases are usually in the Accusative case in German (e.g. *ein-en Monat zuvor* 'a month before'), whereas the complement of *vor* must be in the Dative case (*vor ein-em Monat*). Thus, adverbs like *zuvor* are syntactically quite different from prepositions, and yet *vor* means both 'before' and 'ago'. That the German-type construction cannot be reduced to the Turkish-type construction can be seen particularly well in Hungarian, which has both constructions:

E88. Hungarian

- a. *tél elótt* 'before the winter'
 winter before
- b. *két év-vel ez-elótt* 'two years ago'
 two year-INSTR this-before
- c. *három hét elótt* 'three weeks ago'
 three week before

In E88b, the distance phrase is in the Instrumental case and the argument of the postposition is spelled jointly with the postposition – this is analogous to Turkish E82. The other construction in E88c shows the reference time (*három hét* 'three weeks') in the Nominative case, just like the reference time in the sequential construction E88a – it is thus analogous to German *vor*.

Thus, a different explanation has to be found for the formal identity between 'before' and 'ago' in languages such as German, Modern Greek, Bulgarian, Hebrew, and E88c in Hungarian. My proposal is the following: In expressions such as

E89. a. Bulgarian

sled dva dni 'after two days, i.e. in two days',

b. Hebrew

lifney šloša yamim 'before three days, i.e. three days ago',

the reference time must be taken as a period one of whose end points coincides with the moment of speech. Thus, here again a deictic interpretation is imposed but remains implicit. We can thus translate Bulgarian *sled dva dni* literally as 'after a two-day period beginning now', and Hebrew *lifney šloša yamim* as 'before a three-day period ending now'. The possible alternative interpretations 'after a two-day period ending now' and 'before a three-day period beginning now' are presumably excluded pragmatically because they are not informative enough, coinciding more or less with 'after now'/'before now'. But the interpretation of these expressions is enriched even beyond the introduction of the moment of speech as an implicit end point: Bulgarian E89a in fact means 'immediately after a two-day period beginning now', and Hebrew E89b means 'immediately before a two-day period ending now'. Again, these pragmatic strengthenings are entirely expected from a Gricean point of view. As KÖNIG (1974: 560-61) observes, "[w]henever we place a certain event on a time scale we try to do this as precisely as possible. Thus, a sentence of the form 'S after t ' will normally be taken to imply that S occurred in the environment of t ... [O]n hearing a sentence of the type 'S after t_1 ' we will assume – unless we are explicitly told not to do so – that the speaker has been maximally informative, that he has placed the event 'S' as precisely as possible on the time continuum and that the event occurred near t_1 ." KÖNIG only tries to explain why a politician who promises 'We shall start working on this problem after Easter' will be justly criticized if nothing happens until December, but the same principle also explains why E89a means 'two days after now', not just 'anytime after a two-day period beginning now'. But note that in the case of 'before' and

'after', the interpretative enrichment can be canceled and thus has the status of an implicature. The politician could theoretically say 'We shall start working on this problem after Easter, in fact eight months after Easter, that is in December'. By contrast, in the languages that are like Hebrew and Bulgarian (cf. E89) this additional meaning component cannot be canceled. Thus, a German sentence such as E90 would be incoherent.

E90 (spoken in 1997:) **Das Tiananmen-Massaker war vor fünf Jahren, genauer gesagt schon 1989.*

'The Tiananmen Square massacre was five years ago, more precisely as early as 1989.'

This shows that the original implicature has become part of the regular meaning of such distance markers.

My analysis of the frequent formal identity of 'before'/'ago' and 'after'/'in' thus involves interpretative enrichment or pragmatic strengthening plus the implicit restriction to time spans one of whose end points coincides with the moment of speech. This latter restriction is sometimes made explicit in a way not unlike the use of 'this' in E82-83, E85 and E88b. For instance, Latin and Greek use the proximal demonstratives *hic/hoũtos* in their distance expressions, as illustrated in E91-92.

E91. Latin (KÜHNER & STEGMANN 1912:356-57)

a. *Me hoc biduo aut triduo exspecta* (Cic. Fam. 7.4)
me.ACC this.ABL 2day.period.ABL or 3day.period expect.IMP

'Expect me in two or three days.' (lit. '...in these two or three days')
(Lit. 'Expect me in this two-day or three-day period.')

b. *Ergo his annis quadrigentis Romae rex erat?* (Cic. Rp. 1.58)
so these years.ABL 400.ABL Rome.LOC king was

'So he was king in Rome four hundred years ago?'
(lit. '...in these four hundred years')

E92. Hellenistic Greek

Humeĩs dè en pneúmati baptisthésesthe hagiōi ou metà pollàs
you.PL but in spirit.DAT baptize.PASS.FUT.2PL holy.DAT not after many.ACC

taútas hēméras (NT, Acts 1.5)
these.ACC days.ACC

'You will be baptized in the Holy Spirit in not many days' time.'

6.2. Other sources of distance markers

In the distance markers discussed in the previous section, we saw that distance-past and distance-future markers behave in a relatively symmetrical way, except that there are more distance-past markers based on 'before' than distance-future markers based on 'after' (possibly this is related to the analogous asymmetry observed in §4.2 with regard to Table 4, but it is not clear to me how). When we now look at the other sources of distance markers, we notice that there is mostly a surprising lack of symmetry. Very different kinds of source notions are made use of for expressing the semantic functions 'distance-past' and 'distance-future'.

6.2.1. 'Pass'/'exist'

In a number of languages, the source of a distance expression is the verb 'pass', or the more general verb 'exist, be'. The simplest way in which this can serve to express distance is by occurring in a temporal adverbial clause with the distance phrase as its subject, e.g. 'When five years have passed/When it's five years' for 'in five years' time'. This strategy is used, for instance, in Lithuanian and Hungarian. In these languages, the converbal form of the verb 'pass' is used. Since I do not have much evidence that these verb forms have become grammaticalized along the grammaticalization path from converbs to adpositions (cf. KORTMANN & KÖNIG 1992 for this general development), these cases are perhaps not NP-based time adverbials at all and therefore belong more properly in §3.3.

E93. Hungarian

<i>három hét múl-va</i>	'in three weeks' time'
three week pass-CONV	

E94. Lithuanian

<i>dvie-m dieno-m praslink-us</i>	'in two days' time'
two-DAT days-DAT pass-CONV	

In Nanay, the verb *bi-* 'be' is used in this way:

E95. Nanay

<i>žuer ajyani-doa bi-pi</i>	'in two years' time'
two year-DAT be-CONV	

Quite a few other languages use 'pass', 'exist' or a similar verb for the distance-past function. Interestingly, I have not found a language in which both distance-future and distance-past are expressed by the verbs 'pass' or 'exist'. This is perhaps not surprising because these verbs must be employed in a very different manner to yield the distance-past meaning. While 'past'/ 'exist' occurs in a temporal adverbial clause in the distance-future meaning, it should occur in the main clause to yield the distance-past meaning, with the located situation in a subordinate clause: 'Five years have passed since she returned', or 'It has been five years since she returned', for 'She returned five years ago'.

In some languages, this main-clause strategy is still commonly employed in contexts requiring the distance-past meaning. Some examples are given in E96-97 below.

E96. 'there exists, there is'

a. French (*il y a*, lit. 'it here has', i.e. 'there is')

Il y a une semaine que je suis venu.

'I came a week ago.'

b. Basque (*duela* 'it has')

Duela bi ordu hemen zen.

it.has two hour here he.was

'He was here two hours ago.'

c. Lezgian (HASPELMATH 1993:305)

Am fe-na wad jarz ja.

[she.ABS go-AOR.CONV] five month is

'It's been five years since she went, i.e. She went five years ago.'

d. Haitian Creole (*gin* 'have, exist')

Sa pa gin lontan, you nonm yo rélé Tédas... (Acts 5.36)

it not has longtime one man they call Theudas

'Not long ago, a man called Theudas...'

E97. 'it makes'

a. Haitian Creole

Jodi-a fè kat jou, mouin té lakay mouin. (Acts 10.30)

today make four day I PAST house my

'Four days ago I was in my house.'

b. Spanish

Hace cuatro días que a esta hora yo estaba en ayunas. (Acts 10.30)

'Four days ago I was fasting until this hour.'

However, as part of a process of grammaticalization the erstwhile main clause may be turned into an adverbial phrase, while the erstwhile subordinate clause becomes the main clause. Such grammaticalization processes are not uncommon, cf. HEINE & REH (1984), HASPELMATH (1997:§6.2) for further examples. The verb 'exist'/'pass' becomes an adposition in this way, often with quite peculiar synchronic properties. For instance, Italian now has a postposition *fa* (lit. 'it makes'), which is unique among all the prepositions. Examples from Romance languages are given in E98.

E98. a. French

*Je suis venue **il y a** une semaine.* 'I came a week ago.'

b. Spanish

*He venido **hace** una semana.* 'I came a week ago.'

c. Italian

*Sono venuta una settimana **fa**.* 'I came a week ago.'

*Sono venuta due settimane **or sono**.* 'I came two weeks ago.'

The originally verbal character of French *il y a* can still be seen in the fact that it may be put in the past and future tense (cf. E99a-b)³ and may even be negated (cf. E99c). (This is not possible, for instance, in Italian, where there is no **faceva* corresponding to *il y avait* in E99a.)

E99. French (HENRY 1966:208-212)

a. *Le Ministre des Affaires étrangères de Finlande l'avait proclamé,
il y avait quelques jours de ça... (Aragon)*

'The Finnish foreign minister had declared it several days earlier...'

b. *Au mois de juin de l'année dernière, **il y aura** un an dans quelques jours,
vous vous teniez face à lui,... (Duras)*

'Last June, it will be a year ago in a few days, ...'

c. *Ceci s'est passé **il n'y a pas** trois siècles. (Hugo)*

'This happened not three centuries ago.'

At the same time, it is clear that French *il y a* introduces a dependent phrase, and is not an independent juxtaposed clause, because *il y a* phrases may be

³ This is also true of Spanish *hace* (past *hacía*), which makes it very unlikely that ELERICK's (1989) etymology of Spanish *hace* is correct. He derives *hace* not from the 3rd person singular present form of *hacer* 'make', but from Latin **abhince* 'hence'. Or at least, if this is the historical origin, it is clear that at some stage *hace* was identified with the form of *hacer*.

focused (cf. E100a) and be the object of the preposition *jusque* (cf. E100b) (HENRY 1966:211-12, 1968; see also GROSS 1986, BERTHONNEAU 1993b).

E100. a. *C'est il y a six ans que j'ai dû quitter le lycée...*

'It was six years ago that I had to leave high school...'

b. *Jusqu'il y a cinq minutes, je croyais que ça te serait égal.* (Malraux)

'Until five minutes ago I believed that it would be the same to you.'

English *ago* (from Middle English *agon* 'to pass') must also have arisen in this way.

Finally, I have found two cases of languages where the verb 'pass' is used in a relative clause modifying the distance phrase. This phrase itself is marked by a general adposition ('in' in E101) or not at all (cf. E102).

E101. Hausa

Daanaa yaa daawoo cikin awàa biyun dà sukà wucèe.
my.son 3SG.PAST return in hour two [REL 3SG.PAST pass]

'My son returned two hours ago.'

E102. Indonesian

Empat belas tahun yang lalu orang itu...
four ten year [which pass] man this

'Fourteen years ago, this man...'

Thus, in these cases the distance-past meaning 'two hours ago' results from a source which means 'at the time of the past two hours', i.e. 'at the beginning of the past two hours'. A period of time is used here to refer to an extreme point of this period. This is not so unusual, as we will see in the next subsection.

6.2.2. 'Within'

There are quite a few languages that are like English in that they use a marker which also does duty for the spatial inclusion relation, i.e. 'in', to denote the distance-future function. It is here that we see the asymmetry between distance-past and distance-future most clearly, because the distance-past meaning is almost never expressed in this way. Some examples of 'in' in this function are:

E103. a. French

*Je partirai **dans** quinze jours.*

'I will leave in fifteen days.'

b. Spanish

***Dentro de** dos días se celebra la pascua. (Mt 26.2)*

'Easter will be celebrated in two days.'

c. Modern Greek

Tha jiríz-o se tris óres.

FUT return-1SG in three hours

'I will return in three hours.'

d. Finnish

Palaa-n kahde-ssa tunni-ssa.

return-1SG two-INESS hours-INESS

'I will return in two hours.'

e. Georgian

Or saat-ši da-v-brundebi

three hour-LOC PREV-1SG-return

'I'll return in three hours.'

f. Punjabi

do kàṅṅe vīcc/ do kàṅṅe de andar

two hours in two hours of inside

'in two hours'

g. Kannada (SRIDHAR 1990:199)

aidu nīmīṣad-alli

five minute-LOC

'in five minutes'

h. Imbabura Quechua (COLE 1985:126)

Ishkay uras-pi tigramu-sha.

two hours-in return-FUT.1SG

'I will return in two hours.'

These examples from languages in three continents are sufficient to demonstrate beyond doubt that the use of *in* in English and German is not an accident. This is underlined additionally by the fact that a number of languages use their emphatic, less grammaticalized variant of 'in', i.e. an adposition meaning 'inside, within' (Spanish *dentro de*, rather than *en*; French *dans* rather than *en*; Punjabi *andar* in addition to *vīcc*; in Finnish *kuluessa* 'in the course of' is an alternative to the Inessive case). We thus need to establish a semantic connection between 'inside, within, in' and the notion of distance-future.

My proposed explanation takes the following form. I start from the observation that *within* in English (and analogous adpositions in other languages, e.g. *innerhalb* in German) can be used to denote the telic-extent meaning when used with accomplishment predicates. In contrast to *in*, the more emphatic *within/innerhalb* highlights the fact that the completion of an event does not exceed certain temporal boundaries.

E104. English/German

*They tore down the house **within** five hours.*

*Sie haben das Haus **innerhalb** von fünf Stunden abgerissen.*

When used with a future tense, *within/innerhalb* is already fairly similar semantically to the distance-future function:

E105. English/German

*Bob will make 77 cookies **within** one hour.*

*Bob wird **innerhalb** einer Stunde 77 Plätzchen backen.*

Under the assumption that Bob will start making the cookies now (again, the moment of speech can be left implicit as a default), the event will be completed one hour from now. The next step is the crucial one: the extension to verbs with different aspectual properties that cannot normally cooccur with telic-extent time adverbials, e.g. momentary verbs ('explode', 'criticize') and durative atelic verbs ('dance', 'work'). These do not combine happily with *within/innerhalb*, but if they cooccur with *within/innerhalb*, the resulting interpretation is even more similar to the distance-future meaning.

English/German

E106. *The bomb will explode **within** an hour.*

*Die Bombe wird **innerhalb** einer Stunde explodieren.*

E107. *We will work **within** a month.*

*Wir werden **innerhalb** eines Monats arbeiten.*

E106 is compatible with a distance-future reading, although it is also felicitous if the event takes place at any time that is less than an hour away from the moment of speech. The same is true for E107, which is felicitous only if the activity predicate is used with a perfective, i.e. inceptive interpretation. The final step in the semantic development has been taken once the location is

understood more specifically as the end of the time period, and the beginning of the time period is fixed as the moment of speech.

Now that I have proposed a possible scenario for the semantic development from 'within' to distance-future, we can also explain the asymmetry with respect to the distance-past function, i.e. why E108 is a common development, while E109 is unattested.

E108. a. 'You will receive the letter within three days.' >

b. 'You will receive the letter in three days.'

E109. a. 'I received the letter within a month.' >

b. 'I received the letter a month ago.'

The oddity of the development in E109 is derived from the oddity of sentence E109a itself. 'Within' would be used with past situations only if multiple events are involved, e.g. 'I received sixty-nine letters within a month'. With single past events, the precise location is usually known, so that the specification 'within X' makes the sentence less precise than necessary.⁴

6.2.3. 'Back'

In a number of languages, the spatial directional adverb 'back' is used for the distance-past function. A few examples are given below.

E110. Russian

My pozna komilis' pjat' let tomu nazad.
we got.acquainted five years to.this back

'We met five years ago.'

E111. Nanay

Žuer ajhani-wa xamasi
two year-ACC back

'two years ago'

⁴ *Within* is felicitous with hypothetical past events, as in the following example: *She must have been bitten by a mosquito within a month*. However, here too, *within the past month* would be more usual.

E112. Estonian (URMAS SUTROP, p.c.)

Minu poeg naases kaks tundi tagasi.
 my son returned two hour.PRTV back
 'My son returned two hours ago.'

E113. Welsh (KING 1993; *ôl* 'footprint, trace, rear, back'; *yn ôl* 'in the back')

Wedes i 'r un peth wrtho ddwy flynedd yn ôl.
 told I the same thing two years in back
 'I told him the same thing two years ago.'

These cases are explained in a way very similar to the cases in E81-87 above from Turkish and other languages. The spatial directional adverb 'back' is interpreted temporally to mean 'earlier', and the reference time is expressed as an extent phrase, so that it precedes the adverb even in head-initial languages like Russian and Welsh, giving rise to quasi-postpositions. The relevance of the moment of speech as end point of the time span is usually made explicit in Russian by means of the proximal demonstrative *tomu* 'this.DAT'.

The most interesting point about this use of 'back' is that it contrasts strikingly with the use of 'before' or 'in front' for expressing the same semantic function. Clearly, in this case the image of the observer moving forward in stationary time is predominant, whereas in cases like Turkish *önce* 'before, ago' the image of time moving toward the observer is predominant. It is perhaps not an accident that the instances of 'back' in E99-102 all seem fairly young, whereas the cases of 'front' for the analogous function in Table 13 above are in part much older. In general, the image of moving time appears to be expressed by less surprising, less figurative, more abstract language, whereas the image of the moving ego is expressed by more figurative language.

6.2.4. 'Over'

In a number of languages, a spatial marker that means 'over, across' also serves as a temporal marker of the distance-future function. The following four examples illustrate this. (Note that Dutch is not in my sample.)

E114. Dutch⁵

- a. *over de straat* 'across the street'
 b. *over twee uur* 'in two hours'

E115. Russian

- a. *My pošli čerez most.* 'We went across the bridge.'
 we went over bridge
 b. *My pojdem čerez dva časa.* 'We'll go in two hours.'
 we will.go over two year

E116. Romanian

- a. *peste zid* 'over the wall'
 b. *peste o lună* 'in a month'
 over a month

E117. Lezgian (Superrelative case)

- a. *müqwe-laj* 'across the bridge'
 bridge-SUPEREL
 b. *q'we wacra-laj* 'in two months'
 two month-SUPEREL

This usage, too, can be understood on the basis of the movement metaphor for time. But in contrast to the use of the verb 'pass', where it is time that moves, the use of 'over' for distance-future is based on the moving ego. 'Over two hours' is short for 'when we have passed the mark of two hours', just like 'over the bridge' is short for 'when the subject has passed the bridge'.

6.2.5. 'Yet'

In two languages I have found a marker of the distance-future function that has no relation to space: the additive phasal time adverb 'yet, still' (German *noch*) (see VAN DER AUWERA (1997b) for a thorough cross-linguistic study of this and related adverbs). The two languages are Hebrew and Indonesian:

⁵ Some varieties of German have an analogous use of *über*, cf. (i) from a well-known folk song:

(i) *Übers Jahr, übers Jahr, wenn mer Träubele schneidt,*
so soll die Hochzeit sein.
 'In a year, in a year, when we reap the grapes, then will be the wedding.'

E118. Hebrew

- a. *šod nemala aḥat*
 yet ant one
 'one more ant, yet an(other) ant'
- b. *šod yom-ayim ha-pesaḥ ba/ ba-šod yamim lo rabim*
 yet day-DU the-Passover coming in-yet days not many
 'Passover will be in two days' / 'in not many days'

E119. Indonesian

- a. *Saya minta dua lagi.*
 I want two yet
 'I want two more' (German: 'Ich möchte **noch** zwei.')
- b. *Dua hari lagi aku berangkat.*
 two day yet I leave
 'I will leave in two days.'

The origin of this construction is probably a sequence of two main clauses, somewhat like the construction discussed in §6.2.1 (French *il y a*). This is best illustrated by using German examples with *noch*, because neither *yet* nor *still* are good equivalents of Hebrew *šod*, Indonesian *lagi*. A hypothetical change along the lines of E120 seems quite plausible, and is completely analogous to the change discussed in §6.2.1.

E120. [Es sind] **noch** zwei Tage, ich werde [dann] wegfahren.

> Ich werde **noch** zwei Tage wegfahren.

'[It's] still two days, [then] I will leave. > I will leave still two days.'

The phasal meaning of *noch* (*šod*, *lagi*) yields the future meaning of the distance-future function. Somewhat similar is the use of *digar* 'other' in Persian (e.g. *se sâle digar bar migardam* [three year other back I.come] 'I'll return in three (more) years).

The converse of 'yet, *noch*' is 'already', so we might expect that some languages use their 'already' word for the distance-past function. I have not found an example of this, but this may be an accidental gap in my data, because 'already' is widely attested in the distance-posterior function (cf. §8.3.2), which is closely related to the distance-past function and is commonly expressed by similar formal means.

6.3. Deictic and non-deictic distance expressions

So far we have been exclusively concerned with deictic distance expressions, i.e. temporal adverbials locating a situation at a certain temporal distance from the moment of speech. But we saw already in §2.4 that distance expressions can locate situations also with respect to other time locations. First, let me say a few words about distance expressions like *a year after the Kobe earthquake*, which measure the distance between the located situation and an explicitly given reference situation. I assume that all languages use their regular anterior and posterior markers in combination with some means of specifying the distance. I have not systematically investigated the grammar of distance phrases, because they are not peculiar to temporal adverbials. In prepositional languages, the distance phrase typically precedes the anterior/posterior preposition and is unmarked, or marked with the accusative (or other minimal) case. Some examples are given in E121, most of which are from a New Testament passage (John 12.1).

E121. a. German

einen Monat vor der Geburt des Kindes
'a month before the baby's birth'

b. Bulgarian

šest dni predi pasxa-ta
six days before Easter-ART
'six days before Easter'

c. French

un an après l'élection de Chirac
'a year after Chirac's election'

d. Indonesian

enam hari sebelum Paskah
six day before Easter
'six days before Easter'

e. Italian

un' ora prima della mia partenza
'an hour before my departure'

f. Spanish

seis días antes de la pascua
'six days before Easter'

g. Swedish

sex dagar före påsken
six days before Easter
'six days before Easter'

I have two examples of prepositional languages with postposed distance phrases, marked by specific prepositions:⁶

E122. a. Arabic

qabla l-fiṣḥi bi-sittati ʔayyaamin
 before the-Passover with-six days
 'six days before Passover'

b. Croatian

prije vazma na šest dana
 before Easter by six day
 'six days before Easter'

I have only two examples from postpositional languages. In Turkish, the distance phrase is unmarked and precedes the postposition immediately. In Hungarian, it precedes the object of the postposition and is in the Instrumental case.

E123. a. Turkish (cf. also E82)

Cumhuriyet Bayramın-dan bir gün önce
 Republic Festival-ABL one day before
 'one day before the Republic Festival'

b. Hungarian (cf. also E88b)

hat nap-pal a húsvét előtt
 six day-INSTR the Easter before
 'six days before Easter'

In the present context of deictic distance expressions, somewhat more interesting is the question to what extent the distance markers described in §6.1-2 can also be used when the distance is measured not from an explicitly given reference point, but from a reference point that is implicit in the context (hence, KUČERA & TRNKA (1975:38) and KLEIN (1994:156) call such expressions 'anaphoric'). In many languages, a different marker must be used when the

⁶ A very peculiar example from New Testament Greek is (i). (This sentence, incidentally, is the source of many of the examples in E121-123.)

(i) *Hō oūn Iēsoūs prò hēx hēmerōn toū páscha ēlthen eis Bēthanían*
 ART PT Jesus before six days ART.GEN Passover came to Bethany
 'Six days before Passover Jesus came to Bethany.' (John 12.1)

Since Greek *pró* is also used in the distance-past function, this non-deictic use seems to be based on the deictic one, and literal translation might be 'Six days ago from Passover, i.e. six days before Passover'.

reference point is not the moment of speech. In §2.4 I introduced the terms **distance-retrospective** and **distance-prospective** for these cases. The difference between retrospective and past distance expressions, and between prospective and future distance expressions is illustrated by English in E124-125 (see also E27a-b in chapter 2).

- E124. a. (past) *Our son returned from the army **two weeks ago**.*
 b. (retrospective) *Do you remember when your brother paid us an unexpected visit, coming all the way from Chile? Fortunately, all of us were at home. Our son had returned from the army **two weeks earlier** (/ *ago).*
- E125. a. (future) *Will Switzerland exist **in fifty years' time**?*
 b. (prospective) *Tito died in 1980. **Ten years later** (/ *in ten years) Yugoslavia began to crumble.*

I did not investigate the expressions for the distance-retrospective and distance-prospective functions systematically for the sample languages, but I do have limited data on the distance-prospective function in 27 languages. My data stem mostly from the New Testament, where translations of sentences like E125b are easy to find. In 13 of these 27 languages, the distance-prospective marker is identical to the distance-future marker. Thus, the deictic/nondeictic distinction is made by a substantial proportion of the languages, as in English, but there are also many languages in which this distinction is lacking. The data are summarized in Table 14 on the next page. In addition to the distance-future and distance-prospective markers of the 27 languages for which data are available, I have included the posterior markers in Table 14, because these are also often formally identical or related (marked by "=", "(=)", or "≈" between the distance-prospective and posterior columns).

A number of observations can be made on the basis of Table 14. First, within Europe, there is a clear areal patterning in the distribution of the deictic/nondeictic distinction: Western and northern European languages tend to make this distinction, whereas eastern European languages tend to lack it. Interestingly, Latin and Ancient Greek (which is not in the sample but is included in Table 14) pattern with the eastern European languages, not with Romance and Modern Greek.

Table 14: Deixis distinctions in the expression of temporal distance

	distance-future (= deictic)	distance-prospective (= non-deictic)	posterior
A. Languages showing the deictic/non-deictic distinction			
English	<i>in</i>	<i>X later, after X</i>	= <i>after X</i>
German	<i>in</i>	<i>X später, nach X</i>	= <i>nach X</i>
Swedish	<i>om</i>	<i>X senare, efter X</i>	= <i>efter X</i>
French	<i>dans</i>	<i>X plus tard</i>	<i>après</i>
Spanish	<i>dentro de</i>	<i>X después</i>	≈ <i>después de X</i>
Haitian Creole	<i>nan</i>	<i>apré X</i>	= <i>apré X</i>
Russian	<i>čerez</i>	<i>spustja</i>	<i>posle</i>
Croatian	<i>do</i>	<i>poslije</i>	= <i>poslije</i>
Modern Greek	<i>se</i>	<i>ístera apó</i>	<i>metá</i>
Irish	<i>i gcionn X</i>	<i>X ina dhiaidh sin</i>	<i>roimh</i>
Finnish	<i>-ssa (INESSIVE)</i>	<i>X myöhemmin</i>	<i>X jälkeen</i>
Maltese	<i>fi</i>	<i>X wara</i>	≈ <i>wara X</i>
Indonesian	<i>lagi</i>	<i>kumudian</i>	<i>sebelum</i>
B. Languages lacking the deictic/non-deictic distinction			
Latin	<i>post/ABLATIVE</i>	<i>post</i>	= <i>post</i>
Ancient Greek	<i>metá</i>	<i>metá</i>	= <i>metá</i>
Albanian	<i>pas</i>	<i>pas</i>	= <i>pas</i>
Bulgarian	<i>sled</i>	<i>sled</i>	= <i>sled</i>
Lithuanian	<i>po/praslinkus</i>	<i>po/už/praslinkus⁷</i>	= <i>praslinkus/po</i>
Latvian	<i>pēc</i>	<i>pēc</i>	= <i>pēc</i>
Hungarian	<i>múlva</i>	<i>múlva</i>	<i>után</i>
Estonian	<i>X pärast</i>	<i>X pärast</i>	≈ <i>pärast X</i>
Lezgian	SUPERRELATIVE	SUPERRELATIVE	<i>gü ġüniz/q'uluq^h</i>
Chechen	<i>-älča</i>	<i>-älča</i>	<i>t'äħa</i>
Arabic	<i>baʿda</i>	<i>baʿda</i>	= <i>baʿda</i>
Japanese	<i>go ni</i>	<i>go ni</i>	= <i>go ni</i>
Chinese	<i>yǐhòu</i>	<i>yǐhòu</i>	(=) <i>(guo)hòu</i>
Turkish	<i>X sonra</i>	<i>X sonra/geçince</i>	(=) <i>X-den sonra</i>

⁷ There is dialectal variation between *po* and *už* (see URBANAVIČIŪTĖ-MARKEVIČIENĖ & GRINAVECKIS 1995 for detailed discussion).

This is of course a familiar pattern in the areal typology of Europe, and it suggests that the existence of the deictic/non-deictic distinction should be included in the list of features identifying Standard Average European (cf. VAN DER AUWERA (1997a) for some recent discussion of this *Sprachbund*).

Second, the data in Table 14 suggest the following implicational generalization: If in a language the posterior and the distance-future markers are identical, then the distance-prospective marker also takes the same form. This gives us some additional insight into the identity of these two markers, which was already discussed in §6.1 above. It is clear that in languages where all three markers are formally identical (e.g. Ancient Greek, Bulgarian, Arabic, Japanese), the distance markers are derived from the posterior marker, and the distance-future function is treated as just a special case of the distance-prospective function.

Among the languages that distinguish the distance-future from the distance-prospective function, those that show the 'within' type of distance-future marker (discussed in §6.2.2) are particularly prominent. 'Within' markers never express both distance-future and distance-prospective, they are always purely deictic. It is not clear to me why this should be so.

Another observation is that when the posterior and distance-prospective markers are not identical, then the distance marker tends to be an adverb which combines with a (mostly preceding) distance phrase. The adverb can be a comparative of the adjective 'late' (as in English, German, Swedish, French, Modern Greek, Finnish, Indonesian), or based on a spatial adverbial ('behind, in back, afterward'; Spanish, Maltese, Estonian).

Before concluding this chapter, I would like to discuss briefly expressions such as E126a-b (cf. also E99b from French, which is similar).

E126. a. English

three years ago today

b. German

morgen in einer Woche 'a week from tomorrow'

These show an apparent non-deictic use of the otherwise exclusively deictic adpositions *ago* and *in*, being synonymous with the unidiomatic phrases *three years before today*, and *eine Woche nach morgen*, respectively. In their discussion of *ago*, KORTMANN & KÖNIG (1992:678) go as far as to claim that English *ago* can generally be used non-deictically, like *before*, and that the deictic interpretation

results only when no other reference point is given explicitly.⁸ But both in English and in German, this construction is severely restricted. While any time unit expression can be inserted as the distance phrase, only a few expressions are possible as explicit reference points. In German, my judgments are as shown in E127.

- E127. a. *heute* 'today'
 morgen 'tomorrow'
 übermorgen 'day after tomorrow'
 gestern 'yesterday'
 vorgestern 'day before yesterday'
 ?**letzte/nächste Woche* 'last/next week'
 ?**letzten/nächsten Monat* 'last next month'
 **in zwei Tagen* 'in two days'
 **vor zwei Tagen* 'two days ago'
- b. **jetzt vor zehn Stunden* 'two hours ago now'
 c. **heuer in einem Jahrhundert* 'in three years this year'
- } { *vor einem Jahr* 'a year ago'
 in einem Jahr 'in a year'

Thus, the only possible explicit reference points are *heute*, *morgen* and *gestern*, plus compounds derived from the two latter words.⁹ While I have no explanation for the nature of this restriction, I feel that these cases are not sufficient to question the basically deictic meaning of *ago*, *in*, etc. These expressions contradict my analysis somewhat, but they should be analyzed as idiomatic, analogous to completely idiosyncratic and non-compositional phrases like *tomorrow week* 'a week from tomorrow'.

⁸ KORTMANN & KÖNIG also claim that *ago*, like *before* (and like *from* in their distance-prospective example *three years from now*), is a preposition which in *three years ago today* takes *today* as its argument, often allows an unexpressed argument (resulting in a deictic interpretation), and requires an obligatory "specifier" (i.e. preposed distance phrase). This analysis, though ingenious, is implausible because of the marginal status of the "argument" following *ago* (see E127). Its main virtue is that it identifies the somewhat unclear syntactic status of *today* with the well-understood status of being an argument of a preposition. But this analysis of English *ago* does not extend to German E126b, where *morgen* intuitively has the same function as English *today* in E126a. (To be consistent, KORTMANN & KÖNIG would have to analyze German *in* as a postposition followed by a Dative-marked distance phrase, which I doubt they would be prepared to do.)

⁹ Incidentally, I find *überüberüberübermorgen vor einem Jahr* much better than the synonymous **in fünf Tagen vor einem Jahr* 'a year ago in five days', although the former is almost unprocessable. This shows that the constraint is lexical rather than semantic.

Chapter 7

Simultaneous temporal location

7.1. Introduction

At first glance, simultaneous temporal location looks semantically quite simple: The located situation is simultaneous with the reference time, which is either a point in time (e.g. *five o'clock, our arrival at the summit*) or a time span (e.g. *the summer, the federal budget negotiations*). Spatial models for simultaneous location are readily available: For reference time points, the one-dimensional spatial meaning 'at (a point in space)' is available, and for reference time spans, the two-dimensional spatial 'on (a surface)' or the three-dimensional spatial 'in (a container)' can be used. And indeed, this is the option that languages overwhelmingly choose: They transfer their simplest spatial markers to temporal noun phrases to denote simultaneous temporal location. Thus, the English expressions *at five o'clock, on Thursday, in January* are very typical. There are only three languages in my sample, Lithuanian, Swahili and Abkhaz, which do not use spatial markers in any of the simultaneous functions. But even these languages make only limited use of non-spatial markers: Swahili and Abkhaz mostly show zero marking, and Lithuanian mostly has accusative case marking. Thus, they are fairly weak exceptions to the general rule.

Languages commonly restrict the application of their spatial markers to NPs headed by specialized temporal nouns, i.e. nouns denoting canonical time periods (plus a few others, such as 'time', 'beginning', 'end'). Thus, we can say *in the winter, in the morning, at Easter*, but not **in the federal budget negotiations, *in the soccer game* (at least not in the temporal sense).¹ I have not made a systematic study of this restriction, but it appears that most languages require auxiliary nouns like 'time' when expressing simultaneity with an event denoted by a normal action noun, e.g. in Russian *vo vremja peregovorov* 'at the time of the negotiations' (contrasting with **v peregovory* 'in the negotiations'). Several European languages have a special preposition for this purpose

¹ These expressions are possible in a non-temporal sense, where involvement in the action is implied. The contexts provided in (i)-(ii) show that only *during* is possible in English when a purely temporal sense is intended.

- (i) **In/During the federal budget negotiations, Clinton's popularity was rising and rising.*
- (ii) **In/During the final game of the soccer world championship, many cases of burglary were committed.*

(English *during*, French *pendant*, Italian *durante*, German *während*), but I have not found a similar special marker in most other languages, so I did not distinguish a separate semantic function for them.

Thus, the only simultaneous temporal adverbials investigated in this study are those that are based on the canonical time periods, i.e. time units (hours, days, months, years), calendar unit names (April, Thursday), and the qualitative periods of the day (morning, evening, etc.) and the year (spring, summer, etc.), as listed in Table 3 in §2.1. Semantically, all of these denote time spans, except for hours, which are commonly used to denote points in time, e.g. *at five o'clock* (contrasting with location in time spans such as *in the morning*, *in 1962*). On the basis of this consideration, we might expect that many languages will express clock time by one marker (e.g. a one-dimensional spatial marker such as English *at*), and all the other types of simultaneous temporal location by another marker.

However, this is almost never the case. In some languages, all types of reference time nouns are marked in the same way, e.g. in Latin (Ablative case), Latvian (Locative case), Abkhaz (postposition *-zə*), Hebrew (preposition *be-*), Swahili (zero-marking). In many other languages, different types of reference time nouns require different markers, but hours are not very often treated in a special way (cf. §7.3 for details). The situation in English, where three different markers are used (*at*, *on*, *in*) is not untypical for this class of languages. It is not immediately clear why languages should use different markers in these cases, because semantically there are no apparent differences (but cf. WIERZBICKA 1993). Examples of other languages that show several different markers are given in E128-131.

E128. French (three markers: \emptyset , *à*, *en*)

a. hour:	<i>à 5 heures</i>	'at five o'clock'
b. day part:	<i>au/∅ le matin</i>	'in the morning'
c. day:	<i>∅ mardi/∅ le premier</i>	'on Tuesday/on the first'
d. month:	<i>en juin</i>	'in June'
e. season:	<i>en hiver</i>	'in the winter'
f. year:	<i>en 1789</i>	'in 1789'
g. festival:	<i>à Pâques</i>	'at Easter'

E129. Japanese (two markers: \emptyset und *-ni*)

a. hour:	<i>go-zi-ni</i>	'at five o'clock'
b. day part:	<i>asa(-ni)</i>	'in the morning'
c. day:	<i>getuyoobi(-ni)</i>	'on Monday'
d. month:	<i>nigatu-ni</i>	'in February'
e. season:	<i>natu-ni</i>	'in the summer'
f. year:	<i>1990 nen-ni</i>	'in 1990'
g. festival:	<i>Kurisumasu-ni</i>	'at Christmas'

E130. Hungarian (five markers: *-kor*/ \emptyset /*-en*/*-Cal*/*-ban*)

a. hour:	<i>hat-kor</i>	'at six o'clock'
b. day part:	<i>este</i> \emptyset	'in the evening'
c. day:	<i>kedd-en</i>	'on Tuesday'
d. month:	<i>január-ban</i>	'in January'
e. season:	<i>tavas-szal</i>	'in the spring'
f. year:	<i>ez év-ben</i>	'this year'
g. festival:	<i>karácsony-kor</i>	'at Christmas'

E131. Hausa (four markers: *dà*/ \emptyset /*à*/*gà*)

a. hour:	<i>dà k'arfèe bìyar</i>	'at five o'clock'
b. day part:	<i>dà màrùicee</i>	'in the evening'
c. day:	\emptyset <i>ran littinîn</i>	'on Monday'
d. month:	<i>(à) watàn Maayù</i>	'in May'
e. season:	<i>dà dāamunaa</i>	'in the rainy season'
f. year:	<i>à shèekaràr 1990</i>	'in 1990'
g. festival:	<i>gà sallàr Kiristimeetì</i>	'at Christmas'

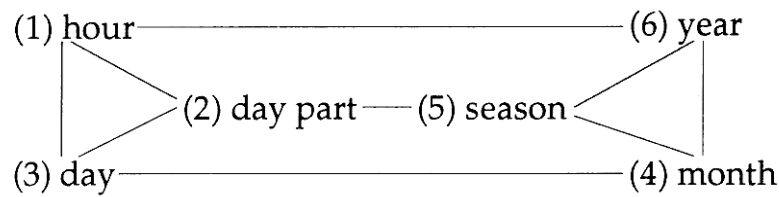
The enormous variation shown by these four languages and English is sufficient to make one skeptical of the approach advocated in WIERZBICKA (1993). She argues that a common meaning can be found for *at* in *at five o'clock*, *at noon*, *at the beginning*, *at night*, *at the beginning*, and for *on* in *on Thursday*, *on the first night*. This kind of in-depth semantic analysis of a single language can certainly be insightful, but it does not throw much light on the cross-linguistic variation. In particular, it would lead us to expect that the English pattern of simultaneous markers should repeat itself in other languages (which is not the case). Of course, it is possible that different languages conceive of different time periods in different ways, but it is equally possible that a lot of these markings are fairly arbitrary conventions.

The goal of this chapter will be to discover a few cross-linguistic regularities in these diverse patterns. I have looked systematically at the expression of simultaneous location with reference time nouns of the seven types shown in the examples above.

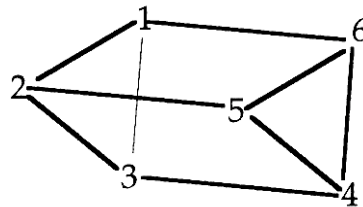
7.2. An implicational map for simultaneous location markers

In order to capture some regularities in the distribution of various markers (adpositions and cases) over different types of time unit nouns, I propose to make use of the methodology of implicational maps that has been pioneered by L. ANDERSON (1982) and used and further developed in KEMMER (1993), HASPELMATH (1997: Ch. 4) and KORTMANN (1997: Ch. 7). An implicational map (also called "semantic map", cognitive map") shows a geometric arrangement of several (semantically or otherwise) distinguishable functions or uses that a grammatical element may have. A grammatical marker in a given language may express a range of different functions, but these functions must always be adjacent to each other on the map, i.e. a marker must cover a contiguous area. Thus, an implicational map makes the prediction that only a subset of the logically possible patterns of polysemy actually occur in languages, i.e. it expresses the universal constraints on polysemy or polyfunctionality of grammatical markers. An implicational map can be seen as an abbreviatory statement of a number of implicational universals (HASPELMATH 1997). At the same time it shows the patterns of relatedness among different functions, because adjacency on the map is always due to functional closeness.

The fewer connections exist among the functions on an implicational map, the greater the constraints on polyfunctionality. In the case of time period nouns functioning in simultaneous adverbials, the implicational map that I propose shows nine connections among six functions, which is not optimal (the most restrictive map would show just five connections), but it does capture some restrictions (the most permissive map, which allows any combination of functions in a marker, would have fifteen connections). The map I propose for the six time period types hour, day part, day, month, season, year is shown in Figure 32. (For the seventh simultaneous type, festival, see §7.5.)

Figure 32: The implicational map for simultaneous location markers

Crucially, adjacency on the map is defined by the connecting lines, not by distance. Thus, function (1) (hour) is adjacent to (6) (year), but not to (5) (season). In order to show adjacency purely in terms of distance, one would have to use a three-dimensional representation, as sketched in Figure 33.

Figure 33: A three-dimensional representation of the implicational map

For expository convenience, I will only use the two-dimensional version of Figure 30, omitting the connecting lines. To show how the map works in practice, let us look at the distribution of the simultaneous markers in several languages over the map. The maps for English, French, Japanese, Hungarian and Hausa are shown in Figures 34-38.

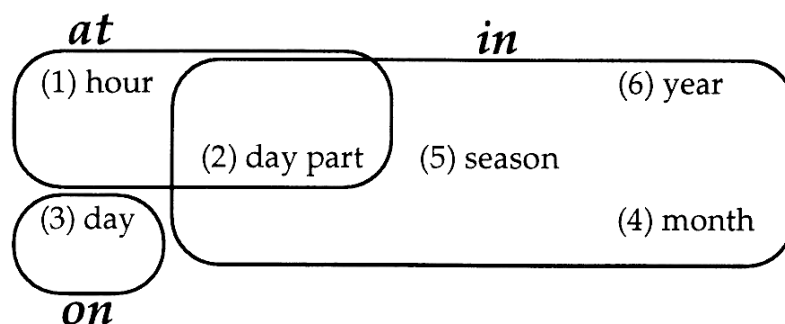
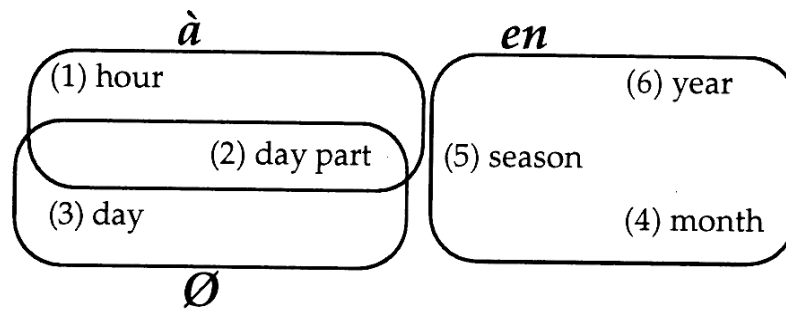
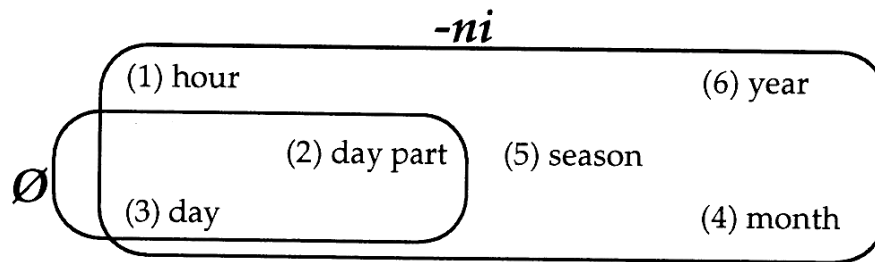
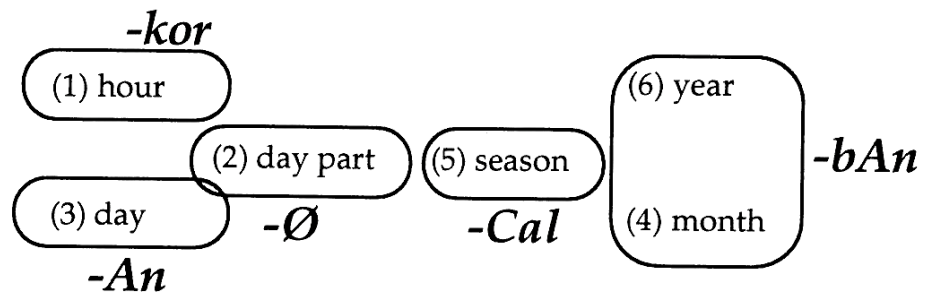
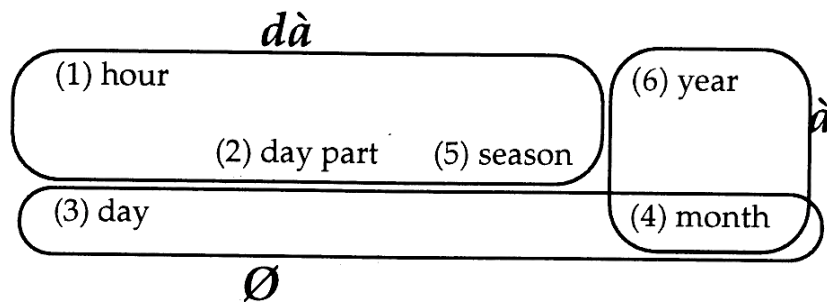
Figure 34: English

Figure 35: *French*Figure 36: *Japanese*Figure 37: *Hungarian*Figure 38: *Hausa*

Thus, languages vary widely in their marking of simultaneous location with different types of time units. Apart from the five languages of my sample that do not differentiate the six types at all, there are hardly any pairs of languages that show the same distributional pattern. But in general they conform to the overall pattern defined by Figure 32.

Unfortunately, however, this implicational map is not without exceptions. The clearest violation of the map is found in Nkore-Kiga, which according to TAYLOR (1985) shows the preposition *aha* for the functions (1), (3) and (5), and the preposition *omu* for the functions (2), (4), and (6).

Nkore-Kiga

E132. a.	(1) <i>aha shaaha ikumi</i>	'at ten o'clock'
	b. (3) <i>aha rwakana</i>	'on Thursday'
	c. (5) <i>aha kyanda</i>	'in summer'
E133. a.	(2) <i>omu mwabazyo</i>	'in the afternoon'
	b. (4) <i>omu kwezi kwa Januwari</i>	'in January'
	c. (6) <i>omu mwaka gwa 1985</i>	'in 1985'

Perhaps *omu* can also be used with days (cf. TAYLOR 1985:118), which would remove the anomaly in the distribution of this preposition, but *aha* still violates the implicational map. In Finnish, the Essive case (*-na*) is used with days and years (*vuon-na 1990* 'in 1990'), but not normally with any of the other time units (however, it is used with other time units when these have a preceding modifier, cf. E144 below). Finally, in Italian the preposition *a* is only used with hours (*alle due* 'at two o'clock'), day parts (*alla mattina* 'in the morning'), and months (*a maggio* 'in may').

Thus, the implicational map does not represent an absolute universal, but only a tendency. Nevertheless, as such it retains its usefulness. In the following sections, I will try to explain why the time unit types are arranged on the map the way they are, and I will make further comments on the individual markers, to the extent that generalizations emerge from the data.

7.3. Location in hours

As I mentioned above, the hour is the only time unit that is often (indeed, usually) employed to indicate temporal location at a point rather than in a time span. We can say 'in the seventh hour', but we are much more likely to say 'after six o'clock' or 'between six and seven', using non-simultaneous markers. This is apparently true for most languages. The hours are used with simultaneous location markers mainly when a point in time, or at least a more specific temporal location is intended, e.g. 'at seven o'clock'.

On the basis of this semantic difference, one might think that hours tend to be marked with one-dimensional spatial markers, whereas the other time units

take other spatial markers (cf. WIERZBICKA 1993). However, there is not much evidence bearing out such an expectation. Besides English (*at*), only the Romance languages could be cited, which use their preposition *a/à*, contrasting with *en/in* for most other time units (cf. MEYER-LÜBKE 1899:492).

In about half of the languages of my 53-language sample, the marker used for simultaneous location of hours is the same as that used for several other or the majority of time unit types. In about ten languages, a marker that is more specific than the other markers is used for hours. A few examples of this are shown in E134.

E134. a. Welsh (*am* 'for; about; around'; KING 1993:271)

Ddo i 'n ôl am saith.

come I in back around seven

'I'll come back at seven.'

b. Chechen

c'erpošt süjranna itt saht dälča dšajödu

train evening ten hour at leaves

'The train leaves at ten o'clock in the evening.'

c. Haitian Creole (*vè* from French *vers* 'around')

vè toua zè

'at three o'clock'

d. Finnish (Ablative case; SULKALA & KARJALAINEN 1992:256)

(kello) kolme-lta

clock three-ABL

'at three o'clock'

e. Hungarian (*-kor*, special temporal case suffix, from *kor* 'period')

kilenc óra-kor

nine hour-TEMP

'at nine o'clock'

Other cases are German *um* ('around'), Polish *w* + Accusative ('into'), Greenlandic Eskimo Allative case (*-nut*). Perhaps the recurrent use of 'around' in hour expressions is due to the fact that while clock time strictly speaking denotes a precise point in time, speakers are more likely to locate a situation more loosely in real life.

A handful of languages employ a marker that is less specific than the other markers, e.g. the Dative case in Tamil (*eezu maṇi-kki* 'at seven o'clock') and Kannada (*ombattu gaṇṭe-ge* 'at nine o'clock'), contrasting with the Locative case; the Nominative case in Estonian (*kell viis* 'clock.NOM three.NOM') and alternatively in Finnish; zero in Swedish (*klockan åtta* 'at eight o'clock'), the

Oblique case in Punjabi. Maybe the use of Romance *a/à* also belongs to this group, because *à/a* is a more general, more grammaticalized adposition than *en/in*.

That 'hour' occurs adjacent to 'day part' and 'day' on the implicational map is not surprising, because these are the two next shortest time unit types. That 'hour' is also adjacent to 'year' is more surprising. This is motivated in particular by three languages: Tagalog, where the preposition *nang* is only used for these two functions (*nang alas-otro* 'at eight o'clock'; *nang 1950* 'in 1950'); Babungo, where *máa* is restricted to hour, year and festival (*máa fâyf* 'at five'; *máa ñù* 'y5 in that year'); and Albanian, where *më* is restricted to hour and year (*më dy* 'at two'; *më 1912* 'in 1912'). This special relationship between hours and years may be due to the fact that both hours and years are usually named by numbers (days of the week and months are also numbered in some languages, but this is much rarer).

7.4. Location in day parts and seasons

The parts or periods of the day, called "day parts" here for short, are of course more heterogeneous than the hours. While there is a tendency for the different day parts to behave in a parallel fashion (*in the morning*, *in the afternoon*, *in the evening*; Russian Instrumental case in *utr-om* 'in the morning', *dn-em* 'during the day', *večer-om* 'in the evening'), there are numerous instances in which different day parts are marked in different ways. Thus, Irish has *ar maidin* 'in the morning', *san oíche* 'at night', *um tráthnóna* 'in the evening'; Italian has *all'alba* 'at dawn', *di mattina* 'in the morning', *nel pomeriggio* 'in the afternoon'; Lezgian has *ekünaqh* 'in the morning' (Superessive case), *jifiz* 'at night' (Dative case), *näniz/näniqh* 'in the evening', *nisiniz/nisiniqh* 'at noon' (Dative or Superessive case). It is not possible here to mention all these differences, and it would be very difficult to generalize over them.

There are two reasons for the variation that we observe in day part nouns: First, day parts are generally very frequent in discourse, and due to their high frequency, their combinations with grammatical markers tend to be lexicalized. Thus, there is not as much analogical pressure on day part adverbials as there is on hour adverbials. And second, different day parts may have different semantic properties (cf. WIERZBICKA 1993): While the morning and the evening are semantically quite parallel, the night is a much longer period and has a very different function for people. And dawn, dusk and noon are probably thought of as points in time rather than time spans.

In particular this latter hypothesis is confirmed in quite a few languages: Words for 'noon', 'midnight', 'dawn', etc. tend to differ from the prototypical day parts 'morning' and 'evening' and to resemble hours in their marking. A few examples of this are given in E135.

E135. a. Kobon

<i>sidaŋ</i> Ø	=	<i>ten kilok</i> Ø	≠	<i>sib halö</i>
noon		ten o'clock		darkness with
'at midday'		'at ten o'clock'		'early in the morning'

b. Italian

<i>all'</i> <i>alba</i>	=	<i>all'</i> <i>una</i>	≠	<i>di sera/</i> Ø <i>la sera</i>
at.the dawn		at.the one		of evening the evening
'at dawn'		'at one o'clock'		'in the evening'

c. Hungarian

<i>éjfél-kor</i>	=	<i>hat-kor</i>	≠	<i>reggel</i> Ø
midnight-TEMP		six-TEMP		morning
'at midnight'		'at six o'clock'		'in the morning'

d. Greenlandic Eskimo

<i>ullu-qiqqa-nut</i>	=	<i>tallima-nut</i>	≠	<i>ullaaq</i> Ø
day-mid-ALL		five-ALL		morning.ABS
'at midday'		'at five o'clock'		'in the morning'

e. Bulgarian

<i>v srednošt</i>	=	<i>v 10 časa</i>	≠	Ø <i>sutrin(-ta)</i>
in midnight		in 10 hour		morning(-ART)
'at midnight'		'at ten o'clock'		'in the morning'

The formal marking of day parts in simultaneous location adverbs is in several ways similar to that of the seasons, which is not too surprising in view of their semantic similarity. Both day parts and seasons are not successive time units, but rather periods that are qualitatively different from each other. Names of months and of days of the week are not more than names for time units defined by their position in the calendar, whereas day parts and seasons are defined by their qualitative characteristics much more than by their calendar position.

The first shared formal property is that they tend to be lexicalized in their adverbial form. Several languages have adverbial forms for day parts and seasons that are not used in other syntactic functions besides simultaneous adverbials. In my sample, Chechen and Udmurt have this property:

	adverbial form	nominal form	
E136. Chechen			
a. day parts	<i>dijnaħ</i>	<i>de</i>	'day'
	<i>busa</i>	<i>büjsa</i>	'night'
	<i>ŕijranna</i>	<i>ŕijre</i>	'morning'
	<i>sarah</i>	<i>süjre</i>	'evening'
b. seasons	<i>gurah</i>	<i>güjre</i>	'fall'
	<i>ŕaj</i>	<i>ŕa</i>	'winter'
	<i>bŕästa</i>	<i>bŕäste</i>	'spring'
	<i>äxka</i>	<i>äxke</i>	'summer'
E137. Udmurt			
a. day parts	<i>čukna</i>	<i>čuk</i>	'morning'
	<i>nunaže</i>	<i>nunal</i>	'day'
	<i>žytaže</i>	<i>žyt</i>	'evening'
	<i>uin</i>	<i>uj</i>	'night'
b. seasons	<i>tolalte</i>	<i>tol(alte)</i>	'winter'
	<i>tulys</i>	<i>tulys</i>	'spring'
	<i>gužem</i>	<i>gužem</i>	'summer'

Both Udmurt and Chechen have a fairly rich case system, and they could easily use a locative case for the simultaneous location in day parts or seasons. But the adverbial forms in E136-137 are quite irregular. And even in Russian, whose Instrumental case of day parts (*utr-om* 'in the morning') and seasons (*let-om* 'in the summer') is quite regular from a formal point of view, a widespread view of these forms is that they are fixed adverbials rather than case forms (cf. KUČERA 1966 for some discussion).

Hungarian nicely shows how an oblique case form of such a noun may become fixed as the base form of the noun. In this language, *reggel* means 'morning' or 'in the morning', and *éjjel* means 'night' or 'at night'. These forms are evidently old Instrumental case forms (-*Al* plus gemination of the preceding consonant) of the roots *reg-* and *éj-*,² which have been reinterpreted as base

² The Instrumental case is also used with the seasons, e.g. *ősszel* 'in the fall', *tavasszal* 'in the spring'. The old form *éj* is preserved in compounds such as *éj-szaka* ('night period') and in fixed phrases such as *jó éjt* 'good night'.

forms because of their high frequency.³ The result is that the adverbial form of these nouns is now zero-marked. A similar process may also account for zero marking in Nanay, which is otherwise a highly inflecting language:

E138. Nanay

a. day parts	<i>čimü</i>	'(in the) morning'
	<i>ini</i>	'(during the) day'
	<i>šikse</i>	'(in the) evening'
	<i>dolbo</i>	'(at) night'
b. seasons	<i>neŋne</i>	'(in the) spring'
	<i>žoa</i>	'(in the) summer'
	<i>bolo</i>	'(in the) fall'
	<i>tue</i>	'(in the) winter'

Two other languages that use the base or zero form only with day part nouns and season nouns are Romanian and Greenlandic Eskimo, and in Bulgarian, day part nouns are the only ones to be unmarked in the simultaneous location function. Finally, Finnish and Italian have non-zero simultaneous markers that are only used with the qualitative periods. In Finnish, this is the Adessive case (*illa-lla* 'in the evening', *keskipäivä-llä* 'at noon'; *kesä-llä* 'in the summer', *kevää-llä* 'in the spring'), and in Italian it is the preposition *di* (*di mattina* 'in the morning', *di sera* 'in the evening', *di notte* 'at night'; *d'inverno* 'in the winter', *d'estate* 'in the summer', *d'autunno* 'in the fall'). Thus, the link between day parts and seasons on the implicational map is well-motivated.

To conclude this sub-section, let me say a few words on the seasons. The four seasons of European culture (spring, summer, fall, winter) are of course not universal – languages spoken near the equator generally have very different kinds of seasons, e.g. Hausa *raanii* 'dry season', *dàamunaa* 'rainy season'; Hixkaryana *txemnyehɨ* 'rainy season'; Babungo *ndɔŋ* 'dry season'; Indonesian *musim hujan* 'rainy season', *musim kering* 'dry season'. But these differences do not affect the expression of temporal relations.

A few languages treat different seasons differently:

³ See KOCH (1995) for a discussion of this process, with many further examples from languages around the world.

E139. a. Italian		
winter/summer:	<i>di</i> ('of')	<i>d'inverno/d'estate</i>
spring/fall:	<i>in</i> ('in')	<i>in primavera/in autunno</i> ⁴
b. Hungarian		
winter/summer:	Locative	<i>tél-en/nyár-on</i>
spring/fall:	Instrumental	<i>tavas-szal/ős-szel</i>
c. Polish		
winter/summer:	<i>w</i> ('in')	<i>w zimie/w lecie</i>
spring/fall:	<i>na</i> ('onto')	<i>na wiosnę/na jesień</i>
d. Georgian		
winter/summer:	Locative	<i>zamtar-ši/zapxul-ši</i>
spring/fall	Superessive	<i>gazapxul-ze/šomodgoma-zec.</i>

These examples seem to show that there is a tendency for winter and summer to pattern together, contrasting with spring and fall. Moreover, Hungarian, Polish and Georgian are surprisingly similar in that they seem to treat summer and winter more like containers (perhaps because they are the prototypical seasons), whereas spring and fall are treated differently (like surfaces?) (perhaps because they are conceived of as transitional between summer and winter).

7.5. Location in days, months, years, and festivals

Days, months and years are the prototypical time units, and it is here that we find the most typical simultaneous markers. One general observation is that as a rule simultaneous location in time periods is expressed by fairly abstract spatial markers, often the most grammaticalized spatial markers. Even in languages with only a moderately rich case system, it is often case markers rather than adpositions that are used for simultaneous location. Not uncommonly, even abstract non-spatial cases are used for this function, e.g. the accusative in Lithuanian, Modern Greek and Imbabura Quechua, the Dative in Lezgian, the Essive in Finnish, the Ablative in Latin. But in many other cases a

⁴ However, *d'autunno* is also possible. (The French contrast between *en hiver*, *en été*, *en automne*, but *au printemps* can be explained diachronically: *en* + *le* was originally contracted to *au*, just like *à* + *le* (MEYER-LÜBKE 1899:493). Modern French has preserved quite a few cases of *au* alternating with *en* in this way.)

more specific spatial marker is used, and this generally points in the same direction: interior spatial markers ('in'), as used for three-dimensional inclusion. Since the time line is one-dimensional, the a priori expectation would be that temporal location tends to be expressed by means of an 'on' marker. This is indeed occasionally the case (English *on (Friday)*, Hungarian Superessive case, Swedish *på*), but 'in' markers clearly predominate.

The position of the time unit 'day' on the implicational map is not surprising – it is adjacent to the next smaller time unit (hour), to the next larger time unit (month), and on the other hand, to the qualitative periods of the day. Similarly, the time unit 'month' is located, as expected, between the day and the year on the map. Otherwise there is not much more that can be said about location in days and months. Complications may arise from the different treatment of different kinds of day/month expressions. Thus, in Italian names of the month can take the prepositions *in* or *a* (*in maggio/a maggio* 'in May'), whereas the word *mese* 'month' only takes *in* (*nel/*al mese di maggio*). This variation is even more widespread with days. Irish has zero marking with names of days of the week (*tiocfaidh sé Ø Dé Luain* 'he is coming on Monday'), the preposition *ar* with dates (*ar an dara lá déag de Lúnasa* 'on the twelfth of August'), and the preposition *i* with plural day words (*sna laethanta sin* 'in those days'). When there is variation, I have generally chosen the marking of the days of the week for the data set listed in the Appendix.

While the expression of temporal location in years exhibits no peculiarities worth commenting on further, the marking of festivals is special in many languages. This function has not been included in the implicational map of Figure 32 in §7.2 because I have not found any restrictions in the polysemy of markers expressing location at a festival.

There are a number of languages which employ an adposition that is restricted to the marking of festivals: German *zu* (*zu Pfingsten* 'at Pentecost'), Russian *na* (*na pasxu* 'at Easter'), Polish *na* (*na wiekanoc* 'at Easter'), Punjabi *te* (*visaakhii te* 'at Vaisakhi'), Tagalog *kung* (*kung Pasko* 'at Christmastime'), Haitian Creole *pou* (*pou fèt Pak la* 'at Easter'), Hausa *gà* (*gà sallàr Kiristimeetì* 'at Christmas').

7.6. Zero or minimal marking with certain modifiers

Zero marking of temporal location is not uncommon across languages. We saw individual examples of this in previous sections, and there are languages that have zero marking in all or almost all simultaneous functions, e.g. Swahili and Kobon. Particularly day parts, days of the week and seasons tend to be zero-marked in my data.

However, in addition to these individual cases, there is a class of expressions that systematically exhibit zero marking in a substantial number of languages. This class consists of various time periods combined with modifiers, especially demonstratives, the adjectives 'last' and 'next', and the universal determiner 'every'. These conditions for zero-marking can be illustrated with English data:

- E140. a. *in the morning* (*in) *this morning*
 b. *on Friday* (*on) *last Friday*
 c. *in February* (*in) *every February*
 d. *in the summer* (*in) *this summer*
 e. *in the second year* (*in) *next year*

Surprisingly, zero-marking or minimal marking is found in quite a few further languages under similar conditions.⁵ Examples are given in E141-43.

- E141. a. German *am Montag* *diesen Montag*
 on.the Monday this.ACC Monday
 b. Spanish *a la mañana* *esta mañana*
 at the morning this morning
 c. Maltese *fi-l-għodu* *da-l-għodu*
 in-the-morning this-the-morning
- E142. a. German *in der ersten Woche* *nächste Woche*
 in the first week next week
 b. Romanian *în martie* *luna viitoare*
 in March month.the coming
 c. Spanish *en (el año) 1962* *el año que viene*
 in the year 1962 the year that comes

⁵ The exact nature of the conditions needs to be determined for each individual language. For instance, modifiers other than demonstratives, ordinals and quantifiers may also be relevant, as is suggested by the following scale of acceptability in German (pointed out by Nicole Nau):

(i) <i>Vorigen Sommer</i> (ii) ?? <i>Sommer 1985</i> (iii) * <i>Sommer</i>	}	<i>haben wir uns kennengelernt.</i>	'We met	{	last summer. in the summer of 1985. in the summer.
--	---	-------------------------------------	---------	---	--

Such variation is beyond the scope of a broad cross-linguistic study.

d. Armenian	<i>p'etroar-in</i> February-DAT	<i>anc'yal amis</i> last month(-Ø)
e. Georgian	<i>janvar-ši</i> January-LOC	<i>bolo tve-s</i> last month-ACC
f. Persian	<i>dar mâhe bahman</i> in month February	<i>(*dar) mâhe gozašte</i> in month last
d. Japanese	<i>nigatu-ni</i> February-LOC	<i>sen-getu(*-ni)</i> last-month(-LOC)
E143. a. French		
	<i>en septembre</i> in September	<i>chaque mois</i> every month
b. Russian	<i>na ètoj nedele</i> on this week	<i>každyju nedelju</i> every.ACC week.ACC
c. Croatian	<i>u subotu</i> in Saturday	<i>svake subote</i> every Saturday
d. Finnish	<i>vuon-na 1990</i> year-ESS 1990	<i>joka vuosi</i> every year.NOM
e. Abkhaz	<i>yanâr a-zə</i> January 3SG-on	<i>es-yanâr (a-zə)</i> every-January (3SG-on)
f. Arabic	<i>fī l-yawmi l-ṭawwālī</i> in the-day.GEN the-first.GEN	<i>kulla yawmin</i> every.ACC day.GEN
g. Chinese	<i>(zài) xīngqīyī</i> (at) Monday	<i>(*zài) měi ge xīngqīyī</i> (at) every CLMonday
h. I. Quechua	<i>lunis-pi</i> Monday-LOC	<i>kada lunis</i> every Monday
i. Tagalog	<i>sa Linggo</i> at Sunday	<i>tuwing Linggo</i> every Sunday

Thus, the phenomenon is extremely widespread and is by no means restricted to European languages. How can we account for these contrasts? MCCAWLEY (1988) discusses the English data of E140 and proposes that they should be analyzed as prepositional phrases with a zero preposition.⁶

⁶ MCCAWLEY's article is a reply to LARSON's (1985) article, which proposes that nouns such as those in E140 have lexical entries containing a feature that allows them to assign Case to NPs of which they are the head. As MCCAWLEY notes, this does not permit one to account for contrasts such as those in E140, where *morning*, *Friday*, *summer* etc. occur with or without a preposition, depending on its modifier. MCCAWLEY gives two empirical arguments for his "zero preposition" proposal which are supposed to show that these phrases behave like adverbials which are prepositional phrases, not like adverbials in general (cf., e.g., the word order possibilities in *Smith may have *that day/*on a subsequent day/subsequently withdrawn his lawsuit*). I find it more straightforward to say that both *that day* and *on a subsequent day* are NP-based time adverbials, contrasting with the adjective-based time adverbial *subsequently*. But whatever conceptual choice one makes in describing the alternations noted in this section, the real challenge is to explain **why** certain modifiers should allow time unit nouns to dispense with an adposition or case that they normally require when used in simultaneous location adverbials. To my knowledge so far nobody has even asked this question, let alone proposed an answer.

However, it can be shown that this proposal fails to account for languages in which the contrast does not reduce to the presence or absence of a preposition.

First, note that the Indo-European and Semitic languages with a well-developed case system and a nominative-accusative contrast tend to show the accusative here (in the above examples, German, Russian, Croatian and Arabic, as well as Georgian), even if the preposition in the non-modified form does not govern the accusative case. Thus, the contrast is not just due to the omission of the preposition. Second, in some other languages with a rich case system which includes a locative or other concrete case (e.g. Japanese *-ni*, Quechua *-pi*, Finnish *-na*), this case suffix may be dropped and the NP may occur in its base form. Again, while it is obvious that the contrast is completely analogous to the one in English, it cannot be described as a contrast between noun phrases and prepositional phrases.

The direction in which I would speculate toward an explanation of this phenomenon is that it is due to some kind of economy, at present ill-understood. When certain frequent modifiers are present in the temporal NP, this appears to give the NP more weight and allows it to be marked less explicitly. In some languages, this means that an adposition is dropped or an oblique form is replaced by the base form. But economy is also served if the case marking is minimal, e.g. accusative in Indo-European, Arabic and Georgian. Apparently the nominative case is not suitable for this purpose in these languages, perhaps because it is not morphologically less marked than the accusative case in these languages. The accusative is as unmarked (and hence as economical) as the nominative, and as it is the case that is in general more versatile semantically, it is chosen over the nominative.

This tentative explanation would perhaps also cover the cases of Finnish and Georgian. In Finnish, the Nominative case is used with *joka* 'every' (cf. E143d), but with the other modifiers, the Adessive case is replaced by the Essive case:

E144. Finnish

- | | | | | |
|----|-----------------|------------------|--------------------------|-----------------|
| a. | <i>aamu-lla</i> | 'in the morning' | <i>tä-nä aamu-na</i> | 'this morning' |
| | morning-ADESS | | this-ADESS | morning-ADESS |
| b. | <i>illa-lla</i> | 'in the evening' | <i>maanantai ilta-na</i> | 'Mond. evening' |
| | evening-ADESS | | Monday evening-ESS | |
| c. | <i>kevä-llä</i> | 'in the spring' | <i>viime kevää-nä</i> | 'last spring' |
| | spring-ADESS | | last spring-ESS | |

The dependence of the case marking of the NP on the modifier seems quite puzzling, but perhaps it can be argued that the Essive case is less marked than the Adessive case: Formally it is shorter in that it lacks gemination, and

semantically it is at least as general in that it occurs with years, days and festivals, whereas the Adessive occurs only with day parts and seasons. Similarly, the Georgian Accusative/Dative in *-s* is less marked formally and semantically than the Locative in *-ši*.

I cannot claim that I have explained the phenomenon described here, but in any case the cross-linguistic data cited here for the first time permit us to recognize the surprising generality of the phenomenon, which must ultimately be explained in universal term.

Chapter 8

Temporal extent

8.1. Atelic extent

8.1.1. Zero or minimal case marking

The most striking tendency observed in the expression of atelic-extent adverbials is the cross-linguistic tendency for zero expression or expression by means of a "minimal case". English is not so typical in this respect, because it very often employs the preposition *for* in such adverbials (e.g. *I waited for two hours*). More typical are the examples in E145-46 from Arabic, Serbian/Croatian, Babungo and Turkish.

E145. a. Arabic

Ṣaama ṛarbaṣiina nahaar-an wa-ṛarbaṣiina laylat-an (Mt 4.2)
fasted forty day-ACC and-forty night-ACC
'He fasted for forty days and forty nights.'

b. Croatian

kao što je Jona bio u trbuhu kitovom tri dana
like that AUX Jonas been in belly whale's three.ACC days
i tri noći (Mt 12.40)
and three.ACC nights
'As Jonas was in the whale's belly for three days and three nights...'

E146. a. Babungo

ŋwá nà tò' vǎshī vǎbɔɔ
he PAST walk day two
'He walked for two days.'

b. Turkish

Benim-le birlikte bir saat olsun uyanık dur-ami-yor-sunuz? (Mt 26.40)
I-with together one hour even awake stay-ABIL.NEG-IMPF-2PL
'Can't you stay awake together with me even for an hour?'

In languages that have a well-developed case system, including grammatical cases such as nominative and accusative, atelic extent adverbials tend to be marked by the accusative case, as illustrated in E145. In languages lacking a case system or at least a nominative-accusative opposition, atelic extent adverbials

are in the basic form, i.e. they show zero expression. Table 15 lists those languages which either pattern like Arabic and Croatian, or like Babungo and Turkish.

**Table 15: Atelic-extent adverbials
expressed by a minimal case or zero**

minimal case:		zero:	
German	ACC (~ <i>lang</i>)	Spanish	Ø (~ <i>por</i>)
Russian	ACC	Bulgarian	Ø
Polish	ACC (~ <i>przez</i>)	Hebrew	Ø
Croatian	ACC	Maltese	Ø (~ <i>għal</i>)
Modern Greek	ACC (~ <i>ja</i>)	Hausa	Ø
Albanian	ACC	Swahili	Ø
Estonian	PRTV	Babungo	Ø
Finnish	NOM	Nkore-Kiga	Ø
Turkish	NOM (~ <i>boyunca</i>)	Chinese	Ø
Arabic	ACC	Japanese	(- <i>kan</i>) Ø
Georgian	NOM	Persian	Ø
Armenian	NOM/ACC	Indonesian	Ø (~ <i>selama</i>)
Greenlandic	ABS	Tamil	Ø (~ <i>-aa</i>)
Imb. Quechua	ACC		

From the point of view of our guiding question, Why are the semantic functions of temporal NPs marked the way they are?, the frequent expression of atelic extent by zero or accusative case appears puzzling. I do not have a completely satisfactory explanation for this fact, but since this formal type is so widespread in languages of different families and continents, there must be some universal motivating factor. I will speculate briefly in two directions.

First, let me point out that unlike the markers of temporal location, the markers of temporal extent do not have an obvious model in the spatial domain. Of course, spatial extent also exists, and in many languages it is marked in much the same way as temporal extent, i.e. by zero or a minimal case. A few examples are shown in E147.

E147. a. German

Die Kinder sind einen Kilometer gelaufen.

'The children walked a kilometer.'

b. French

Les enfants ont marché un kilomètre.

'The children walked a kilometer.'

c. Greenlandic Eskimo (FORTESCUE 1984:223)

miitiri-t qassit tingi-vit?
meter-PL.ABS how.many jump-2SG.INTER

'How many meters did you jump (on skis)?'

d. Nkore-Kiga (TAYLOR 1985:107)

tw-a-gyenda nka mahiro ishatu
1PL-HOD.PAST-go about mile three

'We went three miles.'

However, in this case it is much less clear than in the case of temporal location that a conceptual transfer from the spatial to the temporal domain has taken place. In contrast to spatial markers like 'within', 'in front', 'in back', which are often ultimately based on body-part terms or spatial landmarks (SVOROU 1994), the accusative case or zero has nothing inherently spatial about it. Furthermore, spatial extent adverbials such as the examples in E147 are not particularly frequent in discourse, probably less frequent than temporal-extent adverbials. Thus, the hypothesis of a transfer from the spatial domain does not explain much.

One might speculate that zero marking is chosen in these languages simply as a kind of default – NPs with a noun denoting a time unit inherently denote a temporal extent, and no additional marking is necessary. All other time adverbials based on time unit expressions are more specific, e.g. distance expressions ('two days ago', 'four weeks from now') and telic extent adverbials (e.g. '(finish a job) in three hours'). This would account for the widespread zero expression of atelic extent adverbials, and the accusative marking in languages with a clear nominative-accusative apposition might be due to the fact that the nominative is reserved for the subject, whereas the accusative is the minimal, i.e. least specific non-subject case that is available for adverbial use.¹ The default-case hypothesis receives additional support from the fact that the accusative case is also widely used in a certain class of simultaneous locational adverbial NPs, as we saw in §7.6. Semantically, locational adverbials like *diesen Monat* (this.ACC month) and extent adverbials like *einen Monat* (one.ACC

¹ Quite generally, the direct object differs from the subject semantically in that it allows a much wider range of semantic roles. One might object that in Greenlandic Eskimo, an ergative language, the Absolutive case is used, which is a subject case in intransitive clauses. However, intransitive subjects generally share with direct objects the property of allowing arguments of a wide range of semantic roles.

month) have little or nothing in common, but in both cases it can be argued that the temporal relation is relatively predictable, so a default marking is sufficient.

A second possibility is that the accusative case is motivated in a positive rather than in a purely negative way. One might propose that the atelic-extent function is often expressed by the accusative case because speakers assimilate it in some way to the direct object of their language. This hypothesis (the "direct-object hypothesis") would not only be compatible with the data from those languages in Table 15 that show accusative case marking, but also with almost all those languages that show zero-marking – these languages also have zero-marked direct objects.² Some of the zero-marking languages show differential object marking, i.e. non-zero marking with definite and/or animate direct objects, e.g. Spanish, Hebrew, Maltese, Turkish, and Persian. But this is not a problem because atelic-extent NPs are always inanimate and overwhelmingly indefinite, so they would generally be zero-marked if they were treated as direct objects. And in fact, Persian shows a kind of "differential adverbial marking" with atelic-extent adverbials. Direct objects in Persian are generally marked with the postposition or case suffix *-râ* when they are definite, as illustrated in E148a, but are unmarked otherwise (cf. 148b).

E148. Persian

- | | |
|--|---|
| <p>a. <i>In habbe-râ xor-am.</i>
 this pill-ACC eat.PAST-1SG
 'I have taken this pill'</p> | <p>b. <i>Yek habbe xor-am.</i>
 one pill eat.PAST-1SG
 'I have taken one pill.'</p> |
|--|---|

The same contrast is found with atelic-extent adverbials. The most common case is that shown in E149a, where the adverbial is indefinite, but in those infrequent cases where it is definite, as in E149b, the adverbial has the case marker *-râ*.

- E149. a. *Do sâ'at dar bâxçe kâr mi-kard-am.*
 two hour in garden work IMPF-do.PAST-1SG
 'I worked in the garden for two hours.'
- b. *Do sâ'at-e gozašte-râ dar bâxçe kâr mi-kard-am.*
 two hour-ATTR past-ACC in garden work IMPF-do.PAST-1SG
 'I worked in the garden for the last two hours.'

² A problem for the direct-object hypothesis is Japanese, which consistently marks direct objects with the postposed particle *o*, but zero-marks atelic-extent adverbials. However, the direct-object marker *o* may be omitted in certain styles.

The direct-object hypothesis receives further support from the fact that atelic-extent adverbials sometimes behave like a direct object in other respects besides case marking. Thus, in Mandarin Chinese atelic-extent adverbials can only come in the position after the verb, not in the pre-subject position or in the position between the subject and the verb. Locational time adverbials have all three possibilities, although the two preverbal positions are clearly preferred:

Chinese (JIN YUE YEH, p.c.)

E150. a. *Shèngdànjié guòhòu wǒ yào qù Táiwān.*
 Christmas after I FUT go Taiwan

'I'll go to Taiwan after Christmas.'

b. *Wǒ shèngdànjié guòhòu yào qù Táiwān.*

c. *Wǒ yào qù Táiwān shèngdànjié guòhòu.*

E151. a. *Wǔ diǎn wǒ-de mǔqīn yùjiàn tā-de zhàngfū.*
 five o'clock I-GEN mother meet she-GEN husband

'My mother met her husband at five o'clock.'

b. *Wǒde mǔqīn wǔ diǎn yùjiàn tāde zhàngfū.*

c. *?*Wǒde mǔqīn yùjiàn tāde zhàngfū wǔ diǎn.* .

However, atelic-extent adverbials have only the option of postverbal position, like direct objects:

E152. a. *Wǒ zài huāyuán gōngzuò liǎng xiǎoshí.*
 I at garden work two hour

'I worked in the garden for two hours.'

b. **Liǎng xiǎoshí wǒ zài huāyuán gōngzuò.*

c. **Wǒ liǎng xiǎoshí zài huāyuán gōngzuò.*

Another behavioral parallel is the accusative-genitive or accusative-partitive alternation of direct objects in Balto-Slavic languages such as Lithuanian and Russian, and in Baltic Finnic languages such as Finnish. Examples of this alternation with direct objects are given in E153-154.

E153. Russian

a. *Včera ja pročital odnu stat'ju.*
 yesterday I read one.ACC article.ACC

'Yesterday I read one article.'

- b. *Včera ja ne pročitai ni odnoj stat'ji.*
 yesterday I not read not.even one.GEN article.GEN
 'Yesterday I didn't read a single article.'

E154. Finnish

- a. *Minä juon kahvi-n.*
 I drink.1SG coffee-ACC
 'I am drinking the coffee.'
- b. *Minä en juo kahvi-a.*
 I NEG.1SG drink coffee-PRTV
 'I am not drinking the coffee.'

The same alternation can be observed with telic-extent adverbials, as is shown in the examples in E155-157.³

E155. Russian

- a. *Včera ja rabotala dva časa.*
 yesterday I worked two.ACC hours
 'Yesterday I worked for two hours.'
- b. *Včera ja ne rabotala i dvux časov.*
 yesterday I not worked even two.GEN hours.GEN
 'Yesterday I didn't work even for two hours.'

E156. Lithuanian

- a. *Šitie paskutinieji tedirbo vieną valandą* (Mt 20.12)
 these last worked one.ACC hour.ACC
 'These last ones worked just one hour.'
- b. *Taip jūs neistengėte nė vienos valandos pabudėti su manimi?*
 thus you cannot not.even one.GEN hour.GEN wake with me
 'So you cannot stay awake with me even for an hour?'

E157. Finnish (JUHANI RUDANKO, p.c.)

- a. *Työskentel-i-n kaksi tuntia puutarha-ssa.*
 work-PAST-1SG two.ACC hours.PRTV garden-INESS
 'I worked in the garden for two hours.'
- b. *En työskennel-lyt kahta tuntia puutarha-ssa.*
 NEG.1SG work-PTCP.PAST two.PRTV hours.PRTV garden-INESS
 'I didn't work in the garden for two hours.'

³ In Arabic, Accusative temporal NPs may even be converted to the Nominative in passive clauses. RECKENDORF (1977:94) only cites an example with a locational adverbial:

(i) *Siira yawm-u l-ğum šati*
 travel.PASS day-NOM ART-Friday-GEN
 'There was traveling on Friday' (lit. 'Friday was traveled.')

But why should extent adverbials be modeled on direct objects? Here we should note that atelic-extent adverbials and spatial-extent adverbials as in E147 are not the only cases of direct-object-like extent phrases. The "direct objects" of verbs like 'weigh', 'cost', 'last' are also extent expressions from a semantic point of view. The common semantic denominator of extent phrases and direct objects can perhaps be found in their bounding function. In some languages, e.g. in Russian, the boundedness of a verbal situation can easily be tested because only bounded situations may occur in the perfective aspect. Thus, the atelic verbs in E158 do not have perfective counterparts.

E158. Russian

- a. *Kolja paxal.* (**Kolja vs-paxal.*)
 Kolya plowed (Kolya PFV-plowed)
- b. *Olja rabotala.* (**Olja pro-rabotala.*)
 Olya worked (Olya PFV-worked)

However, when the same verb occurs in a syntactic-semantic context in which the situation is bounded, e.g. when there is a direct object or an atelic-extent phrase, the verb may also be perfective, e.g.

E159. Russian

- a. *Kolja paxal/ vs-paxal pole.*
 Kolya plowed PFV-plowed field
 'Kolya was plowing/plowed the field.'
- b. *Olja rabotala/ pro-rabotala vosem' časov.*
 Olya worked PFV-worked eight hours
 'Olya worked for eight hours.'

I hope to have shown that the use of the accusative case in the languages in Table 15 is not completely mysterious. Both the default-case hypothesis and the direct-object hypothesis help us understand partially what is going on here. A deeper understanding of the connections must be left to future research. Perhaps it will ultimately turn out that the two hypotheses are not incompatible with each other.

8.1.2. 'For' in atelic-extent adverbials

The next most common type of atelic-extent marker is no less surprising than the type of marker discussed in the preceding sub-section. No less than eight languages of my sample employ an adposition that otherwise means

(benefactive) 'for' as a marker of atelic extent. These languages are concentrated in Europe: English (*for*), Italian (*per*), Spanish (*por*), Modern Greek (*ja*), Maltese (*għal*), Welsh (*am*); but 'for' in this function is also attested in Punjabi (*laii*) and Maori (*moo*). A few examples follow.

E160. Italian

- a. *Questo libro è per te.*
'This book is for you.'
- b. *Maria abitava a Friburgo per sette anni.*
'Maria lived in Freiburg for seven years.'

E161. Modern Greek

- a. *Aftó to vivlío íne ja séna.*
this the book is for you
'This book is for you.'
- b. *I María ékrive ton eaftó tis ja pende mínes.*
the Mary hid the self her for five months
'Mary hid herself for five months.' (Lk 1.24)

E162. Welsh (KING 1993:271)

- a. *Dales i bedair punt am y rhain.*
paid I four pound for the these
'I paid £4 for these.'
- b. *Fuon nhw yng Ngogledd yr Eidal am fis.*
were they in North the Italy for month
'They were in Northern Italy for a month.'

In the case of Maori, which does not have many monolingual speakers anymore, one may suspect influence from English:

E163. Maori (BAUER 1993:347)

- a. *Moo Hone te hooiho raa.*
for John the key DIST
'This key is for John.'
- b. *moo te rua tau*
for the two year
'for two years'

But influence from a European language is much less likely in the case of Punjabi. Still, Punjabi shows the same polysemy of its marker *lāii*:

E164. Punjabi

- a. *É pañjaabii axbaar Sikkhāā laii e.*
 this Punjabi paper Sikhs for is
 'This Punjabi newspaper is for Sikhs.'
- b. *Gafuur ótthe do saal laii ríaa.*
 Gafur there two year for lived
 'Gafur lived there for two years.'

Again, a semantic connection between the central benefactive sense of 'for' and atelic extent is not immediately obvious. But recall that there is a semantic function 'purposive extent', which is commonly expressed by a benefactive-purposive marker similar to English *for* (§3.3.4). Purposive extent resembles atelic extent in that in both cases a time span is indicated by time units, and the situation whose length is evaluated is atelic. In purposive-extent constructions, the verbal event is not atelic, but the adverbial measures the length of the state resulting from this event. The similarity is best seen in sentence pairs such as E165, represented schematically in Figures 39-40.

- E165. a. Sibylle went to Paris for five years.
 b. Sibylle was in Paris for five years.

Figure 39: *Sibylle went to Paris for five years.*

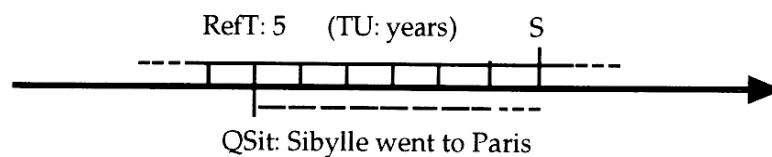
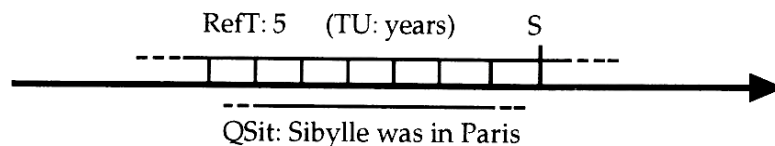


Figure 40: *Sibylle was in Paris for five years.*



In Figure 39, the broken line symbolizes the intended duration of the result of the verbal event. Thus, E165b differs from E165a first in that the measured situation denotes a real situation rather than an intended situation existing only in a person's plans, and second that the verbal situation denotes a state

resulting from an event as in E165a. Verb forms denoting an event may undergo semantic change to denote the state resulting from this event (e.g. perfect to resultative, cf. English *they are gone*, from 'they have gone'), so a change from purposive-extent 'for' to atelic-extent 'for' is also well-motivated.

8.1.3. Other sources of atelic-extent markers

The other sources each occur in a handful of languages, and they will be mentioned only briefly. Five languages use markers that also occur in temporal locational functions and in spatial functions. These cases are Swedish (preposition *i*), Latin (Ablative case), Lezgian (Inessive case), Basque (Modal or Locative case), Tagalog (preposition *nang*). This expression type is not so surprising, given that time units can always be conceptualized as time spans "within" which a situation is located.

Two languages use a preposition that also means 'through, over': Polish (*przez*) and Lithuanian (*per*). Again, this is not surprising because the atelic-extent function is similar to the perdurative function of §3.3.3 ('throughout'), and this function is also sometimes marked by 'through'. Two other sources of atelic-extent markers are close to the perdurative function: German *lang* (lit. 'long'), and French *pendant/durant* (cf. Dutch *gedurende*, which has the perdurative function).

An interesting case is Hungarian, where the atelic-extent function is marked by the terminative case (suffix *-ig*), which also marks the anterior-durative function:

- E166. a. *öt hónap-ig* 'for five months'
 five month-TERM
 b. *edd-ig a nap-ig* 'until this day'
 this-TERM the day-TERM

This polysemy is well-known in the case of adverbial conjunctions (cf. KORTMANN 1997:183), where many languages have a single subordinator marking both anterior-durative clauses and the 'as long as' relation. An example is Russian *poka*:

- E167. a. *Nado pogovorit' s nim, poka on tam.*
 'We have to talk to him as long as he is there.'
 b. *Podoždi, poka ja pridu.*
 'Wait until I come.'

In fact, even English has two prepositions that exhibit this kind of polysemy: *pending* (e.g. *pending negotiations* 'during the negotiations'; *pending funding* 'until funding (is obtained)') and *through* (*through the night* \approx 'during the night'; *through Monday* \approx 'until Monday').

I have nothing further to say about the remaining atelic-extent markers: Turkish *boyunca* (from *boy* 'size'); Abkhaz *h°a* (lit. 'saying'); Kannada *kaala* 'time' and Tamil *neeram* 'time'; the adverbial suffix *-aa* in Tamil; and the markers of Indonesian (*selama*), Udmurt (*čože*), and Korean (*tongan*), about which I have no further information.

8.2. Telic extent

The telic-extent function is marked in a remarkably uniform way in the languages of my sample for which information is available. The overwhelming majority of languages, 30 out of the 38 languages for which I have the relevant data, use a spatial interior marker ('in, inside, within'), often a fairly young and emphatic one, for this function. These languages are listed in Table 16.

Table 16: Telic-extent markers based on spatial 'in, within'

English	<i>in</i>		Basque	<i>barru</i>	
German	<i>in</i>	'in'	Lezgian	<i>q̃ene</i>	'inside'
Swedish	<i>inom</i>	'within'	Chechen	<i>čoħ</i>	'in'
French	<i>en</i>	'in'	Hebrew	<i>be-</i>	'in'
Italian	<i>in</i>	'in'	Arabic	<i>fī</i>	'in'
Spanish	<i>en</i>	'in'	Maltese	<i>fī</i>	'in'
Haitian C.	<i>nan</i>	'in'	Swahili	<i>katika</i>	'in'
Latin	<i>in</i> / ABL	'in'	Chinese	<i>(zhe)nei</i>	'inside'
Latvian	LOC		Japanese	<i>de</i>	'in'
M. Greek	<i>(mésa) se</i>	'in(side)'	Indonesian	<i>dalam</i>	'in'
Irish	<i>i</i>	'in'	Tagalog	<i>sa loob ng</i>	'inside'
Finnish	<i>-ssa</i>	INESS	Nanay	DAT/ <i>doolani</i>	'in; inside'
Turkish	<i>(için)-de</i>	'in(side)'	Greenlandic	<i>-ni</i>	LOC
Udmurt	<i>kuspyn</i>	'between'	Persian	<i>dar</i>	'in'
Armenian	<i>-um</i>	LOC	Georgian	<i>-ši</i>	LOC

A few example sentences follow below:

E168. Tagalog (SCHACHTER & OTANES 1972)

Tinapos niya ang trabaho sa loob ng apat na taon.
finished he.GEN TOP job at inside GEN four LK year

'He finished the job in four years.'

E169. Japanese (KAORU HORIE, p.c.)

Hatake-o hi-zi-kan de tagayasi-ta.
field-ACC two-hour-interval in plow-PAST

'I plowed the field in two hours.'

E170. Irish

Leagaigi an teampall seo agus i dtrí lá tógfaidh mé suas arís é.
destroy the temple this and in three days rebuild I up again it

'Destroy this temple, and in three days I will rebuild it.' (John 2.19)

E171. Hausa (MAHAMANE L. ABDOULAYE, p.c.)

Naa shanyè roomoo (à) cikin minti goomà.
I.PERF drink.up soup at inside minute ten

'I ate the soup in ten minutes.'

The very widespread spatial metaphor ('inside') for the telic-extent function is not difficult to explain: This function is employed to specify the boundaries within which a telic, i.e. bounded, event falls, and the spatial interior function happens to be the closest spatial analog of this notion in that it also specifies the outer boundaries of the located object.

The other eight languages use miscellaneous other markers, about which it is difficult to say much more. All four Slavic languages in my sample (Russian, Polish, Serbian/Croatian, Bulgarian) use the preposition *za*, whose original spatial sense is 'behind', but which has acquired various transferred senses in the modern Slavic languages. Hungarian has *alatt* ('under'), Lithuanian has *per* ('through, over'), Albanian has *për* ('for, about, because of'), Latvian has *laikā* (Locative of *laik*- 'time'), Estonian has the Comitative case (-*ga* 'with'), and Swedish also uses the preposition *på* ('on').

8.3. Distance-posterior

As I noted in §2.5, the distance-posterior function can be thought of as a combination of the distance-past function ('ago') with the posterior-durative function ('since') (or more specifically its posterior-present-perfect subtype) or the atelic-extent function ('for'). Recall that the sentence *Jenny has been in Freiburg for two days* can be paraphrased literally as 'Jenny has been in Freiburg since two days ago'. I have not come across many cases of an overt reflection of this semantic composition in languages; the construction of Spanish and Persian (cf. E29c-d above) seems to be uncommon. However, the semantic structure of the distance-posterior function is reflected in the fact that some languages express it in a way similar to the posterior-durative function, others assimilate it to the atelic-extent function, and yet others to the distance-past function. In addition, there are also expression types that are unique to the distance-posterior function.

8.3.1. Distance-posterior is modeled on posterior-durative

Let us first look at the expression in terms of a posterior-durative marker. This is found in a number of European languages (German *seit*, French *depuis*, Italian *da*, Romanian *de*, Latin *a/ex*, Polish *od*, Bulgarian *ot*, Albanian *prej*, Hungarian *óta*, Welsh *ers*), but also in Arabic (*munđu*) and Swahili (*tangu*). A few examples are given in E172-174. In these examples, the (a) sentence shows the posterior-durative function, and the (b) sentence shows the distance-posterior function.

E172. Polish

- a. *Tego-m* *wszystkiego* *przestrzegal* **od** *młodości* *mojej*.
 that-1SG all observed from youth my
 'I have observed all this since my youth.' (Mk 10.20)
- b. *Żyjemy* *w* *Warszawie* **od** *wielu* *lat*.
 we.live in Warsaw from many years
 'We have lived in Warsaw for many years.'

E173. Romanian

- a. *Nu* *l-am* *văzut* **de** *săptămîna* *trecută*.
 not him-I.have seen from week past
 'I haven't seen him since last week.'
- b. *Sînt* *aici* **de** *trei* *ani*.
 I.am herefrom three years
 'I've been here for three years.'

E174. Swahili

- a. *tangu siku za Yohana* (Mt 11.12)
 since days of John
 'since John's days'
- b. *tangu siku nyingi*
 since days many
 'for many days'

The explanation for this polysemy must evidently be sought in the extension of the posterior-durative marker to the distance-posterior sense. To be strictly compositional, the above expressions would have to contain the distance-past marker (e.g. English **since...ago*, German **seit vor*, French **depuis il y a*, Polish **od przed*), but this is omitted because there is no risk of misunderstanding. A combination such as "since three years" could not be interpreted literally with the posterior-durative sense, because the reference time ('three years') is not a location in time, but a time span. The nearest non-literal, extended sense is the distance-posterior interpretation, so this is a possible reading in several languages.

8.3.2. Distance-posterior is modeled on atelic extent

Another way of rendering the distance-posterior meaning is by assimilating it to the atelic-extent function. This is probably the most common expression type, and it is of course exemplified by English, where *for* fulfills both functions. A few examples from other languages are cited in E175-178, where the (a) sentence shows the atelic-extent function, and the (b) sentence shows the distance-posterior function.

E175. Swedish

- a. *De reser i en timme.*
 they travel for one hour
 'They will be traveling for an hour.'
- b. *Han har bott där i ett år.*
 he has lived there for one year
 'He has lived there for a year.'

E176. Modern Greek

- a. *erghástikan mía óra*
 work.PAST.3PL one hour.ACC
 'they worked for an hour'

- b. *tría xrónia tóra érxome s' aftí*
 three years.ACC now come.PRES.1SG to it
 'I have come to it for three years.'

E177. Chinese

- a. *Tā shuì-le sān-ge zhōngtóu.*
 he sleep-PFV three-CL hour
 'He slept for three hours.'
- b. *Wǒ zài Xiānggāng zhù-le qī nián.*
 I in Hongkong live-PFV seven year
 'I have lived in Hongkong for seven years.'

E178. Tamil (ASHER 1982:132-133)

- a. *Avaru naalu maṇi neeram-aa kaattiruntaaru.*
 he four hour time-ADV wait.PAST.3SG.H
 'He waited for four hours.'
- b. *Naan iṅke aaru maacam-aa irukkareen.*
 I here six month-ADV be.PRES.1SG
 'I've been here for six months.'

Other languages which simply use their atelic-extent marking are Latvian, Finnish, Estonian, Basque, Hausa, and Japanese. The use of atelic-extent marking for the distance-posterior function is easy to explain: Particularly in those languages that use the present perfect tense (English, Swedish (cf. E175b), Finnish, Estonian, i.e. the same set of languages that use it with posterior-durative adverbials, cf. §5.4, E77-78), the distance-posterior meaning arises automatically: In the sentence *He has lived there for a year*, the use of the present perfect ensures that the situation is understood as beginning in the past and continuing into the present, so that the beginning of the measured time span must be a year before the moment of speech. In languages that do not use the present perfect, but the present tense in this situation, the distance-posterior reading apparently results from a conversational implicature. Thus, E178b from Tamil is literally 'I am here for six months', and 'for six months' is interpreted as referring to the period immediately preceding and including the moment of speech. The implicature here probably arises from the fact that the present tense refers to the moment of speech, which is just a point in time and cannot easily be modified by an atelic-extent adverbial. It would be odd to say *I am here*

for six months if the speaker arrived three months earlier and will stay for another three months.⁴

In order to make explicit the present perfect sense of the present tense, i.e. the fact that the time span measured by the extent adverbial ends in the present, several languages employ aspectual adverbs such as 'already' or 'now'. Some examples are given in E179 (the Greek adverb *tóra* in 176b fulfills a similar function). The grammatical status of these adverbials is somewhat ambiguous. On the one hand, they are more or less obligatory for co-signaling the distance-posterior sense, but on the other hand, they should probably not be considered as markers of NP-based adverbials.

E179. a. Russian

Ona boleet uže šest' mesjacev.
she is.sick already six months

'She has been sick for six months.'

b. Croatian/Serbian

čovjek..., koji već osam godina ležao na odru (Acts 9.33)
man who already eight years lay on bed

'a man who had been lying in his bed for eight years'

c. Lithuanian

...kad tu jau daugelį metų esi šitos tautos teisėjas (Acts 24.10)
that you already many years are this people's judge

'that you have been a judge unto this nation for many years'

d. Indonesian (*sudah* 'finished, already')

Sudah dua tahun saya tinggal di sini.
already two year I live in here

'I have lived here for two years.'

e. Armenian

Ays k'aṅak-um arden yot' tari em aṛṛum.
this town-LOC already seven year I.am living

'I have lived in this town for seven years.'

⁴ However, such an interpretation does not seem completely excluded. In German, sentence (i) can be used by a construction site tourist after the first week of his two-week stay in the Berlin of the mid-90s:

(i) *Ich bin jetzt zwei Wochen in Berlin und besichtige jeden Tag eine andere Baustelle.*

'I am now in Berlin for two weeks, and I visit a different construction site every day.'

However, (i) is still slightly odd, and I have the feeling that *zwei Wochen* is not used in its most literal sense (atelic extent), but rather in a kind of purposive-extent sense ('I'm in Berlin to spend two weeks here'). If I am not mistaken, (i) deteriorates if the postposition *lang* is added.

SCHIPPOREIT (1971), discussing distance-posterior expressions in German, observes that *schon/bereits* 'already' and *erst* commonly occur in such phrases, both when they are modeled on the posterior-durative preposition *seit*, and when they are modeled on atelic-extent phrases (i.e. time units in the Accusative case).

E180. a. *Dein Vater liegt schon seit acht Tagen unter der Erde.*

'Your father has been lying below the earth for eight days (already).'

b. *Ich warte schon eine Stunde.*

'I have been waiting for an hour already.'

SCHIPPOREIT notes that *schon* has the undertone 'longer than you think', and conversely, *erst* implies 'not as long as you think' (e.g. *Ich warte erst eine Stunde* 'I have been waiting for only one hour') (cf. LÖBNER 1989, KÖNIG 1991:161 on the semantic analysis of *schon* and *erst*).

8.3.3. Distance-posterior based on 'exist'

The third major expression type is based on a biclausal pattern like 'It has been three years that I have lived in this city'. Insofar as a similar pattern is often used for the distance-past function (cf. §6.2.1), this sub-type reflects the semantic similarity of distance-past and distance-posterior.

In the Romance languages, the verbs 'have' and 'make' are used in this construction:

E181. a. French

Il y a une heure que je t'attends.

'I have been waiting for you for an hour.'

Ça fait donc douze ans que tu ne fais plus rien de sérieux.

'You have not done anything serious for twelve years.'

b. Spanish

Ya hace tres días que están conmigo. (Mk 8.2)

'They have been with me for three days.'

c. Haitian Creole

Sa fê toua zan dépi map vi-n chaché fig nan pié fig sa-a.

it make three year since I.IMPF come seek fig in tree fig this-ART

'I have come to look for figs on this fig tree for three years.' (Lk 13.7)

In Imbabura Quechua, the verb is *tuku-* 'become' (cf. COLE 1985:126 for a discussion of this construction).

- E182. *Ishkay uras tuku-n ñuka kay-pi ka-y-ka.*
 two hour become-3 [I this-in be-NOM-TOP]
 'I have been here for two hours.'
 (Lit. 'My being here has become two hours.')

In Turkish, Persian, and Georgian, the copula (a suffix *-dir* in Turkish and *-a* in Georgian) is regularly used to signal the distance-posterior function:

E183. a. Turkish

Beş sene-dir on-u gör-mü-yor-um.
 five year-COP he-ACC see-NEG-IMPF-1SG

'I haven't seen him for five years.' (Lit. 'It's five years, I don't see him.')

b. Persian (MITRA SHARIFI, p.c.)

Noh sâl ast ke dar Bamberg zendegi mi-kon-am.
 nine year COP that in Bamberg living IMPF-do-1SG

'I have been living in Bamberg for nine years.'

c. Georgian

Ori tve-a Bamberg-ši var.
 two month-COP Bamberg-LOC I.am

'I have been in Bamberg for two months.'

In Hebrew, the demonstrative *ze* ('that; it') can be used similarly:

- E184. *Hu mešutaq ve-šoxev b-a-mita ze šmone šanim.* (Acts 9.33)
 he lame and-lying in-the-bed that eight years
 'He has been lying in bed for eight years.'

Maltese has a special preposed marker, *il-*, which represents one of the few cases of a marker that is only used in the distance-posterior function. *Il-* has the unusual property of agreeing with the subject of the sentence in person and number (cf. FABRI 1992 for some discussion of the syntactic structure):

- E185. a. *raġel, li kien il-u tmien xhur mixħut fuq friex*
 man who was since-3SG eight months lying on bed
 'a man who had been lying in bed for eight months'
 b. *Il-hom tlitt ijiem imqabbdin miegħi*
 since-3PL three days surrounding with.me
 'They have been with me for three days.'

According to SUTCLIFFE (1936), the construction "*il-X Y*" goes back to "*hin l-X Y*", lit. 'the time to X is Y', i.e. 'X has the time of Y'. In this construction *hin l-* was transformed phonologically into *hill-*, *hil-*, *hil-* and finally *il-*. Thus, while being quite unusual as a synchronic marker of distance-posterior, Maltese *il-* has a diachronic origin that fits well into the group discussed in this sub-section.

A related phenomenon is the use of a presentative particle ('behold', French *voilà*) which introduces the noun phrase denoting the time span. This construction is found in several of the languages of my sample, e.g. Russian (*vot*), Lithuanian (*štai*), French (*voilà, voici*), Hebrew (*hine*), and also in New Testament Greek (*idou*). The construction can either be overtly biclausal, as in E186a, E187-188, or monoclausal.

E186. Russian

- a. **Vot** uže pjat' let kak ja živu v Pariže.
 lo already five years that I live in Paris
- b. Ja živu v Pariže **vot** uže pjat' let.
 I live in Paris lo already five years
 'I have lived in Paris for five years.'

E187. Lithuanian

- Stai** jau treji metai, kaip aš ateinu...
 lo already three years that I come
 'I have come for three years...' (Lk 13.7)

E188. French

- Voilà** deux ans qu'il ne m'a pas vue.
 'He hasn't seen me for two years.'

E189. New Testament Greek

- a. **Idou** tosaūta étē douleúō soi. (Lk 15.29)
 lo so.many years I.work for.you
 'Lo, these many years do I serve thee.' (= 'I have been working for you for so many years.')
- b. **Idou** tría étē érkhomai zētōn karpòn en tēi sukēi taútēi
 lo three years I.come seeking fruit in the figtree this
 'I have come to seek fruit in this fig tree for three years.' (Lk 13.7)

It has been claimed that this usage of New Testament Greek *idou* 'lo' is due to Semitic (i.e. Aramaic, or possibly Hebrew) influence, but this is not a necessary assumption. Of course, loan translations are widespread in biblical texts (cf. the

English Authorized Version in E189a, which uses *lo*), and the Lithuanian example in E187 might also be influenced by the original text. However, the construction is clearly not limited to Semitic. The productive use of *vot* in modern Russian and *voici/voilà* in modern French cannot be due to the influence of the biblical language, because the construction is not sufficiently frequent in the Bible. Rather, the same universal motivating factor must be responsible in all these cases: The presentative particle emphatically asserts the existence of the time span (perhaps stressing its length – in Russian E186a is only felicitous if the time span of five years is perceived as unusually long) and thus fulfills a very similar function as the verbal existence expressions mentioned earlier in this subsection.

Thus, the large majority of languages for which I have data fit into one of the three categories established in this section. The only exception is Irish, which uses the preposition *le* ('with'):

E190. Irish

Táim anseo le trí lá.
 be.PRES.1SG here with three day
 'I have been here for three days.'

Another unusual case is Swedish, which has different markers in affirmative and negative contexts. In affirmative contexts, the atelic-extent preposition *i* ('in') is used (cf. E175b), but in negative contexts, the proposition *på* is used. This preposition also fulfills the telic-extent function in Swedish, but I cannot see a connection between the negative distance-posterior function and either telic extent or spatial 'on'. Examples:

E191. Swedish

- a. *Han har väntad i ett år.*
 he has waited in one year
 'He has been waiting for a year.'
- b. *Jag har inte varit hemma på tio år.*
 I have not been home on ten years
 'I have not been at home for ten years.'

Chapter 9

Conclusions

It is now time to step back and recall the major discoveries of this book. After all the detail of the individual languages, what can we say in general about the marking of noun phrases as time adverbials in the world's languages, with particular regard to the transfer from space to time?

9.1. The metaphor from space to time

We saw in almost all of the semantic functions investigated here that the large majority of languages employ an originally spatial adposition (or case) to signal a temporal relationship. The systematic cross-linguistic study has thus confirmed earlier impressionistic statements concerning the ubiquity of conceptual transfer from space to time. There are no languages that depart from this general trend, and in this sense it is truly universal. However, in each of the individual semantic functions, there are a few languages that have a non-spatial source for their marker of the function. In this sense the space-to-time transfer is not universal, but only a strong tendency.

But is the ubiquitous close relationship between temporal and spatial markers really due to metaphor? TRAUGOTT (1978:371) explicitly denies this:

"spatial expressions for time are not metaphorical ... at least not those of the sort discussed here; there are metaphors of time, such as 'going round a corner in time', but they are distinguishable from basic spatio-temporal expressions ..."

However, Traugott's view is clearly based on a narrow understanding of metaphor. If we adopt a broader view of metaphor, where metaphor is defined as conceptualization of a target domain in terms of a source domain, keeping the profile constant (LAKOFF & JOHNSON 1980, CROFT 1993), there is no reason not to regard the shift from space to time as metaphorical. For instance, when we want to express the concept 'before August', we may conceptualize the temporal domain in terms of the spatial domain, transferring the spatial concept 'in front of' to another domain without changing its designation (or *profile*, in LANGACKER's (1987-91) terminology), thus giving expressions like German *vor August* (cf. *vor dem Haus* 'before the house').

But independently of the terminology that one wishes to employ in this area, the crucial aspect is the secondary nature of temporal markers with respect to spatial markers. Whether one describes this as metaphor, as "image-schematic transformation", or as "imaginative extension" (cf. KUTEVA & SINHA 1994), it is clear that spatial meaning is primary and temporal meaning is secondary. This fact is not explained on JACKENDOFF's theory (cited already in §1.7) that both spatial structure and temporal structure are instantiations of "an abstract organization that can be applied with suitable specialization to any field". If this were the case, then we would expect that transfer from time to space should be as common as transfer from space to time. But in fact the former is virtually unattested.

Of course, there is one type of transfer from time to space that is not at all uncommon, illustrated in E192a-b.

- E192. a. The road leads from Minsk to Smolensk.
 b. The poplar is after the oak.

This is based on the phenomenon of **abstract motion** (mentioned already in §5.1), the construal of spatial configurations in terms of movement (cf. LANGACKER 1991). Spatial configurations may be scanned sequentially and thereby assimilated mentally to sequences of events in time. In E192a, the observer mentally travels the road and is thus "led" by it to the destination, although there is no physical movement. In §5.1 we saw that this explains why directional adpositions may be used for temporal notions. In E192b (cf. VANDELOISE 1991, BERTHONNEAU 1993a), abstract motion explains how a temporal adposition seemingly comes to have a spatial use. But in fact, *after* in E192b is not really spatial, because the sentence is only possible if the observer encounters the poplar later than the oak on a mental path (for instance, if both stand beside a road that would be taken to locate the poplar). Thus, it is rather misleading to call *after/before* 'spatial adpositions' (cf. VANDELOISE's (1991) book title). In a different terminology, one could say that E192b metonymically stands for 'The encounter with the poplar is after the encounter with the oak'. It seems that this special quasi-spatial use of 'after' and 'before' is never conventionalized and turned into a really spatial use.

So what would be a real counterexample to the claim that the transfer from space to time is unidirectional? HEINE et al. (1991:51) point out a possible case from Solomons Pijin, as described by KEESING (1991:335): Solomons Pijin uses the temporal adverb *fastaem* 'first' (from English *first time*) as a temporal preposition (much like the languages cited in §4.4), e.g. *fastaem long faet* 'before

the fight'. This is then extended to the spatial meaning 'in front', e.g. *fastaem long haos* 'in front of the house'. However, this extension was modeled closely on the substrate languages, cf., e.g., Kwaio *na'o-na omea* 'before the mortuary feast', *na'o-na 'ifi* 'in front of the house'. Thus, the Solomons Pijin example is not a real counterexample at all, because it arose in a situation of intensive language contact, perhaps better described as relexification.

A better example of transfer from time to space is French *depuis*, which originally must have meant 'after' (cf. Spanish *después*), but now means 'since'. In addition, *depuis* has now acquired a spatial sense, as in *depuis la fenêtre* 'from the window'. However, such examples are apparently extremely rare.

9.2. Types of temporal expressions

In this book my main concern has been with grammatical markers of temporal NP relations, and I found that these are largely based on spatial markers. But what about other kinds of temporal expressions?

Let us first consider nouns that directly mean 'time'. ANSTAT (1996) has studied 'time' words in a fair number of (mostly Slavic) languages, concluding that these are not as a rule based on a spatial metaphor. This contrast between temporal relation markers and time nouns can be explained on the basis of CROFT's (1993) observations on metaphor ("domain mapping") and metonymy ("domain highlighting"). CROFT points out that as a rule domain mapping (metaphor) is induced in relational expressions by autonomous expressions, as in E193a-c, where the verb, the preposition and the noun are relational and are interpreted metaphorically because they are combined with autonomous expressions from a different cognitive domain that require domain mapping for the sentence to make sense.

- E193. a. He **fell into** a depression.
 b. She's **in** love.
 c. **mouth** of a bottle

Here, *fall into* cannot be interpreted in its basic spatial sense because of its non-spatial complement *depression* and requires mapping to an abstract domain, and similarly for the other two cases. By contrast, domain highlighting (metonymy) is induced in autonomous expressions by relational expressions, as in E194a-c.

- E194. a. **La Repubblica** hasn't arrived at the press conference yet.
 b. She likes to read **Kundera**.
 c. She **swore** foully/loudly.

Here the nouns and the verb are autonomous and are interpreted metonymically because they are combined with relational expressions that require domain highlighting. For instance, in E194a the noun *La Repubblica* (a newspaper) can only be interpreted in combination with 'arrive at the press conference' if its designation in the domain of newspaper authors (i.e. journalists) is highlighted. Since 'time' nouns are autonomous in this sense, not relational like *mouth* in E193c, we would not expect them to show the effects of metaphorical domain mapping.

Next, let us look at the grammatical expressions for temporal relations on verbs, i.e. tenses. Again, we find much less evidence for spatial expressions in this area than in temporal NP markers. This is probably simply due to the fact that tense markers are usually strongly grammaticalized elements that show few synchronic traces of their origins. However, tense markers typically go back to aspectual constructions (BYBEE et al. 1994), and these are very often based on space (e.g. *She is going to sell her house*, German *Er ist am Kochen* 'He is (lit. at) cooking', French *Elle vient de publier un article important* 'She has just (lit. comes from) published an important article'). In this way, spatial markers can find their way into the tense-aspect system of a language. Impressionistically, however, there are many more non-spatial sources for verbal and temporal categories than for adverbial time markers (e.g. expressions of volition and obligation for future tense, participial periphrases for perfect tenses, etc.). As a result, again we find few spatial-temporal metaphors in tense-aspect expressions.

9.3. A summary of the spatial sources of temporal markers

As we saw in §4.2, there are two different ways in which the time line can be mapped onto the front-back axis: the moving-time model, where earlier events are in front and later events are behind, and the moving-ego model, where earlier events are behind and later events are in front.

The moving-time model is the basis for the majority pattern of anterior and posterior markers (§4.1-2): 'before' is modeled on 'in front', 'after' is modeled on 'behind' (this is also true for the cases of 'after' from 'trace, track', cf. §4.4). Furthermore, the majority type of distance marker is based on anterior and posterior markers (§6.1), and thus often indirectly on spatial markers.

The moving-ego model is the basis for the majority pattern of anterior-durative and posterior-durative markers (§5.1), for 'arrive, reach' as an anterior-durative marker (§5.2), and for 'back' and 'over' as distance markers (§6.2.3-4).

Spatial location is also overwhelmingly the model for simultaneous location and one type of temporal extent. In simultaneous location, it is mostly spatial interior markers denoting inclusion in three-dimensional space that are used, but two-dimensional spatial markers such as 'on' and 'at' are also found (ch. 7). Among the extent functions, only telic extent is largely expressed by a spatial source, 'within' (ch. 8), whereas atelic extent markers are quite rarely spatial.

9.4. Grammaticalization in temporal markers

Markers of different semantic functions are systematically correlated with different formal properties, i.e. they show different degrees of (synchronic) formal grammaticalization (see LEHMANN (1995) for the approach to grammaticalization assumed here). The most grammaticalized functions are the atelic-extent function, which is very often expressed by a grammatical case or zero, and the seven sub-types of simultaneous location. These are also commonly expressed by zero or grammatical cases, and otherwise by semantic cases (in languages with rich inflectional morphology) or monosyllabic adpositions.

The next highest degree of formal grammaticalization is found in anterior-durative and posterior-durative markers. There are a number of languages that have case markers for these functions (terminative case, ablative case), and

monosyllabic adpositions are still fairly widespread. In this respect the telic-extent function is quite similar.

Finally, the lowest degree of formal grammaticalization is shown by anterior and posterior markers and by distance markers. These are almost never expressed by case inflection, but typically by fairly bulky, often disyllabic adpositions.

According to the principles of grammaticalization theory, the degree of formal grammaticalization should correlate with the degree of semantic grammaticalization, i.e. semantic generality. The semantic parameter is more difficult to evaluate independently, but it is probably not controversial that the simultaneous function is more general than the distance functions, so on the whole the predictions of grammaticalization theory are borne out once again. However, it is not clear to me in what sense we could say that anterior-durative is more general semantically than anterior (and analogously for posterior-durative and posterior). If anything, the a priori expectation would be that the relation is the reverse (this is also reflected in my choice of terms, which make the sequential-durative function more specific). This is an interesting theoretical issue that should be addressed by future research.

Finally, I have found some limited evidence that temporal markers tend to be more strongly grammaticalized formally than spatial ones, cf. §4.3. This observed asymmetry is not very strong, but the data bear out the general predictions of grammaticalization theory.

9.5. Universals of time in language

This study has thus documented the massive cross-linguistic regularities in the expression of NP-based time adverbials. As I remarked in the introductory chapter, there are not very many typological correlations to be observed in this area: I have found no way to predict, for instance, whether a language will model its expression of the distance-posterior function on the posterior-durative marker, on the atelic-extent marker, or base it on 'exist' or similar source constructions. This seems to be typical of semantically-based typologies like the one investigated here: Language typology seems to constrain the forms of grammar more than the semantic sources of grammatical markers. Typology predicts, for instance, whether a language uses a case inflection, a preposition or a postposition for expressing the simultaneous function with seasons, but the language is "free" to choose an interior, adessive, or instrumental marking. Since many of the questions I asked in this study

concerned the semantics of the sources of temporal markers, I was bound to find more universals than typological divisions.

This study also has a bearing on the question to what extent the conceptualization of time is universal or culture-bound. For a long time, linguists and especially anthropologists have emphasized the relativity of time concepts in different cultures (cf. ALVERSON 1994:1-7). This study shows exactly the opposite: The expression of time in one important domain of grammar, at least, is amazingly uniform across languages. Thus, my results fully agree with ALVERSON's (1994:6) thesis that "the human experience called "time" (or alternatively, "temporality", "duration"), like most of human experience in general, is built upon and arises from a panhuman *Bauplan*... [A]ll linguistic/cultural manifestations of temporal experience exhibit clearly the properties and effects of an underlying universal structure of embodied, enculturated mental experience".

Appendix: The data

In this appendix, examples of the sixteen functions for the fifty-three languages of my sample are listed.

Abbreviations of languages and sources of data:

ENG	English	QUIRK et al. (1985)
GER	German	(native speaker knowledge)
SWE	Swedish	NT, Kersti Börjars (p.c.)
FRE	French	various
ITA	Italian	NT, Davide Ricca (p.c.)
SPA	Spanish	NT
ROM	Romanian	MALLINSON (1986), TENCHEA (1985), NT
LAT	Latin	KÜHNER & STEGMANN (1914), NT
HAI	Haitian Creole	NT
RUS	Russian	various
POL	Polish	NT, Thomas Bak (p.c.)
SCR	Serbian/Croatian	NT
BLG	Bulgarian	NT, Tania Kuteva (p.c.)
LIT	Lithuanian	NT
LTV	Latvian	Nicole Nau (p.c.)
MGR	Modern Greek	JOSEPH & PHILIPPAKI-WARBURTON (1987), NT
ALB	Albanian	BUCHHOLZ & FIEDLER (1993)
IRI	Irish	NT
WEL	Welsh	KING (1993)
BSQ	Basque	SALTARELLI (1988)
HNG	Hungarian	NT
FIN	Finnish	Juhani Rudanko (p.c.), SULKALA & KARJALAINEN (1992)
EST	Estonian	Urmas Sutrop (p.c.)
UDM	Udmurt	<i>Russko-udmurtiskij slovar'</i>
TRK	Turkish	NT
LZG	Lezgian	HASPELMATH (1993)
CHE	Chechen	NT, KARASAEV & MACIEV (1978)
ABK	Abkhaz	HEWITT (1979)
GEO	Georgian	Mixail Xuskivadze (p.c.)

ARM	Armenian	Stella Gevorkian (p.c.)
HEB	Hebrew	NT
ARB	Arabic	NT
MLT	Maltese	NT
HAU	Hausa	Mahamane L. Abdoulaye (p.c.)
BAB	Babungo	SCHAUB (1985)
SWA	Swahili	NT
NKK	Nkore-Kiga	TAYLOR (1985)
PER	Persian	Mitra Sharifi (p.c.)
PUN	Punjabi	BHATIA (1993)
KAN	Kannada	SRIDHAR (1990)
TAM	Tamil	ASHER (1982)
CHI	Chinese	Jin Yue Yeh (p.c.), LI & THOMPSON (1981)
JAP	Japanese	Kaoru Horie (p.c.), HINDS (1986)
KOR	Korean	Shin Ja Hwang (p.c.)
NAN	Nanay	ONENKO 1980, ONENKO 1986
IND	Indonesian	NT
TAG	Tagalog	SCHACHTER & OTANES (1972), NT
MAO	Maori	BAUER (1993)
KOB	Kobon	DAVIES (1981)
ESK	Greenl. Eskimo	FORTESCUE (1984)
HOP	Hopi	MALOTKI (1983)
HIX	Hixkaryana	DERBYSHIRE (1979)
QUE	Quechua	COLE (1985)

A.1. Anterior

	FORM	EXAMPLE	SPATIAL 'INFRONT'
ENG	before:	<i>before Christmas</i>	<i>in front (of)</i>
GER	vor:	<i>vor Weihnachten</i> 'before Christmas'	<i>vor</i>
SWE	före:	<i>före vintern</i> 'before the winter'	<i>framför</i>
FRE	avant:	<i>avant le lever du soleil</i> 'before sunrise'	<i>devant</i>
ITA	prima (di):	<i>prima delle nove</i> 'before nine'	<i>davanti (a)</i>
SPA	antes de:	<i>antes del diluvio</i> 'before the flood'	<i>delante de</i>
ROM	înainte de:	<i>înainte de ora cinci</i> 'before five o'clock'	<i>în fața (+GEN)</i>
LAT	ante:	<i>ante diluvium</i> 'before the flood'	<i>ante</i>
HAI	anvan:	<i>anvan gro inondasion</i> 'before the flood'	<i>dévan</i>
RUS	do/pered:	<i>do načala</i> 'before the beginning' / <i>pered načalom</i> 'just before the beginning'	<i>pered</i>
POL	przed:	<i>przed potopem</i> 'before the flood'	<i>przed</i>
SCR	pred/prije:	<i>pred potopem</i> 'before the flood' / <i>prije objeda</i> 'bef. lunch'	<i>pred</i>
BLG	predi:	<i>predi otpâtuvaneto</i> 'before the departure'	<i>pred</i>
LIT	prieš:	<i>prieš žiemą</i> 'before the winter'	<i>prieš</i>
LTV	pirms:	<i>pirms saules lēkta</i> 'before sunrise'	<i>priekšā</i>
MGR	prin apó:	<i>prin apó to kataklizmó</i> 'before the flood'	<i>brostá (se)</i>
ALB	para:	<i>para çlirimit</i> 'before the liberation'	<i>(për)para</i>
IRI	roimh:	<i>roimh an díle</i> 'before the flood'	<i>os comhair</i>
WEL	cyn:	<i>cyn y Rhyfel</i> 'before the War'	<i>o flaen</i>
BSQ	aurrean:	<i>eguerdi aurrean</i> 'before noon'	<i>aurrean</i>
HNG	előtt:	<i>tél előtt</i> 'before the winter'	<i>előtt</i>
FIN	ennen:	<i>ennen sotaa</i> 'before the war'	<i>edessä</i>
EST	enne:	<i>enne sõda</i> 'before the war'	<i>ees</i>
UDM	ažyn:	<i>aran ažyn</i> 'before the harvest'	<i>ažyn</i>
TRK	önce:	<i>harp-tan önce</i> 'before the war'	<i>X-in önünde</i>
LZG	wilik:	<i>däwedilaj wilik</i> 'before the war'	<i>(GEN+) wilik</i>
CHE	halxa:	<i>Pasxin halxa</i> 'before Easter'	<i>halxa</i>
ABK	-nja-g'ə:	<i>a-š'ax'ə-nja-g'ə</i> 'before Monday'	<i>a-ç'+əpx'a</i>
GEO	-amde:	<i>om-amde</i> 'before the war'	<i>c'in</i>
ARM	aṙaj:	<i>kṙvic' aṙaj</i> 'before the war'	<i>aṙjevum</i>
HEB	lifney:	<i>lifney ha-seṯuda</i> 'before the meal'	<i>lifney</i>
ARB	qabla:	<i>qabla l-ṯadaaṯi</i> 'before the meal'	<i>quddaam</i>
MLT	qabel:	<i>qabel id-diluvju</i> 'before the flood'	<i>quddiem</i>
HAU	kàafhn:	<i>kàafhn àzahàr̃</i> 'before noon'	<i>(à) gàban</i>
SWA	kabla ya:	<i>kabla ya gharika</i> 'before the flood'	<i>mbele (ya)</i>

PER	qabl/piš:	<i>qabl az jang/piš az jang</i> ‘before the war’	<i>ǰelou-ye</i>
PUN	páílāã:	<i>manǰalvaar de/tõ páílāã</i> ‘before Tuesday’	<i>X de saamne</i>
KAN	modalu:	<i>monne-g-inta modal-ē</i> ‘before the day before yesterday’	<i>mundē</i>
TAM	munnaale:	<i>tijkakke zamekki munnaale</i> ‘before Monday’	<i>munnaale</i>
CHI	zài .. yǐqián:	<i>zài hūnlǐ yǐqián</i> ‘before the wedding’	<i>qiánmian</i>
JAP	mae-ni:	<i>sensoo mae-ni</i> ‘before the war’	<i>mae-ni</i>
KOR	cen-ey:	<i>cencayng cen-ey</i> ‘before the war’	<i>aph-ey</i>
NAN	ǰulieleni:	<i>anjaa ǰulieleni</i> ‘before the holiday’	<i>ǰulieleni</i>
IND	sebelum:	<i>sebelum makan</i> ‘before the meal’	?
MAO	mua:	<i>i mua atu i te Mane raa</i> ‘before Monday’	<i>i mua (o)</i>
ESK	siurna-:	<i>unnuaqiqqata siurn-a-gut</i> ‘before midnight’	<i>siurniq</i>
HOP	-pyeve:	<i>a-pyevē</i> ‘before him’	
HIX	ywaho:	<i>sekunta ywaho</i> ‘before Monday’	?
QUE	-manda:	<i>lunis-punda-manda</i> ‘before Monday’	<i>chimba-</i>

A.2. Posterior

	FORM	EXAMPLE	SPATIAL ‘BEHIND’
ENG	after:	<i>after all these successes</i>	<i>behind</i>
GER	nach:	<i>nach der Schule</i> ‘after school’	<i>hinter</i>
SWE	efter:	<i>efter påsken</i> ‘after Easter’	<i>bakom</i>
FRE	après:	<i>après la révolution</i> ‘after the revolution’	<i>derrière</i>
ITA	dopo:	<i>dopo le nove</i> ‘after nine’	<i>dietro</i>
SPA	después de:	<i>después de mi partida</i> ‘after my departure’	<i>detrás de</i>
ROM	după:	<i>după ora cinci</i> ‘after five o’clock’	<i>în spatele (+GEN)</i>
LAT	post:	<i>post discessionem meam</i> ‘after my departure’	<i>post</i>
HAI	après:	<i>après fêt Pak</i> ‘after Easter’	<i>dèyè</i>
RUS	posle:	<i>posle obeda</i> ‘after lunch’	<i>za</i>
POL	po:	<i>po zmartwaychwstaniu jego</i> ‘after his resurrection’	<i>za</i>
SCR	po(slije):	<i>po vazmu</i> ‘after Easter’	<i>za</i>
BLG	sled:	<i>sled predstavljenieto</i> ‘after the performance’	<i>zad</i>
LIT	po:	<i>po pietu</i> ‘after lunch’	<i>už</i>
LTV	pēc:	<i>pēc kara</i> ‘after the war’	<i>aiz</i>
MGR	metá:	<i>metá tin anástasi tu</i> ‘after his resurrection’	<i>píso apó</i>
ALB	pas:	<i>pas shfaqjes</i> ‘after the performance’	<i>pas</i>
IRI	tar éis:	<i>tar éis na Cásca</i> ‘after Easter’	<i>laistiar</i>
WEL	ar ôl:	<i>ar ôl pedwar</i> ‘after four’	<i>tu ôl</i>
BSQ	ondoan:	<i>afal ondoan</i> ‘after dinner’	<i>atzean</i>

HNG	után:	<i>husvét után</i> 'after Easter'	<i>mögött</i>
FIN	jälkeen:	<i>sodan jälkeen</i> 'after the war'	<i>takana</i>
EST	pärast:	<i>pärast sõda</i> 'after the war'	<i>taga</i>
UDM	bere:	<i>užam bere</i> 'after work'	<i>beryn</i>
TRK	sonra:	<i>harp-tan sonra</i> 'after the war'	<i>X-in arkasında</i>
LZG	q'uluq^h:	<i>zalzaldilaj q'uluq^h/güğüniz</i> 'after the earthquake'	<i>q'uluq^h</i>
CHE	t'äha:	<i>doyanel t'äha</i> 'after the rains'	<i>t'ēhā</i>
ABK	-štax'-g'ə:	<i>a-š'ax'ə à-štax'-g'ə</i> 'after Monday'	<i>à-štax'</i>
GEO	šemdeg:	<i>omis šemdeg</i> 'after the war'	<i>uk'an</i>
ARM	heto:	<i>křvic' heto</i> 'after the war'	?
HEB	aharey:	<i>aharey ha-horef</i> 'after the winter'	<i>me řahorey</i>
ARB	bařda:	<i>bařda s-sabyi</i> 'after the exile'	<i>waraařa</i>
MLT	wara:	<i>wara l-Għid</i> 'after Easter'	<i>wara</i>
HAU	baayan:	<i>baayan ajii</i> 'after class'	<i>à baayan</i>
SWA	baada:	<i>baada ya ule uhamisho</i> 'after the exile'	<i>nyuma (ya)</i>
PER	ba'd:	<i>ba'd az jang</i> 'after the war'	<i>pořt-e</i>
PUN	baad:	<i>viirvaar de baad</i> 'after Thursday'	<i>X de picche</i>
KAN	nantaradinda:	<i>cunaavaņeya nantaradinda</i> 'after the election'	<i>hinde</i>
TAM	pinnaale/appuram:	<i>botanņke zamekk-appuram</i> 'after Wednesday'	<i>pinnaale</i>
CHI	zài .. (guo)hòu:	<i>zài zhànzhēng guohòu</i> 'after the war'	<i>hòumian</i>
JAP	go-ni:	<i>sensoo go-ni</i> 'after the war'	<i>ushiro-ni</i>
KOR	hwu-ey:	<i>cencayng hwu-ey</i> 'after the war'	<i>twi-ey</i>
NAN	xořipia:	<i>řobomi xořipia</i> 'after work'	<i>čialani</i>
IND	sehabis/ sesudah:	<i>sehabis makan</i> 'after the meal' <i>sesudah pembuangan ke babel</i> 'after the Babylonian exile'	<i>di belakang</i>
MAO	muri:	<i>a muri i te waanganui poo nei</i> 'after midnight'	<i>i muri (o)</i>
ESK	kingurna-:	<i>marlunngurnirup kingurn-a(-gut)</i> 'after Tuesday'	<i>kingurniq</i>
HOP	-ngk:	<i>amu-ngk</i> 'after them'	?
HIX	mkaye:	<i>sekunta mkaye</i> 'after Monday'	<i>mkaye</i>
QUE	?		<i>washa</i>

A.3. Simultaneous location

	FORM	EXAMPLE			
ENG	1. at	<i>at twelve o'clock</i>	ITA	1. a	<i>all'una</i> 'at one o'clock'
	2. in	<i>in the evening</i>		2. a/di/Ø	<i>di/la notte</i> 'at night'
	3. on	<i>on Friday</i>		3. Ø	<i>(il) mercoledì</i> 'on Wednesday'
	4. in	<i>in October</i>		4. in/a	<i>in dicembre/a maggio</i>
	5. in	<i>in the spring</i>		5. di/in	<i>d'inverno</i> 'in the winter' / <i>in primavera</i> 'in the spring'
	6. in	<i>in 1996</i>		6. in	<i>nel 1975</i> 'in 1975'
	7. at	<i>at Christmas</i>		7. a	<i>a Pasqua</i> 'at Easter'
GER	1. um	<i>um 3.15 h</i> 'at 3.15'	SPA	1. a	<i>a las cinco</i> 'at five o'clock'
	2. an	<i>am Abend</i> 'in the evening'		2. a/por	<i>por la mañana</i> 'in the morning' / <i>al anochecer</i> 'at dusk'
	3. an	<i>am Sonnabend</i> 'on Saturday'		3. Ø	<i>el primer día de la semana</i> 'on the first day of the week'
	4. in	<i>im März</i> 'in March'		4. en	<i>en mayo</i> 'in May'
	5. in	<i>im Frühling</i> 'in spring'		5. en	<i>en verano</i> 'in the summer'
	6. in/Ø	<i>im ersten Jahr</i> 'in the first year' / Ø 1994		6. en	<i>en 1996</i> 'in 1996'
	7. zu	<i>zu Ostern</i> 'at Easter'		7. en	<i>en Navidades</i> 'at Christmas'
SWE	1. Ø	<i>klockan åtta</i> 'at eight o'clock'	ROM	1. la	<i>la ora cinci</i> 'at five o'clock'
	2. på	<i>på kvällen</i> 'in the evening'		2. Ø	<i>seara</i> 'in the evening'
	3. på	<i>på söndag</i> 'on Sunday'		3. Ø/la	<i>luni</i> 'on Monday' / <i>la 23 August</i> 'on the 23rd of August'
	4. i	<i>i maj</i> 'in May'		4. în	<i>în martie</i> 'in March'
	5. på	<i>på hösten</i> 'in the fall'		5. Ø	<i>toamna</i> 'in the fall'
	6. under	<i>under femtonde året</i> 'in the 15th year'		6. în	<i>în (anul) 1985</i> 'in 1985'
	7. vid	<i>vid jultiden</i> 'at Christmas'		7. la	<i>la crăciun</i> 'at Christmas'
FRE	1. à	<i>à huit heures</i> 'at eight o'clock'	LAT	1. ABL	<i>hora nona</i> 'at the ninth hour'
	2. Ø/à	<i>le/au matin</i> 'in the morning'		2. ABL	<i>vespere</i> 'in the evening'
	3. Ø	<i>le mardi</i> 'on Tuesday'		3. ABL	<i>die septima</i> 'on the seventh day'
	4. en	<i>en mai</i> 'in May'		4. ABL	<i>mense septembri</i> 'in September'
	5. en	<i>en été</i> 'in the summer'		5. ABL	<i>hieme</i> 'in the winter'
	6. en	<i>en 1789</i> 'in 1789'		6. ABL	<i>Anno Domini</i> 'in the year of the Lord'
	7. à	<i>à Noël</i> 'at Christmas'		7. ABL	<i>feriis Latinis</i> 'at the Latin festival'

HAI	1.	vè	<i>vè toua zè</i> 'at three o'clock'	LIT	1.	ACC	<i>septintā valandā</i> 'at 7 o'clock'
	2.	nan	<i>nan matin</i> 'in the morning'		2.	ACC	<i>vakarā</i> 'in the evening'
	3.	Ø	<i>gro saba</i> 'on the Sabbath'		3.	ACC	<i>sabata</i> 'on Saturday'
	4.	sou	<i>sou szièm moua</i> 'in the sixth month'		4.	ACC	<i>rugsėjo mėnesį</i> 'in September'
	7.	pou	<i>pou fēt Pak la</i> 'at Easter'		5.	ACC	<i>pavasari</i> 'in the spring'
					6.	INSTR	<i>penkioliktisiais metais</i> 'in the 15th year'
RUS	1.	v (+ACC)	<i>v dva časa</i> 'at two o'clock'		7.	INSTR	<i>Velykų šventėmis</i> 'at Easter'
	2.	INSTR	<i>utr-om</i> 'in the morning'				
	3.	v (+ACC)	<i>v ponedel'nik</i> 'on Monday'	LTV	1.	LOC	<i>deviņos</i> 'at nine o'clock'
	4.	v (+LOC)	<i>v marte</i> 'in March'		2.	LOC	<i>vakarā</i> 'in the evening'
	5.	INSTR	<i>let-om</i> 'in the summer'		3.	LOC	<i>pirmdienā</i> 'on Monday'
	6.	v (+LOC)	<i>v 1962 godu</i> 'in 1962'		4.	LOC	<i>šajā mēnesī</i> 'this month'
	7.	na	<i>na Novyj god</i> 'on New Year's Day'		5.	LOC	<i>vasarā</i> 'in the summer'
					7.	LOC	<i>ziemsotkos</i> 'at Christmas'
POL	1.	o	<i>o dziewiątej godzinie</i> 'at 9 h'				
	2.	INSTR	<i>wieczor-em</i> 'in the evening'	MGR	1.	se	<i>s tis eftá</i> 'at seven'
	3.	w (+acc)	<i>we wtorek</i> 'on Tuesday'		2.	ACC	<i>to proí</i> 'in the morning'
	4.	w (+loc)	<i>w miesiącu szóstym</i> 'in the sixth month'		3.	ACC	<i>tin dheftéra</i> 'on Monday'
	5.	w/na	<i>w zimie</i> 'in the winter' / <i>na wiosnę</i> 'in the spring'		4.	ACC	<i>ton iúnio</i> 'in June'
	7.	na	<i>na wielkanoc</i> 'at Easter'		5.	ACC	<i>tin ániksi</i> 'in the spring'
					6.	ACC	<i>to 1986</i> 'in 1986'
					7.	ACC	<i>ta xristújena</i> 'at Christmas'
SCR	1.	u	<i>u koji čas</i> 'at what time?'				
	2.	u	<i>u jutru</i> 'in the morning'	ALB	1.	më/në:	<i>më dy</i> 'at 2 h', <i>në orën dy</i>
	3.	u	<i>u subotu</i> 'on Sabbath'		2.	në:	<i>në mbrëmje</i> 'in the evening'
	4.	u	<i>u šesti mjesec</i> 'in the sixth m.'		3.	ACC:	<i>të Dielën</i> 'on Sunday'
	5.	u	<i>u 15oj godini</i> 'in the 15th year'		4.	në:	<i>në mars</i> 'in March'
	6.	u	<i>u zimu</i> 'in the winter'		5.	në:	<i>në pranverë</i> 'in the spring'
	7.	na	<i>na vazam</i> 'at Easter'		6.	më/në:	<i>më 1912</i> 'in 1912', <i>në vitin 1912</i>
					7.	në:	<i>në Krishlindje</i> 'at Christmas'
BLG	1.	v	<i>v 10 časa</i> 'at ten o'clock'				
	2.	Ø	<i>sutrin(ta)</i> 'in the morning'	IRI	1.	ar	<i>ar a cúig a chlog</i> 'at 5 o'clock'
	3.	v	<i>v sâbota</i> 'on the Sabbath'		2.	ar/i/um	<i>san oíche</i> 'at night'
	4.	v	<i>v šestija mesec</i> 'in the 6th m.'		3.	Ø	<i>Dé Luain</i> 'on Monday'
	5.	prez	<i>prez tova ljato</i> 'in that summer'		4.	i/faoi	<i>faoi Bhealtaine</i> 'in May'
	6.	v	<i>v petnadesetata godina</i> 'in the fifteenth year'		5.	i	<i>sa bhfómhar</i> 'in the fall'
					6.	i	<i>i mbliana</i> 'this year'
					7.	um/faoi	<i>um Cháisc</i> 'at Easter'

WEL	1.	am	<i>am saith</i> 'at seven'	UDM	1.	ILL/LOC	<i>kuiñ cas-yn</i> 'at three o'clock'
	2.	yn	<i>yn y nos</i> 'in the evening'		2.	(ADV)	<i>uin</i> 'at night'
	3.	Ø	<i>ddydd Mawrth</i> 'on Tuesday'		3.	ILL	<i>arnja nunal-e</i> 'on Sunday'
	4.	yn	<i>yn lonawr</i> 'in January'		4.	ILL	<i>janvar' tolez-e</i> 'in January'
	6.	yn	<i>ym 1907</i> 'in 1907'		5.	Ø/ADV	<i>sižyl</i> 'in the fall'
					6.	ILL	<i>vuono ar-e</i> 'next year'
BSQ	1.	LOC	<i>lau-retan</i> 'at four o'clock'	TRK	1.	LOC	<i>saat on beş-te</i> 'at 15 h'
	2.	LOC	<i>goiz-ean</i> 'in the morning'		2.	Ø	<i>bu akşam</i> 'tonight'
	3.	LOC	<i>astelehen-ean</i> 'on Monday'		3.	Ø	<i>o gün</i> 'on that day'
	4.	LOC	<i>abendu-an</i> 'in December'		4.	Ø	<i>altıncı ay</i> 'in the sixth month'
	5.	LOC	<i>udaberri-an</i> 'in spring'		5.	-In	<i>yaz-ın</i> 'in the summer'
	6.	LOC	<i>1976-an</i> 'in 1976'		6.	LOC	<i>on beşinci yılın-da</i> 'in the 15th y.'
	7.	LOC	<i>gabon-etan</i> 'at Christmas'		7.	LOC	<i>Passah'-ta</i> 'at Easter'
HNG	1.	TEMP	<i>hat-kor</i> 'at six'	LZG	2.	DAT	<i>jifi-z</i> 'at night', <i>nisini-z</i> 'at noon'
	2.	Ø	<i>este</i> 'in the evening'		3.	DAT	<i>22-martdi-z</i> 'on the 22 of March'
	3.	SUPERESS	<i>egy hetfői nap-on</i> 'on a Monday'		5.	DAT	<i>gatfari-z</i> 'in the spring'
	4.	INESS	<i>augusztus-ban</i> 'in August'		6.	DAT	<i>alataj jisuz</i> 'last year'
	5.	SUPERESS/INSTR	<i>nyár-on</i> 'in the summer'	CHE	1.	dälča	<i>ši saht dälča</i> 'at two o'clock'
	6.	INESS	<i>ez év-ben</i> 'this year'		2.	(ADV)	<i>busa</i> 'at night'
	7.	TEMP	<i>karácsony-kor</i> 'at Christmas'		3.	-h	<i>šotdijna h</i> 'on Saturday'
FIN	1.	ABL	<i>viide-ltä</i> 'at five'		5.	(ADV)	<i>äxka</i> 'in the summer'
	2.	ADESS	<i>aamu-lla</i> 'in the morning'		6.	-h	<i>t'edoyuču šarah</i> 'next year'
	3.	ESS	<i>lauantai-na</i> 'on Saturday'	ABK	1.	-zə	<i>bəž+bà rə-zə</i> 'at seven o'clock'
	4.	INESS	<i>helmikuu-ssa</i> 'in February'		2.	Ø/-zə	<i>à-šəž (a-zə)</i> 'in the morning'
	5.	ADESS	<i>kesä-llä</i> 'in the summer'		3.	Ø/-zə	<i>a-š°ax'ä (-zə)</i> 'on Monday'
	6.	ESS	<i>vuon-na 1990</i> 'in 1990'		4.	-zə	<i>yanàr a-zə</i> 'in January'
	7.	ESS	<i>juhannukse-na</i> 'at Midsummer'		5.	Ø/-zə	<i>à-pxən (a-zə)</i> 'in the summer'
EST	1.	NOM	<i>kell viis</i> 'clock.NOM five.NOM'		6.	-zə	<i>1976 šək°sa-zə</i> 'in 1976'
	2.	ADESS	<i>hommiku-l</i> 'in the morning'		7.	-zə	<i>k'ərsa-zə</i> 'at Christmas'
	3.	ADESS	<i>23. veebruari-l</i> 'on February 23rd'				
	4.	INESS	<i>veebruari-s</i> 'in February'				
	5.	ADESS	<i>kevade-l</i> 'in spring'				
	6.	ADESS	<i>järgmise-l aasta-l</i> 'next year'				
	7.	ADESS	<i>jõulude aja-l</i> 'at Christmas time'				

GEO	1.	-ze	<i>xut saat-ze</i> 'at five o'clock'	MLT	1.	fi	<i>fid-disa' siegha</i> 'at nine'
	2.	-s	<i>dila-s</i> 'in the morning'		2.	fi	<i>fil-ghodu</i> 'in the morning'
	3.	-s	<i>oršabat-s</i> 'on Monday'		3.	Ø	<i>nhar ta' Sibt</i> 'on the Sabbath'
	4.	-ši	<i>janvar-ši</i> 'in January'		4.	fi	<i>fis-sitt xahar</i> 'in the sixth month'
	5.	-ši/-ze	<i>zamtar-ši</i> 'in the spring'		5.	fi	<i>fix-xitwa</i> 'in the winter'
	6.	-ši	<i>1990-ši</i> 'in 1990'		6.	fi	<i>fis-sena hmistax</i> 'in the 15th year'
	7.	-ze/sa-X-od	<i>šoba-ze/sa-šoba-od</i> 'at Christmas'		7.	fi	<i>fil-Ghid</i> 'at Easter'
ARM	1.	DAT	<i>žamə hing-in</i> 'at five o'clock'	HAU	1.	dà	<i>dà k'arfee shidà</i> 'at six o'clock'
	2.	DAT	<i>kesor-in</i> 'at noon'		2.	dà	<i>dà yamma</i> 'in the evening'
	3.	NOM	<i>šabat' orə</i> 'on Saturday'		3.	Ø	<i>Ø ran àsabàr</i> 'on Saturday'
	4.	DAT	<i>p'etrovar-in</i> 'in February'		4.	cikin/à/Ø	<i>cikin watàn Maayù</i> 'in May'/ (à) <i>watàn feeburuwè</i> 'in Feb.'
	5.	NOM/DAT	<i>garn-anə</i> 'in spring'		5.	dà	<i>dà dàamunaa</i> 'in the rainy season'
	6.	DAT	<i>1990 t'vakan-in</i> 'in 1990'		6.	à	<i>à shèekaràr 1990</i> 'in 1990'
	7.	DAT	<i>zatic-in</i> 'at Easter'		7.	gà	<i>gà sallàr Kiristimeeti</i> 'at Xmas'
HEB	2.	be-	<i>b-a-šerev</i> 'in the evening'	BAB	1.	máa	<i>máa və̀shíshwì tée</i> 'at 5 o'clock'
	3.	be-	<i>be-šabat</i> 'on the Sabbath'		2.	táa/Ø	<i>(táa) nshúá-ndōo-mbìs†</i> 'in the morning'
	4.	be-	<i>b-a-hodeš ha-šiši</i> 'in the sixth month'		3.	Ø	<i>ηwá jwì ηkúusə</i> 'he came on Nkuuse'
	5.	be-	<i>b-a-horef</i> 'in the winter'		4.	táa	<i>ηwá jwì táa ηúu Lü'</i> 'he came in the month of Lu'
	6.	be-	<i>bi-šnat ...</i> 'in the year...'		5.	táa	<i>táa ndŋ</i> 'in the dry season'
	7.	be-	<i>be-ħag ha-pesah</i> 'at Passover'		6.	máa	<i>máa 1981</i> 'in 1981'
ARB	1.	fii	<i>fii s-saa šati θ-θaaliθati</i> 'at 3 h'		7.	máa	<i>máa yìshēe táfûŋ</i> 'in the time of celebrating tombs'
	2.	ACC:	<i>masaaʔan</i> 'in the evening'	SWA	2.	Ø	<i>asubuhi</i> 'in the morning'
	3.	fii	<i>fii s-sabti</i> 'on the Sabbath'		3.	Ø	<i>siku yasabato</i> 'on the Sabbath'
	4.	fii	<i>fii šahrikaa s-saadisi</i> 'in her sixth month'		4.	Ø	<i>mwezi wa sita</i> 'in the 6th month'
	5.	fii	<i>fii šitaaʔn</i> 'in the winter'		5.	Ø	<i>wakati wa baridi</i> 'in the winter'
	6.	fii	<i>fii s-sanati</i> 'in the year'		6.	Ø	<i>mwaka wa 15</i> 'in the 15th year'
	7.	fii	<i>fii ŋidi l-fišhi</i> 'at Passover'		7.	Ø	<i>sikukuu ya Pasaka</i> 'at Easter'

NKK	1.	aha	<i>aha shaaha ikumi</i> 'at ten o'clock'	CHI	1.	Ø	<i>wǔ diǎn</i> 'at five o'clock'
	2.	omu	<i>omu kasheeshe</i> 'in the morning'		2.	Ø	<i>zǎoshang</i> 'in the morning'
	3.	aha	<i>aha rwakana</i> 'on Thursday'		3.	zài	<i>zài xīngqī yī</i> 'on Monday'
	4.	omu	<i>omu kwezi kwa Januwari</i>		4.	zài	<i>zài èryuè</i> 'in February'
	5.	aha	<i>aha kyanda</i> 'in the summer'		5.	zài	<i>zài xiàtiān</i> 'in the summer'
	6.	omu	<i>omu mwaka gwa 1985</i> 'in 1985'		6.	zài	<i>zài bāshísān</i> 'in 83'
	7.	aha	<i>aha Sikuukuru</i> 'at Christmas'		7.	zài	<i>zài shèngdānjié</i> 'at Christmas'
PER	1.	Ø	<i>sá'at-e panj</i> 'at five o'clock'	JAP	1.	-ni	<i>gozi-ni</i> 'at five o'clock'
	2.	Ø	<i>šab</i> 'in the evening'		2.	-ni	<i>asa(-ni)</i> 'in the morning'
	3.	Ø	<i>došanbe</i> 'on Monday'		3.	-ni	<i>getuyoobi(-ni)</i> 'on Monday'
	4.	dar	<i>dar mâh-e bahman</i> 'in February'		4.	-ni	<i>itigatu-ni</i> 'in January'
	5.	dar/Ø	<i>(dar) tâbestân</i> 'in the summer'		5.	-ni	<i>natu-ni</i> 'in the summer'
	6.	dar/Ø	<i>(dar) sâl-e 1990</i> 'in 1990'		6.	-ni	<i>senkyuuhyaku kyuuzyuu nen-ni</i> 'in 1990'
	7.	Ø	<i>nourûz</i> 'on New Year's day'		7.	-ni	<i>iisutaa-ni</i> 'at Easter'
PUN	1.	Ø	<i>che vaje</i> 'at six o'clock'	KOR	1.	-ey	<i>tases si-ey</i> 'at five o'clock'
	2.	nũũ	<i>shaam nũũ</i> 'in the evening'		2.	-ey	<i>cenyek-ey</i> 'in the evening'
	3.	nũũ	<i>somvaar nũũ</i> 'on Monday'		3.	-ey	<i>thoyoil-ey</i> 'on Saturday'
	4.	vicc	<i>pó de vicc</i> 'in Pó'		4.	-ey	<i>i wel(tal)-ey</i> 'in February'
	5.	vicc	<i>basant de mosam vicc</i> 'in the spring'		5.	-ey	<i>pom-ey</i> 'in the spring'
	6.	vicc	<i>hizrii 1970 vicc</i>		6.	-ey	<i>1990 nyen-ey</i> 'in 1990'
	7.	te	<i>visaakhi te</i> 'at Vaisakhi'		7.	-ey	<i>puhwalc-el-ey</i> 'at Easter'
KAN	1.	DAT (-ge)	<i>ombattu gaṅṅe-ge</i> 'at 9 o'clock'	NAN	1.	LOC (-la)	<i>žuer časa-la</i> 'at two o'clock'
	2.	Ø	<i>sanje</i> 'in the evening'		2.	Ø	<i>čimii</i> 'in the morning'
	3.	Ø	<i>bhaanvuvara</i> 'on Sunday'		3.	DAT (-du)/LOC	<i>subbota-du</i> 'on Saturday' / <i>sreda-la</i> 'on Wednesday'
	4.	LOC (-alli)	<i>caitrad-alli</i> 'in Caitra (month)'		4.	DAT	<i>maj bia-du</i> 'in May'
	5.	LOC (-alli)	<i>beesige kaalad-alli</i> 'in the summer'		5.	Ø	<i>bolo</i> 'in the fall'
	6.	LOC (-alli)	<i>1981-alli</i> 'in 1981'		6.	DAT	<i>ej ajjani-du</i> 'this year'
	7.	DAT (-ge)	<i>ugaadi-ge</i> 'for Ugadi'		7.	DAT	<i>Sikūn ajjani-du</i> 'on New Year'
TAM	1.	DAT (-kki)	<i>eezu maṅi-kki</i> 'at seven'				
	2.	LOC/Ø	<i>raattri(-yile)</i> 'at night'				
	3.	Ø	<i>botankezame</i> 'on Wednesday'				
	4.	LOC/Ø	<i>juun maacam/maacattle</i> 'in June'				
	5.	LOC	<i>kootakaalattle</i> 'in the hot season'				
	6.	LOC	<i>1978-le</i> 'in 1978'				

IND	1.	pada	<i>pada jam lima</i> 'at five o'clock'	ESK	1.	ALL (-nut)	<i>quliqiqqa-nut</i> 'at 8.30 h'
	2.	Ø	<i>pagi hari</i> 'in the morning'		2.	ABS	<i>ualiq</i> 'this afternoon'
	3.	pada	<i>pada hari Sabat</i> 'on the Sabbath'		4.	LOC (-mi)	<i>juuni-mi</i> 'in June'
	4.	Ø	<i>bulan depan</i> 'next month'		5.	ABS	<i>aasaq</i> 'last summer'
	5.	pada	<i>pada musim dingin</i> 'in the winter'		6.	LOC (-mi)	<i>1982-mi</i> 'in 1982'
	6.	pada	<i>pada tahun 1980</i> 'in 1980'		7.	LOC (-mi)	<i>juulli-mi</i> 'at Christmas'
	7.	pada	<i>pada Paskah</i> 'at Easter'				
				HOP	3.	ep	<i>santi-t ep</i> 'on Sunday'
TAG	1.	nang	<i>nang ala-una</i> 'at one o'clock'		4.	ep	<i>i-t muuyawu-y hapi ep</i> 'in this month'
	2.	sa	<i>sa umaga</i> 'in the morning'		5.	-va	<i>tuho'os-va</i> 'in the fall'
	3.	sa/noong	<i>sa Lunes</i> '(next) Monday'		6.	ep	<i>i-t yàasangwu-y ep</i> 'this year'
	4.	sa/noong	<i>sa Enero</i> '(next) January'		7.	ep	<i>patsavu-t ep</i> 'at Patsavu'
	5.	sa	<i>sa tag-ulan</i> 'in the rainy season'				
	6.	nang	<i>nang 1950</i> 'in 1950'				
	7.	kung	<i>kung Pasko</i> 'at Christmastime'	HIX	3.	ho	<i>sekunta ho</i> 'on Monday'
					4.	wawo	<i>xaneru wawo</i> 'in January'
					5.	wawo	<i>txemnyeh wawo</i> 'in the rainy season'
MAO	1.	i/noo/a	<i>noo te waru</i> 'at eight o'clock'		6.	wawo	<i>1968 wawo</i> 'in 1968'
	2.	i/noo/a	<i>a te ata</i> 'in the morning'		7.	ho	<i>Kryestu yonuruthurunhuru yawas-in ho</i> 'at Christmas'
	3.	i/noo/a	<i>i te Mane</i> 'on Monday'				
	4.	i/noo/a	<i>a Hakihea</i> 'in December'				
	5.	i/noo/a	<i>i te ngahuru</i> 'in the fall'				
	6.	i/noo/a	<i>noo te tau 1950</i> 'in 1950'	QUE	1.	LOC/ACC	<i>las siti-pi/-ta</i> 'at seven'
	7.	i/noo/a	<i>a te Kirihimete</i> 'at Christmas'		3.	LOC/ACC	<i>lunis-pi/-ta</i> 'on Monday'
					4.	LOC/ACC	<i>iniru-pi/-ta</i> 'in January'
KOB	1.	Ø	<i>ten kilok</i> 'at ten o'clock'		5.	LOC/ACC	<i>tamya timpu-pi/-ta</i> 'in the rainy season'
	2.	halö/Ø	<i>sib halö</i> 'early in the morning' / <i>sidaj</i> 'at noon'		6.	LOC	<i>1980-pi (*-ta)</i> 'in 1980'
	3.	Ø	<i>wañignöbö</i> 'on Monday'		7.	LOC/ACC	
	4.	Ø	<i>rakön ag+þ</i> 'in November'				
	6.	Ø	<i>naintinsepentisikis</i> 'in 1976'				

A.4. Anterior-durative

	FORM	EXAMPLE	OTHER MEANINGS
ENG	until/till	<i>until August</i>	
GER	bis:	<i>bis bald</i> 'till soon'	<i>bis</i> 'up to'
SWE	till:	<i>till denna dag</i> 'until that day'	<i>till</i> 'to'
FRE	jusqu'à:	<i>jusqu'à demain</i> 'till tomorrow'	<i>jusqu'à</i> 'up to'
ITA	fino a:	<i>fino alle dieci</i> 'until ten'	<i>fino a</i> 'up to'
SPA	hasta:	<i>hasta el tercer día</i> 'until the third day'	
ROM	pînă:	<i>pînă la opt</i> 'until eight o'clock'	<i>pînă</i> 'up to'
LAT	usque:	<i>usque in diem tertium</i> 'until the third day'	
HAI	jouk:	<i>jouk asouè</i> 'until the evening'	
RUS	do:	<i>do dekabrja</i> 'until December'	<i>do</i> 'up to'
POL	aż do:	<i>aż do dziewiątej godziny</i> 'until the ninth hour'	<i>aż do</i>
SCR	do:	<i>do trečega dana</i> 'until the third day'	
BLG	do:	<i>do včera</i> 'until yesterday'	
LIT	iki:	<i>iki šiandien</i> 'until today'	
LTV	līdz:	<i>līdz beigām</i> 'until the end'	<i>līdz</i> 'up to'
MGR	éos:	<i>éos símera</i> 'until today'	
ALB	deri:	<i>deri të martën</i> 'until Tuesday'	<i>deri në</i> 'up to'
IRI	go dtí:	<i>go dtí an treas lá</i> 'until the third day'	<i>go dtí</i> 'till comes'
WEL	hyd:	<i>hyd ddiwedd mis Mehefin</i> 'until the end of June'	<i>hyd</i> 'length'
BSQ	arte:	<i>astelehen arte</i> 'until Monday'	<i>arte</i> 'among'
HNG	TERM:	<i>edd-ig a nap-ig</i> 'until this day'	<i>London-ig</i> 'up to'
FIN	asti:	<i>maanantaikin asti</i> 'until Monday'	
EST	(kuni) -ni:	<i>(kuni) espäeva-ni</i> 'till Monday' until Monday-TERM	<i>ku-</i> 'where, when'
UDM	TERM (-ož)	<i>tolalte-ož</i> 'until the winter'	<i>-ož</i> 'up to'
TRK	değın:	<i>sabaha değın</i> 'until the morning'	
LZG	SUPERDIR:	<i>1937-lahaj jisa-ldi</i> 'until 1937'	instrumental
CHE	-alc:	<i>sarr-alc</i> 'until the evening'	cf. <i>qaččalc</i> 'up to'
ABK	-nja:	<i>a-šax'à-nja</i> 'until Monday'	<i>-nja</i> 'up to'
GEO	-amde:	<i>oršabat-amde</i> 'until Monday'	<i>-amde</i> 'before'
ARM	minč'ev:	<i>minč'ev erkušabt'i</i> 'until Monday'	
HEB	šad:	<i>šad ha-yom ha-šliši</i> 'until the 3rd day'	
ARB	šilaa:	<i>šilaa l-yawmi θ-θaaliθi</i> 'until the third day'	<i>šilaa</i> 'to'
MLT	sa:	<i>sal-lum</i> 'until today'	
HAU	sai/har:	<i>sai gòobe</i> 'until tomorrow' / <i>har litinîn</i> 'till Monday'	<i>har</i> < Arabic
BAB	zi':	<i>zi' t# v`shíshwì tée</i> 'until five o'clock'	<i>zi'</i> 'until'

SWA	hata:	<i>hata siku ya tatu</i> 'until the third day'	<i>hata</i> < Arabic
NKK	okuhitsya:	<i>okuhitsya omwaka gwa 1984</i> 'until 1984'	
PER	tâ:	<i>tâ došanbe</i> 'until Monday'	
PUN	tikkaṅ:	<i>somvaar tikkaṅ</i> 'until Monday'	<i>tikkaṅ</i> 'up to'
KAN	tanaka/varege:	<i>eṅtu gaṅṅeya tanaka/varege</i> 'until eight o'clock'	
TAM	varekkum:	<i>tijjakkezame varekkum</i> 'till Monday'	<i>varekkum</i> 'up to'
CHI	dào:	<i>dào wǔ diǎn</i> 'until five o'clock'	<i>dào</i> 'reach, arrive'
JAP	made	<i>sanzi made</i> 'until three o'clock'	
KOR	-kkaci:	<i>sey si-kkaci</i> 'until three o'clock'	cf. <i>-kkaci</i> 'even'
NAN	-gudele:	<i>śikse-gudele</i> 'until the evening'	
IND	sampai/hingga:	<i>sampai jam tiga</i> 'until 3 h', <i>hingga besok</i> 'till tomorrow'	
TAG	hanggang:	<i>hanggang alas dos</i> 'until two o'clock'	
MAO	raa anoo:	<i>noo te Mane raa anoo</i> 'until Monday'	
ESK	tunga-a-nut:	<i>sapaatip tunga-a-nut</i> 'until Sunday'	<i>tungi</i> 'direction'
HOP	aqw:	<i>pakwot navay siikya-y'-ta-qa-t aqw</i> 'until the 16th day'	
QUE	-kaman:	<i>lunis-kaman</i> 'until Monday'	<i>-kaman</i> 'up to'

A.5. Posterior-durative

	FORM	EXAMPLE	OTHER MEANINGS
ENG	since/ from (..on)	<i>since last Friday</i> <i>from next week on(ward)</i>	
GER	seit/von..an	<i>seit letzten Freitag</i> 'since last Friday' / <i>von nächster Woche an</i> 'from next week on(ward)'	<i>von</i> 'from'
SWE	sedan:	<i>sedan Johannes döparens dagar</i> 'since John the Baptist's days'	<i>sedan</i> 'then, later'
FRE	depuis:	<i>depuis hier</i> 'since yesterday'	cf. <i>puis</i> 'then'
ITA	(fino) da:	<i>(fino) dalle due</i> 'since two o'clock'	<i>da</i> 'from, at'
SPA	desde:	<i>desde la creación del mundo</i> 'since the world's creation'	
ROM	de:	<i>de săptămîna trecută</i> 'since last week'	<i>de</i> 'from'
LAT	a:	<i>a creatura mundi</i> 'since the world's creation'	<i>a</i> 'from'
HAI	dépi:	<i>dépi jou sa-a</i> 'since that days'	
RUS	s (+GEN):	<i>s ponedel'nika</i> 'since Monday'	<i>s</i> 'off'
POL	od:	<i>od stworzenia świata</i> 'since the world's creation'	<i>od</i> 'from'
SCR	od:	<i>od toga dana</i> 'from that day'	<i>od</i> 'from'
BLG	ot:	<i>ot ponedelnik</i> 'since Monday'	<i>ot</i> 'from'
LIT	nuo:	<i>nuo pasaulio sukūrimo</i> 'since the world's creation'	<i>nuo</i> 'from'
LTV	kopš:	<i>kopš kara</i> 'since the war'	
MGR	apó:	<i>apó ti dheftéra</i> 'since Monday'	<i>apó</i> 'from'

ALB	nga/prej:	<i>nga kohët më të vjetra</i> 'seit uralten Zeiten'	<i>nga</i> 'from'
IRI	ó:	<i>ó m' óige</i> 'since my youth'	<i>ó</i> 'from'
WEL	ers:	<i>ers hynny</i> 'since then'	< <i>er ys</i>
BSQ	geroztik/:	<i>astelehen-ez geroztik</i> 'since Monday'	<i>gero</i> '?!'
	hona/:	<i>joanden aste-tik hona</i> 'since last week'	<i>hona</i> 'hither'
	aurrera:	<i>astelehen-etik aurrera</i> 'from Monday on (FUT)'	<i>aurrera</i> 'forward'
HNG	óta:	<i>tegnap óta</i> 'since yesterday'	
FIN	lähtien:	<i>viime viikosta lähtien</i> 'since last week'	<i>lähteä</i> 'go, depart'
EST	ELAT:	<i>(alates) eelmise-st nädala-st/</i> beginning last-ELAT week-ELAT	<i>alat-</i> 'begin'
		<i>eelmise-st nädala-st peale/ saadik</i> last-ELAT week-ELAT head.all since	<i>pea</i> 'head' <i>saat-</i> 'follow'
UDM	-yšen:	<i>ujšor-yšen</i> 'since midnight'	<i>-yšen</i> 'from'
TRK	-den beri:	<i>o gün-den beri</i> 'since that day'	
LZG	SUPEREL:	<i>a č'awalaj (iniq^h)</i> 'from (since) that day'	<i>iniq^h</i> 'hither'
CHE	düjna:	<i>stoxka düjna</i> 'since last year'	
ABK	-štax':	<i>a-š'ax'à à-štax'</i> 'since Monday'	<i>-štax'</i> 'behind'
GEO	-dan:	<i>janvri-dan</i> 'since January, from January on'	'from'
ARM	ABL:	<i>šabat'van-ic'</i> 'since Saturday'	'from'
HEB	meʔaz:	<i>meʔaz beriʔat ha-šolam</i> 'since the world's creation'	
ARB	mundū:	<i>mundū l-xalqi l-šaalami</i> 'since the world's creation'	
MLT	minn:	<i>minn žmien Gwanni</i> 'since John's days'	<i>minn</i> 'from'
HAU	tun/	<i>tun lookàcîn nan</i> 'since that time'/	
	dàgà:	<i>dàgà saatii màizuwàa</i> 'from next week on'	<i>dàgà</i> 'from'
BAB	shù:	<i>shù mbìs†</i> 'from tomorrow on'	<i>shù</i> 'begin'
SWA	tangu:	<i>tangu siku za Yohana</i> 'since John's days'	
NKK	okwiha:	<i>okwiha rw'okubanza</i> 'from Monday on'	
PER	az:	<i>az hafte-ye gozašze</i> 'since last week'	<i>az</i> 'from'
PUN	tō:	<i>somvaar tō</i> 'since Monday'	<i>tō</i> 'from'
KAN	ABL (-inda)	<i>beḷigge-yinda</i> 'since the morning'	ABL 'from'
TAM	ABL (-leruntu)	<i>janavariyi-leruntu</i> 'since January'	ABL 'from'
CHI	cóng:	<i>cóng shang ge xīngqī</i> 'since last week'	<i>cóng</i> 'from'
JAP	kara/irai:	<i>sensyuu kara/irai</i> 'since last week'	<i>kara</i> 'from'
KOR	-puthe:	<i>cinan cwu-puthe</i> 'since last week'	
NAN	tepčiu:	<i>čimii tepčiu</i> 'since the morning'	<i>tepčiu-</i> 'begin'
IND	sejak:	<i>sejak hari itu</i> 'since the day'	< <i>semenjak</i>
TAG	buhat/mula:	<i>buhat noong isang buwan</i> 'since last month'	<i>buhat</i> 'from'
MAO	mai i..raa:	<i>mai i te Kirihimete raa</i> 'since Christmas'	<i>mai</i> 'hither'
ESK	ABL (-miit)	<i>aasa-miit</i> 'since the summer'	
HOP	angqw:	<i>nalöstalat angqw</i> 'from the 4th day on'	

HIX	mkaye:	<i>sekunta mkaye</i> 'since Monday'	= posterior
QUE	-manda:	<i>lunis-manda</i> 'since Monday, from Monday on'	-manda 'from'

A.6. Atelic extent

	FORM	EXAMPLE	OTHER MEANINGS
ENG	for:	<i>for three years</i>	benefactive
GER	ACC (lang):	<i>drei Jahre (lang)</i> 'for three years'	<i>lang</i> 'long'
SWE	i:	<i>i fyrtiosex år</i> 'for forty-six years'	<i>i</i> 'in'
FRE	pendant:	<i>pendant dix ans</i> 'for ten years'	<i>pendant</i> 'during'
ITA	per:	<i>per due settimane</i> 'for two weeks'	<i>per</i> 'for'
SPA	por/Ø:	<i>(por) cinco meses</i> 'for five months'	<i>por</i> 'through'
ROM	timp de:	<i>timp de trei ani</i> 'for three years'	<i>timp</i> 'time'
LAT	ABL:	<i>una hora</i> 'for one hour'	
HAI	pandan:	<i>pandan dis jou</i> 'for ten days'	
RUS	ACC:	<i>odnu minutu</i> 'one minute'	
POL	przez:	<i>przez pięć miesięcy</i> 'for five months'	<i>przez</i> 'through'
SCR	ACC:	<i>jedan sahat</i> 'for one hour'	
BLG	Ø:	<i>tri dni i tri nošti</i> 'three days and three nights'	
LIT	ACC:	<i>vieną valandą</i> 'one hour'	
LTV	ACC:	<i>trīs gadus</i> 'for three years'	
MGR	ACC/ja:	<i>(ja) pénde mínes</i> 'for five months'	<i>ja</i> 'for'
IRI	ACC:	<i>trí lá agus trí oíche</i> 'for three days and three nights'	
WEL	am:	<i>am ddeng munud</i> 'for ten minutes'	<i>am</i> 'for; about'
BSQ	MOD/LOC:	<i>bi urt-ean</i> (two year-LOC) 'for two years'/ <i>bost egun-ez eta gau-ez</i> 'for five days and nights' five day-MOD and night-MOD	
HNG	TERM:	<i>egy órá-ig</i> 'for one hour'	
FIN	ACC:	<i>kaksi tuntia</i> 'for two hours'	
EST	PRTV:	<i>Ma töötasin kaks tundi aia-s.</i> I worked two hours.PRTV garden-INNESS 'I worked for two hours in the garden.'	
UDM	čože:	<i>kyk nunal čože</i> 'for two days'	cf. <i>čož</i> 'up to'
TRK	Ø:	<i>beş ay</i> 'for five months'	
LZG	INESS:	<i>pud sätta</i> 'for three hours'	
CHE	-h:	<i>battah</i> 'for a month'	
ABK	h°a:	<i>y°ə-şək°sa h°a</i> 'for two years'	<i>h°a</i> 'say'
GEO	NOM:	<i>ori saati</i> 'for two hours'	
ARM	NOM/ACC:	<i>erku žam</i> 'for two hours'	

HEB	Ø:	<i>šāʿā aḥat</i> 'for one hour'	
ARB	ACC:	<i>saaʿat-an waaḥīdat-an</i> 'for one hour'	
MLT	Ø/ghal:	<i>(ghal) hames xhur</i> 'for five months'	<i>ghal</i> 'for'
HAU	Ø:	<i>awàa biyu</i> 'for two hours'	DO: Ø
BAB	Ø:	<i>vəshī vəbɔɔ</i> 'for two days'	
SWA	Ø:	<i>miezi mitatu</i> 'for three months'	
NKK	Ø:	<i>esaabiiti emwe</i> 'for one week'	
PER	Ø:	<i>šeš mâh</i> 'for six months'	
PUN	laili :	<i>do saal laili</i> 'for two years'	<i>laili</i> 'for'
KAN	kaala/Ø :	<i>muuru dinagaḷa (kaala)</i> 'for three days'	<i>kaala</i> 'time'
TAM	neeram(-aa) :	<i>naalu maḥni neeram(-aa)</i> 'for four hours'	<i>neeram</i> 'time'
CHI	Ø:	<i>sān-ge zhōngtóu</i> 'for three hours'	
JAP	(-kan) :	<i>ni-nen-kan</i> 'for two years' / <i>ni-zi-kan</i> 'for two hours'	<i>kan</i> 'period'
KOR	tongan :	<i>twu sikan tongan</i> 'for two hours'	
IND	Ø/selama :	<i>selama lima bulan</i> 'for five months', <i>satu jam</i> 'for 1 hour'	
TAG	nang :	<i>nang dalawang oras</i> 'for two hours'	<i>nag</i> 'in'
MAO	moo :	<i>moo te rua tau</i> 'for two years'	<i>moo</i> 'for'
KOB	Ø:	<i>ñin möhau</i> 'for three days'	
ESK	ABS :	<i>minutsit pingasut</i> 'for three minutes'	
QUE	ACC :	<i>ishkay wata-ta</i> 'for two years'	

A.7. Telic extent

	FORM	EXAMPLE	OTHER MEANINGS
ENG	in :	<i>I ate the French fries in seven minutes.</i>	
GER	in :	<i>in fünf Sekunden</i> 'in five seconds'	
SWE	på :	<i>på en timme</i> 'in an hour'	<i>på</i> 'on'
FRE	en :	<i>en 10 ans</i> 'in ten years'	<i>en</i> 'in'
ITA	in :	<i>in tre ore</i> 'in three hours'	<i>in</i> 'in'
SPA	en :	<i>en una semana</i> 'in a week'	<i>en</i> 'in'
ROM	în :	<i>în trei zile</i> 'in three days'	<i>în</i> 'in'
LAT	in :	<i>in tribus diebus</i> 'in three days'	<i>in</i> 'in'
HAI	nan :	<i>nan toua jou</i> 'in three days'	<i>nan</i> 'in'
RUS	za :	<i>za odin mesjac</i> 'in one month'	<i>za</i> 'behind'
POL	za :	<i>za trzy dni</i> 'in three days'	<i>za</i> 'behind'
SCR	za :	<i>za tri dana</i> 'in three days'	<i>za</i> 'behind'
BLG	za :	<i>za tri dni</i> 'in three days'	
LIT	per :	<i>per tris dienas</i> 'in three days'	<i>per</i> 'over'
LTV	LOC :	<i>trīs gados</i> 'in three years'	

MGR	se:	<i>se tris méres</i> 'in three days'	<i>se</i> 'in'
ALB	për:	<i>për tri javë</i> 'in three weeks'	<i>për</i> 'to, for, about'
IRI	i:	<i>i dtrí huairé an chloig</i> 'in three hours'	<i>i</i> 'in'
HNG	alatt:	<i>öt nap alatt</i> 'in five days'	<i>alatt</i> 'under'
FIN	INESS:	<i>kymmene-ssä minuuti-ssa</i> 'in ten minutes'	
EST	COM:	<i>Ma sõin supi kümne minuti-ga</i> (ära). I ate soup ten minute-COM (up) 'I ate the soup in ten minutes.'	
UDM	kuspyn:	<i>arnja kuspyn</i> 'in a week'	<i>kuspyn</i> 'between'
TRK	(için)-de:	<i>üç gün (için)-de</i> 'in three days'	<i>için-de</i> 'inside'
LZG	qene:	<i>7 jiqan qene</i> 'in seven days'	<i>qene</i> 'inside'
CHE	čoh:	<i>k'iran čoh</i> 'in a week'	<i>čoh</i> 'inside'
GEO	-ši:	<i>at c'ut-ši</i> 'in ten minutes'	'in'
ARM	-um:	<i>tas rope-um</i> 'in ten minutes'	'in'
HEB	be-	<i>bi-šloša yamim</i> 'in three days'	<i>be-</i> 'in'
ARB	fii:	<i>fii ṯalaaṯati ṯayyaamin</i> 'in three days'	<i>fii</i> 'in'
MLT	fi:	<i>fi tlitt ijiem</i> 'in three days'	<i>fi</i> 'in'
HAU	(à) cikin:	<i>(à) cikin mintù</i> 'in ten minutes'	<i>cikin</i> 'in(side)'
PER	dar:	<i>dar (arze) dah daqiqe</i> 'in ten minutes'	<i>dar</i> 'in'
SWA	katika:	<i>katika siku tatu</i> 'in three days'	<i>katika</i> 'in'
CHI	zhī nèi:	<i>liǎng-ge xiǎoshí (zhī) nèi</i> 'in two hours'	<i>nèi</i> 'within'
JAP	-kan de	<i>ni-zi-kan de</i> 'in two hours'	<i>de</i> 'in'
KOR	-(m)an-ey	<i>twu sikan-(m)an-ey</i> 'in two hours'	
NAN	DAT:	<i>dūin ajjani-đu</i> 'in four years'	
IND	dalam:	<i>dalam tiga hari</i> 'in three days'	<i>dalam</i> 'inside'
TAG	sa loob ng:	<i>sa loob ng isang linggo</i> 'in one week'	<i>sa loob ng</i> 'inside'
ESK	akunnir-:	<i>nalunaaquttap akunnir-i-ni marlun-ni</i> 'in two hours'	<i>akunnir-</i> 'between'

A.8. Distance-future

	FORM	EXAMPLE	OTHER MEANINGS
ENG	in X('s time):	<i>in two weeks(' time)</i>	
GER	in:	<i>in zwei Stunden</i> 'in two hours' time'	<i>in</i> 'in'
SWE	om:	<i>om två dagar</i> 'in two days'	
FRE	dans:	<i>dans huit jours</i> 'in eight days'	<i>dans</i> 'in'
ITA	tra/fra:	<i>tra un anno ritorno</i> 'I'll be back in a year'	<i>fra</i> 'between, among'
SPA	dentro de:	<i>dentro de ocho días</i> 'in eight days'	<i>dentro de</i> 'inside'
ROM	peste:	<i>peste o lună</i> 'in a month's time'	<i>peste</i> 'over'

LAT	ABL/post:	<i>hoc biennio</i> 'in 2 years' / <i>post biduum</i> 'in 2 days'	<i>post</i> 'after'
HAI	nan:	<i>nan kək jou ankò</i> 'a few days from now'	<i>nan</i> 'in'
RUS	čerez:	<i>čerez mesjac</i> 'in a month'	<i>čerez</i> 'across'
POL	za:	<i>za tydzień</i> 'in a week'	<i>za</i> 'behind'
SCR	do:	<i>do dva dana</i> 'in two days'	<i>do</i> 'to'
BLG	sled:	<i>sled edna sedmica</i> 'in a week'	= posterior
LIT	už/po:	<i>po kelių minučių</i> 'in a few minutes'	= posterior
LTV	pēc:	<i>pēc divām stundām</i> 'in two hours'	= posterior
MGR	se/metá apó:	<i>se trís óres/metá apó trís óres</i> 'in three hours'	= posterior; <i>se</i> 'in'
ALB	pas:	<i>pas një jave</i> 'in a week's time'	= posterior
IRI	i gcionn:	<i>i gcionn trí lá</i> 'in three days'	<i>ceann</i> 'head, end'
WEL	ymhen:	<i>ymhen mis</i> 'in a month's time'	
BSQ	barru/: buruan:	<i>lau ordu barru</i> 'in four hours' / <i>lau orduren buruan</i> 'in four hours'	<i>barruan</i> 'inside'
HNG	múlva:	<i>három hét múlva</i> 'in three weeks'	<i>múlva</i> 'passing'
FIN	INESS:	<i>kahde-ssa tunni-ssa</i> 'in two hours'	
EST	X pärast:	<i>kahe tunni pärast</i> two.GEN hour.GEN after	≈ posterior
UDM	bere:	<i>odig čas bere</i> 'in one hour'	= posterior
TRK	sonra:	<i>iki gün sonra</i> 'in two days'	= posterior
LZG	SUPEREL:	<i>q'we wacra-laj</i> 'in two months'	SUPEREL 'across'
CHE	dälča:	<i>ill minot jälča</i> 'in ten minutes'	
ABK	INSTR (-la):	<i>y°ə-sàat-k' rə-la</i> 'in two hours'	
GEO	-ši:	<i>or saat-ši</i> 'in two hours'	-ši 'in'
ARM	ABL (+ heto)	<i>erku taru-c' (heto)</i> 'in two years' time'	<i>heto</i> 'after'
HEB	ʕod:	<i>ʕod yomayim</i> 'in two days'	<i>ʕod</i> 'yet, still'
ARB	baʕda:	<i>baʕda yawmayni</i> 'in two days'	= posterior
MLT	fi:	<i>fi ffit minuti</i> 'in a few minutes'	<i>fi</i> 'in'
HAU	baayan/: cikin	<i>cikin awàa biyu</i> 'in two hours' / <i>baayan shèekaràa ukkù</i> 'in three years'	<i>cikin</i> 'inside' = posterior
SWA	baada:	<i>baada ya siku mbili</i> 'in two days'	= posterior
PER	digar:	<i>(tâ) se sâl-e digar</i> 'in three years'	<i>tâ</i> 'until', <i>digar</i> 'other'
PUN	vicc/andar:	<i>do kàṅṅe vicc/de andar</i> 'in two hours'	<i>vicc/andar</i> 'in'
KAN	LOC (-alli):	<i>aidu nimişad-alli</i> 'in five minutes'	LOC 'in'
TAM	neerattle:	<i>raṅṅu maṅi neerattle</i> 'in two hours'	<i>neerattle</i> 'in time'
CHI	yīhòu:	<i>liǎng-ge zhōngtóu yīhòu</i> 'in two hours'	≈ posterior
JAP	de/go-ni:	<i>ni-zi-kan de/ni-zi-kan go-ni</i> 'in two hours'	<i>de</i> 'in'; = posterior
KOR	hwu-ey/: twi-ey	<i>twu sikan hwu-ey</i> 'in two hours' / <i>sam nyen twi-ey</i> 'in three years'	<i>hwu-ey</i> 'after' <i>twi-ey</i> 'behind'
NAN	bipie:	<i>žuer ajnani-du bipie</i> 'in two years'	<i>bi-</i> 'be'

IND	lagi:	<i>dua hari lagi</i> 'in two days'	<i>lagi</i> 'yet, noch'
MAO	a/i:	<i>a te rua haora</i> 'in two hours'	<i>a/i</i> 'in, at'
HOP	ang:	<i>hikis taala-t ang</i> 'in a few days'	
QUE	LOC:	<i>ishkay uras-pi</i> 'in two hours'	LOC 'in'

A.9. Distance-past

	FORM	EXAMPLE	OTHER MEANINGS
ENG	ago:	<i>a fortnight ago</i>	
GER	vor:	<i>vor vierzehn Tagen</i> 'a fortnight ago'	= anterior
SWE	för..sedan:	<i>för fjorton år sedan</i> 'fourteen years ago'	<i>sedan</i> 'later, since'
FRE	il y a:	<i>il y a longtemps</i> 'a long time ago'	<i>il y a</i> 'it has here'
ITA	fa:	<i>due anni fa</i> 'two years ago'	<i>fa</i> 'it makes'
SPA	hace:	<i>hace catorce años</i> 'fourteen years ago'	<i>hace</i> 'it makes'
ROM	acum:	<i>acum paisprezece ani</i> 'fourteen years ago'	<i>acum</i> 'now'
LAT	ABL/ante:	<i>paucis his diebus</i> 'a few days ago' / <i>ante annos 14</i>	<i>ante</i> 'before'
HAI	fè:	<i>jodi-a fè kat jou</i> 'four days ago today'	<i>fè</i> 'makes'
RUS	nazad:	<i>dva goda tomu nazad</i> 'two years ago'	<i>nazad</i> 'back'
POL	temu:	<i>sześć miesięcy temu</i> 'six months ago'	<i>temu</i> 'to this'
SCR	prije:	<i>prije četrnaest godina</i> '14 years ago'	= anterior
BLG	predi:	<i>predi edna sedmica</i> 'a week ago'	= anterior
LIT	prieš:	<i>prieš tris dienas</i> 'three days ago'	= anterior
LTV	pirms:	<i>pirms gada</i> 'a year ago'	<i>pirms</i> 'before'
MGR	prin apó:	<i>prin apó dhió óres</i> 'two hours ago'	= anterior
ALB	ka/para:	<i>ka dy vjet</i> 'two years ago' / <i>para disa ditësh</i> 'a few days ago'	'has' / =anterior
IRI	ó shin:	<i>bliain ó shin</i> 'a year ago'	<i>ó shin</i> 'from this'
WEL	yn ôl:	<i>ddwy flynedd yn ôl</i> 'two years ago'	<i>yn ôl</i> 'back'
BSQ	duela:	<i>duela bi ordu hemen zen</i> 'he was here two hours ago' it.has two hours here was	<i>duela</i> 'it has'
HNG	elött:	<i>három hét elött</i> 'three weeks ago'	= anterior
FIN	sitten:	<i>kolme vuotta sitten</i> 'three years ago'	<i>sitten</i> 'later'
EST	tagasi/eest:	<i>kaks tundi tagasi/ kahe tunni eest</i> two hour.PRTV back two hour past	<i>tagasi</i> 'back' <i>eest</i> 'past'
UDM	ažlo:	<i>odig ar taleš ažlo</i> 'one year ago' (lit. '1 year before this')	cf. <i>ažyn</i> 'before'
TRK	önce:	<i>iki yıl önce</i> 'two years ago'	= anterior
LZG	wilik:	<i>250 jis idalaj wilik</i> '250 years ago' (lit. 250 years before this)	= anterior
CHE	halxa:	<i>pxi šo halxa</i> 'five years ago'	= anterior
ABK	-àpx'a:	<i>y°ə-sàat-k' r-àpx'a</i> 'two hours ago'	= anterior
GEO	c'in:	<i>or saatis c'in</i> 'two hours ago'	= anterior

ARM	ařaj:	<i>erku žam ařaj</i> ‘two hours ago’	= anterior
HEB	lifney:	<i>lifney šloša yamim</i> ‘three days ago’	= anterior
ARB	munðu:	<i>munðu ĩarbařati řayyaamin</i> ‘four days ago’	<i>munðu</i> ‘since’
MLT	il-:	<i>erbat ijiem ilu</i> ‘four days ago’	
HAU	cikin:	<i>cikin awàa biyun dà sukà wucèè</i> in hour two that 3PL pass ‘two hours ago’	
PER	piř/qabl:	<i>do řat-e piř/do řat-e qabl</i> ‘two hours ago’	= anterior
PUN	páilāã:	<i>do saal páilāã</i> ‘two years ago’	= anterior
KAN	hinde:	<i>ardha gařęeya hinde</i> ‘half an hour ago’	<i>hinde</i> ‘behind’
TAM	munnaale:	<i>muu řu ma ři-kki munnaale</i> ‘three hours ago’	= anterior
CHI	yǐqián:	<i>liǎng-ge zhōngtóu yǐqián</i> ‘two hours ago’	≈ anterior
JAP	mae-ni:	<i>ni-zi-kan mae-ni</i> ‘two hours ago’	= anterior
KOR	cen-ey:	<i>twu sikan cen-ey</i> ‘two hours ago’	<i>cen-ey</i> ‘before’
NAN	xamasi:	<i>řuer ařjanitwa xamasi</i> ‘two years back’	<i>xamasi</i> ‘back’
IND	yang lalu:	<i>empat hari yang lalu</i> ‘four days ago’	<i>lalu</i> ‘pass’
TAG	nakaraan:	<i>pitong taong nakaraan</i> ‘seven years ago’	<i>nakaraan</i> ‘past’
MAO	noa atu raa:	<i>rua haora noa atu raa</i> ‘two hours ago’	‘extend away there’
ESK	siurnagut:	<i>nalunaaquttap akunniri pingasut matuma siurnagut</i> clock between three this before ‘three hours before this = three hours ago’	=anterior

A.10. Distance-posterior

	FORM	EXAMPLE	OTHER MEANINGS
ENG	for (+PERF):	<i>Bill has been in Manchester for three years.</i>	
GER	seit:	<i>Ich wohne hier seit Jahren</i> ‘I’ve lived here for years’	<i>seit</i> ‘since’
SWE	i (+PERF):	<i>Han har bott där i ett år</i> ‘He has lived there for a year’	<i>i</i> ‘in, for’
FRE	il y a/ depuis:	<i>Il y a une heure que j’attends</i> ‘I’ve been waiting for an h.’ = <i>J’attends depuis une heure.</i>	<i>il y a</i> ‘it here has’ <i>depuis</i> ‘since’
ITA	da:	<i>sto aspettando da un’ora</i> ‘I’ve been waiting for an hour’	<i>da</i> ‘from, since’
SPA	desde hace:	<i>desde hace una hora</i> ‘for one hour’	= ‘since ..ago’
ROM	de:	<i>Sînt aici de trei ani</i> ‘I’ve been here for three years’	<i>de</i> ‘from, since’
LAT	ab/ex:	<i>ab annis octo</i> ‘for 8 years’ / <i>ex multo tempore</i> ‘long’	<i>ab/ex</i> ‘from’
HAI	fè:	<i>Sa fè toua jou dépi yo la avè-m</i> ‘They have been with me for three days’	<i>fè</i> ‘makes’
RUS	ACC/uže:	<i>(uže) odnu minutu</i> ‘for one minute’	<i>uže</i> ‘already’
POL	od:	<i>od wielu lat</i> ‘for many years’	<i>od</i> ‘since’
SCR	već:	<i>već osam godina</i> ‘for eight years’	<i>već</i> ‘already’
BLG	ot:	<i>ot mnogo godini</i> ‘for many years’	<i>ot</i> ‘since’

LIT	jau:	<i>jau daugelį metų</i> 'for many years'	<i>jau</i> 'already'
LTV	ACC:	<i>trīs gadus</i> 'for three years/seit drei Jahren'	
MGR	edhó ke:	<i>edhó ke tris mínes</i> 'for three months (already)'	<i>edhó ke</i> 'here and'
ALB	prej	<i>prej vitësh</i> 'for years/seit Jahren'	<i>prej</i> 'from'
IRI	le:	<i>le trí bliana</i> 'for three days'	<i>le</i> 'with'
WEL	ers:	<i>ers wythnos</i> 'for a week'	<i>ers</i> 'since'
HNG	óta:	<i>három nap óta</i> 'for three days'	<i>óta</i> 'since'
FIN	ACC:	<i>kaksi päivää</i> 'for two days'	
EST	PRTV:	<i>Ma olen selles linna-s seitse aastat ela-nud</i> I be.1SG this town-INESS seven years.PRTV live-PTCP.PAST	
TRK	-dlr:	<i>üç gün-dür yanımdalar</i> 'they have been with me for 3 days' -dlr 'be'	
LZG	'exist':	<i>[wun za-z t-akwa-z] sa šumud jis ja.</i> you.ABS I-DAT NEG-see-CONV one few years exist 'It's been a couple of years that I haven't seen you.'	
ABK	Ø:	<i>y°ə-šək°sa abrà sə-n-xò-yt'</i> two-year here 1SG-?-live-FIN 'I have been living here for two years.'	
GEO	'be':	<i>ori tve-a Bambergši var</i> 'I've been in B. for 2 months' (E183c)	
ARM	arden:	<i>arden yot' tari</i> 'already seven years' (E179e)	'already'
HEB	ze:	<i>ze šanim rabot ani šoved eclexa</i> 'I've been working for you for many years'	<i>ze</i> 'that, it (is)'
ARB	munðu:	<i>munðu sanawaatin šadiidatin</i> 'for many years'	
MLT	il-:	<i>ilni tliet snin</i> 'for three years I...'	
HAU	Ø:	<i>kwaanaa uku</i> 'for three days'	
SWA	tangu:	<i>tangu siku nyingi</i> 'for many days'	<i>tangu</i> 'since'
PER	'be'/az..piš:	<i>noh sâl ast ke</i> 'for nine years' (E183b)/ <i>az noh sâl-e piš</i> (E29d)	
TAM	-aa:	<i>aaru maacam-aa</i> 'for six months'	<i>-aa</i> 'ADV'
CHI	Ø:	<i>qī nián</i> 'for seven years'	
JAP	kan:	<i>nana-nen-kan</i> 'for seven years'	
KOR	tongan:	<i>Na-nun i tosi-eyse chil nyen tongan salatta</i> I-TOP this city-LOC seven year for live 'I have lived in this city for seven years.'	cf. <i>tongan</i> 'for'
IND	sudah/telah:	<i>sudah dua jam dia di sini</i> already two hour he in here 'He has been here for two hours:'	
TAG	Ø:	<i>tatlong araw</i> 'for three days'	
HOP	ang:	<i>pàykomu-y santi-t ang</i> 'for three weeks'	
QUE	tuku-	cf. §8.3.3, E182	

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