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An analysis of the German Perfekt[i]

The German Perfekt has two quite different temporal readings, as illustrated by the two possible continuations of the sentence *Peter hat gearbeitet* in i, ii, respectively:

(i)   Peter hat gearbeitet und ist müde.
        Peter has worked   and is tired.
(ii)   Peter hat gearbeitet und wollte nicht gestört werden.
        Peter has worked   and wanted not to be disturbed.

In the first reading, it essentially corresponds to the English present perfect. In the second reading, it can take a temporal adverbial with past time reference ('Yesterday at five', 'when the phone rang', etc), and an English translation would require a past tense ('Peter worked/was working'). In this paper, it is shown that the Perfekt has a uniform temporal meaning which results systematically from the interaction of its three components, finiteness marking, auxiliary and past participle, and that the two readings are the consequence of a structural ambiguity. This analysis also predicts the properties of other participle constructions, in particular the passive in German.

Der Alte folgte der Leiche und die Söhne, Albert vermocht's nicht. Man fürchtete für Lottens Leben. Handwerker trugen ihn. Kein Geistlicher hat ihn begleitet.

Goethe, Werthers Leiden

1. The problem

In form and history, the German Perfekt is closely related to the English perfect: *(Peter) hat gelacht* '(Peter) has laughed' consists of a past participle and an auxiliary, *haben* (or, in some cases, *sein*). This auxiliary can be non-finite, as in *gelacht haben* '(to) have laughed'; or it can be finite, in which case it can be marked for present, past, and arguably future. But this parallelism is deceptive. It has often been noticed that the Perfekt has two quite different readings, brought out by the two possible continuations in 1 and 2, respectively:

(1) Ich habe im Garten gearbeitet [und muss zuerst einmal duschen].
        I have in the garden worked [and must first have a shower].
(2) Ich habe im Garten gearbeitet [und konnte deshalb die Klingel nicht hören].
        I have in the garden worked [and could therefore the bell not hear].

The difference is palpable but not easy to characterise. Intuitively, the speaker in 1 describes

a present state which is the result of some earlier situation; in English, a translation by *I have worked/been working in the garden* would be appropriate. This is not possible for 2: it means something like *I worked/was working in the garden [and therefore, I could not hear the bell]*[ii]. In this case, the speaker apparently does not describe what he or she is like right now as the result of some action in the past but rather expresses that this action took place at some time in the past. Under both readings, there must be some situation in the past in which the person designated by the subject worked in the garden. What is different is the way in which this situation relates to the present. The translations suggest that the German Perfekt has a reading in which it corresponds to the English present perfect, with its characteristic combination of presentness and pastness, and another one in which it corresponds to the (simple or progressive) past.

Other observations point in the same direction. First, there are many instances where German can use the Perfekt, whereas English requires the past:

(3)   a. Der Koloss von Rhodos hat hundert Tonnen gewogen.
            *The colossus of Rhodes has weighed one-hundred tons.
            b. Einstein hat Princeton besucht.
            *Einstein has visited Princeton.
            c. In Atlantis wurde viel getanzt.
            *In Atlantis, there has been much dancing.

Second, the German Perfekt combines freely with adverbials that refer to the past:

(4)   a. Gestern um zehn habe ich den Brief abgeschickt.
            *Yesterday at ten have I the letter sent-off.
            b. Ich habe den Brief gestern um zehn abgeschickt.
            *I have the letter yesterday at ten sent-off.

Third, it has often been noted that in some German dialects, the Präteritum (which corresponds historically and structurally to the English simple past) is more or less extinct, and the Perfekt has assumed its function (so-called 'oberdeutscher Präteritumschwund', see Lindgren 1957).[iii]

These observations suggest the following picture: in modern Standard German, the Perfekt has essentially assumed the meaning of a past tense; in this function, it competes with the Präteritum. But there are some remnants of genuine 'present perfect usage'. As a consequence, there are contexts in which the Perfekt as well as the Präteritum can be used (A), and there are contexts in which this is not the case, (B) and (C).

A. Präteritum as well as Perfekt is appropriate whenever the speaker wants to talk about some event, state or process, in short, situation, that occurred or obtained in the past (cf. exx. 3, 4 above). In these contexts, both forms would be translated by the English (simple or progressive) past. This does not mean that the choice between Perfekt and Präteritum is completely arbitrary in these contexts; but it appears to be more a matter of style, register, or even personal preference. Very often, the Präteritum is felt to have a literary flavour, whereas the Perfekt sounds more casual.
B. Whenever a present situation is somehow 'presented as a result of a past situation', the Perfekt but not the Präteritum is possible. This is the case in 1 above, where the speaker relates to his or her present state as the result of working in the garden (such as being dirty and in need of a shower). Note, however, that nothing is really ASSERTED about what is presently the case; the assumption that the speaker is dirty, for example, can easily be

cancelled. Or suppose someone is invited to join a meal and turns down this invitation with 5:

(5) Danke, ich habe schon gegessen.
    Thanks, I have already eaten.

Here, the Präteritum variant *Danke, ich aß schon* would be distinctly odd, roughly like 'Thanks, I was already eating'. Again, the intuition is that 5 somehow indicates 'I am not in need of eating something at this time' or 'It would not be appropriate for me to eat something at this time'. Something is invoked about the speaker's situation right now; but nothing is really ASSERTED in this regard. The difference becomes more palpable with verbs whose lexical content characterises the resultant state, for example *umkippen* 'topple over':

(6)   a. Schau, der Stuhl ist umgekippt.
        Look, the chair has toppled over.
        b. Kurz darauf ist der Stuhl umgekippt.
        Shortly afterwards, the chair toppled over.

In 6a, the initial 'Schau' invites the reading in which there is a chair that is no longer in upright position. In 6b, it is meant that at some time in the past, the chair toppled over. Only in this second reading is the Präteritum possible, too.
C. In contrast to the English present perfect as well as to the Präteritum, the Perfekt is also possible when the situation itself is not in the past. In particular, it combines with adverbials that refer to the future:

(7) Ich habe in einer halben Stunde geduscht.[iv]
    I have in half an hour showered.

The last sentence has a past reading ('Within half an hour, I had a shower') and a future reading ('Within half an hour, I will have had a shower').

Let us briefly sum up at this point. A sentence such as *Er hat die Stadt verlassen* '(lit.) He has the city left' can be used in contexts in which it corresponds to the English present perfect. In addition, there are contexts in which it would have to be translated by the past, and there are contexts in which the future perfect should be used. The following examples illustrate this; the intended reading is made clear by the adverbial:

(8)   a. Gestern um zehn hat er die Stadt verlassen.
        Yesterday at ten has he the city left.
        b. (Gestern hättest du ihn treffen können.) Aber jetzt hat er die Stadt verlassen.
        (Yesterday you could have met him.) But now has he the city left.
        c. Morgen um zehn hat er die Stadt verlassen.
        Tomorrow at ten has he the city left.

Is there a uniform meaning to the Perfekt which covers this range of uses and explains the intuitive differences between them? And if so, how can this uniform meaning be derived from the meaning of its components? These are the two questions to be addressed in this paper. In the next section, we shall first have a brief look at the formal composition of the German temporal system; then, some earlier analyses of the German Perfekt will be critically examined. Section 3 sketches the theoretical background to the present analysis. This analysis proceeds in two steps which correspond to the complex composition of the Perfekt. In section

4, it will be shown how the meaning of the Perfekt results from the interaction of its 'finite component' and its entire 'non-finite component'. Section 5 will examine how this analysis accounts for the observations mentioned above as well as for some other problems connected with the German Perfekt and the English present perfect. Section 6 presents an analysis of the participle and of the German auxiliaries; it is shown how the meaning of various constructions, in particular the Perfekt, follow from the interaction of these components.

2. Previous research

Most relevant research does not address the Perfekt in particular but the entire tense system of German. Opinions vary considerably on how form and meaning of this system are to be analysed. Thus, estimates about the number of German 'tenses' range between 1 and 18 (see Thieroff 1992 for a survey). I will not join in this discussion here but only sketch some basic facts that are needed in later sections.

2.1 FORMAL COMPOSITION. In German, as in all Indoeuropean languages, a distinction is normally drawn between 'finite' and 'non-finite' temporal forms of the verb; thus, *lachte, lachst* are finite, whereas *lachen, gelacht haben, gelacht haben werden* are non-finite. This distinction obliterates the fact that 'finite forms' like *lachte* are compound in themselves: they include a non-finite component, the bare verb stem *lach-,* and a finite component, reflected on the surface by past tense morphology. The same non-finite component *lach-* is part of forms which are traditionally called 'non-finite', such as the participle *gelacht* or in the infinitive *lachen*. It is more perspicuous, therefore, to distinguish between the bare stem (abbreviated here by V_s), and various operators which turn V_s into either a 'finite form' or a 'non-finite form', in particular the infinitive and the past participle. The 'finiteness operator' will be abbreviated here as FIN, the two 'non-finiteness operators' as GE- and -EN, respectively. FIN, when morphologically fused with the verb stem, produces 'finite verb forms'. GE- and -EN produce the past participle and the infinitive, respectively. Hence, we have two types of 'non-finite' expressions:

- bare stems that are not finite but can be made finite by fusing them with some FIN; a (simple or complex) form which can be made finite will be called 'FIN-linkable';

- forms which are explicitly marked as non-finite, i.e., participle and infinitive; these cannot be fused with some FIN; but normally, they can be made FIN-linkable again by attaching another bare verb stem.

In German, FIN has two values, called here FIN_0 and FIN<. They roughly correspond to 'present tense marking' and to 'past tense marking', respectively. Non-finite forms are more varied; the most important cases in the present context are:

1. The bare stem V_s, for example *lach-, hab-, werd-*.
2. The infinitive, which is normally formed by attaching *en* to the bare stem, as in *lachen, haben, werden*.
3. The 'past participle' or 'participle II' (abbreviated GE-V_S); regular verbs form it by prefixing the stem with *ge* and by suffixing it with *t*, as in *gelacht*; irregular verbs form it in different ways, for example by Ablaut, suppletive forms etc.
4. Syntactically compound forms; the two most important cases are:
    a. The nonfinite component of the Perfekt: GE-V_S combined with the bare stem of an

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auxiliary, as in *gelacht hab-, gestorben sei-*; the choice of the auxiliary depends on various lexical properties of the verb (see Shannon 1989 for a careful discussion).
b. The nonfinite component of the Passive: GE-V_S and the verb stem *werd-,* as in *geliebt werd-, gefunden werd-.*

Any finite form is a combination of FIN_0 or $FIN<$ with a FIN-linkable construction. There are many such forms, in particular the following four:

A. Präsens	$FIN_0 + V_S$	*liebt, hat, ist*
B. Präteritum	$FIN< + V_S$	*liebte, hatte, war*
C. Perfekt	$FIN_0 + AUX_S + GE\text{-}V_S$	*hat geliebt, hat gehabt, ist gewesen*
D. Plusquamperfekt	$FIN< + AUX_S + GE\text{-}V_S$	*hatte geliebt, hatte gehabt, war gewesen*

We shall now discuss what previous research has said about the meaning of the Perfekt.

2.2 THE MEANING OF THE PERFEKT I: THE TRADITION. Most grammars assume that the Perfekt as well as the Präteritum express the same time-relational meaning: they both mark that the situation referred to by the utterance precedes the time of utterance. The difference is a matter of style, dialect, 'aspect' (in whichever sense), or perhaps textual function. In Grundzüge (1981: 508s), the most comprehensive modern German grammar to date, the relevant passages are: 'Präsens und Präteritum charakterisieren das durch das Verb bezeichnete Geschehen oder Sein unter dem Aspekt des Verlaufs ('durativ'), d.h. eine zeitliche Begrenzung wird nicht angezeigt. ... Perfekt und Plusquamperfekt charakterisieren das durch das Verb bezeichnete Geschehen als vollzogen, abgeschlossen ('perfektiv')'['Praesens and Präteritum characterise what happens or is the case - as designated by the verb - from a process point of view ('durative'), i.e., no temporal boundaries are indicated. ... Perfekt and Pluperfekt characterise what happens - as indicated by the verb - as achieved, completed ('perfective').']. In varying formulations, the distinction between 'process side' and 'completion side' is found in virtually all descriptive grammars of German. This notion may well reflect intuitively correct feelings about the usage of these forms in many cases. But it gives rise to a number of objections. First, it is not particularly clear. Second, there are many instances in which it is implausible; the sentence *Bald darauf starb er* 'soon afterwards, he died' is no more process-like or durative than its Perfekt counterpart *Bald darauf ist er gestorben*. Third, it is distinctly odd in cases such as *Der Koloss von Rhodos hat hundert Tonnen gewogen* vs. *Der Koloss von Rhodos wog hundert Tonnen*; it does not make any sense here to speak of completed vs. process-like. Fourth, it is entirely unclear how it could account for the intuitive difference between exx. 1 and 2. And fifth, no attempt is made to explain how the meaning of the Perfekt results from the meaning of its parts.

Essentially, the same arguments apply to the view that the Perfekt is the form that is commonly used in everyday spoken language, whereas the Präteritum is primarily the tense of narrative fiction (a view most strongly advocated by Hamburger 1968); or for Weinrich's influential distinction between two classes of tense forms - those which, like the Perfekt, 'describe the world', and those which, like the Präteritum, 'narrate the world' (Weinrich 1974). I do not want, however, to belittle these views. They are not accidental, and one of the sigilla veritatis of a convincing analysis is the degree to which extent it can explain these intuitive feelings.

2.3 THE MEANING OF THE PERFEKT II: RECENT ANALYSES. Modern research on the Perfekt begins with Wunderlich (1970). He was the first to clearly state the ambiguity exemplified in exx. 1, 2, and he assigned two different temporal, rather than aspectual or textual, meanings

to the Perfekt. Others followed him in this regard. Bäuerle (1979), for example, states that the German Perfekt has two semantical analyses: a compositional one, in which it corresponds to the English present perfect, and a non-compositional one in which it is but a morphological variant of the Präteritum; no attempt is made to bring these two meanings together. This ambiguity account is a relatively safe but not a very elegant position; it is surely preferable if some construction can be given a uniform compositional meaning, rather than two (or no compositional meaning at all), and if different readings of this construction can be attributed to other factors, such as general context.

This objection, first raised by Fabricius-Hansen (1986: 104) in her subtle study of the interaction of tense forms and temporal adverbials in German[v], carries over to the first of several types of analysis that operate with Reichenbach's three temporal parameters E, R, and S (or variants thereof). Thus, ten Cate (1989) and, in a slightly different terminology, Helbig and Buscha (1974: 128s) postulate two temporal meanings of the Perfekt which, irrelevant differences aside, correspond to Reichenbach's analysis of the English simple past and present perfect, respectively. This criticism does not apply to three other types of Reichenbachian analyses that have been proposed over the last years; they all assign a single temporal meaning to the Perfekt:

A. E before R & R not-before S   (Thieroff 1992)[vi]

B. E before R & R not fixed in relation to S (Ballweg 1988, Zeller 1994, Grewendorf 1995[vii])

C. E before R & R simultaneous to S, and the second part of this meaning is shiftable (Ehrich and Vater 1989, Ehrich 1992)

Under Thieroff's analysis, the German Perfekt essentially corresponds to the English present perfect, except that R can also be in the future. No attempt is made to derive the other reading of the Perfekt. This leaves the crucial problems unanswered. In the two other types of analysis, R itself can be in the past, either because it is not fixed with respect to S at all, or because it can be shifted under specific conditions (discussed in detail in Ehrich 1992). But then, according to both analyses, E is BEFORE this R in the past, and this is not the case with examples such as *Gestern um zehn habe ich den Antrag eingereicht* or *Der Koloss von Rhodos hat hundert Tonnen gewogen*. In all examples that can have the Präteritum as an alternative, the 'event time' must be SIMULTANEOUS TO, or OVERLAP WITH, the 'reference time'. Consider again ex. 1 *Ich habe im Garten gearbeitet (und konnte deshalb die Klingel nicht hören)* in answer to the question 'Why didn't you come to the door yesterday?'. Here, R is clearly included in E, and not before E, as the analysis would require. In order to express that E precedes R, one would have to use the Plusquamperfekt *Ich hatte im Garten gearbeitet*. Therefore, these analyses fail, as well.

There is a second fundamental problem with these and in fact, with any Reichenbach-type analyses: it is anything but clear what should be understood by E and by R. As already noted in Wunderlich (1970: 123), Reichenbach did not bother to define what is meant by 'point of reference'; he uses it just as 'some other time' (for a critical discussion, see Hamann 1987, Klein 1992); hence, this part of the analysis is simply vacuous, so long as R lacks an appropriate interpretation. The other parameter, E, is given such an interpretation - it is the time of the 'event'. But what is the time of 'the event' in a sentence such as *Hans scheint die Stadt um vier Uhr zu verlassen geplant zu haben* 'John seems to have planned to leave the city by four o'clock'? Is it the time of his planning? the time of his having planned? the time of his leaving the city? the time at which someone has this impression ('seems')? Is this one event, or several? If the entire non-finite part *Hans die Stadt um vier Uhr zu verlassen geplant zu haben schein-* corresponds to the 'event', then this event includes a complex

internal temporal structure. In fact, this problem already surfaces in comparatively simple cases such as *Ich habe geduscht* with its non-finite part *Ich geduscht hab-*. What is the event at stake - is it the situation of my having a shower, as described by *Ich dusch-*, or is it the situation after such a situation, as described by *Ich geduscht hab-*? As a rule, there is no single 'event time' but a web of temporal variables, each characterised in a particular way, and an appropriate analysis of temporal forms must somehow look into this web. An analysis in terms of 'the event time' and 'the reference time' is bound to fail.

3. Theoretical background

In what follows I will make use of some ideas that have been worked out in detail elsewhere (Klein 1992, 1994). This framework tries to operate exclusively with notions that are independently needed. These are

(a) temporal intervals,
(b) temporal relations between these, such as BEFORE, OVERLAPPING WITH, etc,
(c) the lexical content of simple or complex expressions,
(d) the usual illocutionary roles, of which only 'assertion' will be considered here.

The traditional notions of 'tense' and 'aspect' are reconstructed in this approach as purely temporal relations between particular types of temporal intervals; this will be very briefly discussed in section 3.1. More important in the present context are inherent temporal features, i.e., that facet of temporality which is traditionally dealt with under labels such as 'Aktionsart' or 'lexical aspect'; this will be discussed in 3.2, and then applied to the analysis of participles in 6.

3.1 Tense and aspect as temporal relations

Traditionally, tense is considered to be a deictic and relational category of the verb whereas aspect rather reflects various ways of viewing a situation, for example as 'completed', 'with or without boundaries', and similar ones. Tense expresses a relation between two temporal intervals; these are normally the time at which some sitatution obtains, and the moment of speech. I will call these TIME OF SITUATION (abbreviated here T-SIT) and TIME OF UTTERANCE (TU), respectively. Thus, 9 refers to a situation, and the past tense marks that the time of this situation precedes TU:

(9) Eva was cheerful.

It is easy to see that this almost canonical notion of 'tense' is inappropriate. If 9 is true, then this does not at all exclude that Eva is cheerful at TU. Hence, the past tense marking is fully compatible with the temporal constellation 'T-SIT includes TU' What 9 really says is something else: there is some SUBINTERVAL T of the entire situation, and for this particular subinterval T, it is asserted that it precedes TU. Hence, we must carefully distinguish between the time of the situation and the time for which an assertion is made. This latter time I will call the TOPIC TIME (TT). In the special case of declarative sentences, TT is the time to which the assertion made by the utterance is confined. In other sentences, for example in imperative clauses, it may assume a different function, a possibility that will not be explored here.[viii]

It is TT which is temporally related to TU, rather than T-SIT itself. If the listener

knows anything about how T-SIT is related to TU, then this is by virtue of the fact that T-SIT in turn is temporally related to TT. In 9, TT is interpreted as a subinterval of T-SIT. Other temporal relations are possible: TT may include T-SIT, it may follow it, precede it, etc. Exactly this is what is expressed by the notional category of ASPECT. In the 'imperfective aspect', for example, TT is fully included in T-SIT. This naturally accounts for intuitions such as that 'the situation is presented from its interior, not as a whole, as being incomplete', as common metaphorical characterisations of the imperfective have it. If, by contrast, the time for which an assertion is made includes the time of the situation, then this situation is, metaphorically speaking, 'shown with its boundaries, as completed, in its entirety, from the outside', etc.

Under this view, tense as well as aspect are construed as temporal relations between temporal intervals: TU, TT, and T-SIT:

(10)   TENSE IS A TEMPORAL RELATION BETWEEN TU AND TT.
         ASPECT IS A TEMPORAL RELATION BETWEEN TT AND T-SIT.

The definition of aspect is a simplification, since it operates with the notion of a single T-SIT; but as was already discussed at the end of section 2.3, more than one temporal interval may be involved in 'the event'; this point will be resumed in section 3.2.

3.2 Temporal properties of the lexical content

3.2.1 PROPERTIES OF SITUATIONS VS PROPERTIES OF THE LEXICAL CONTENT. Temporal intervals have a duration, they can be counted, and, due to the structure of time, they are related to each other. But they have no qualitative properties; they are not green, ambitious, or covered with sweat. They can, however, be characterised by the content of some simple or compound linguistic expression, for example *sleep, leave London, leave London for a couple of days,* or *John leave London for a couple of days*. Exactly this is what happens in a sentence. Consider the situation referred to by 11:

(11) I was working in the garden.

This situation has many properties. It has a place, it has a beginning point, an end point and hence a duration, and many others. Only some of these are described by the lexical content of 11. In other words, the lexical content of a full sentence which refers to a situation is a SELECTIVE DESCRIPTION of this situation. The speaker chooses some features which he or she wants to make explicit, and leaves others aside. In 11, for instance, duration or endpoints are left implicit. But they could be made explicit by enriching the lexical content, for example by adding *from lunchtime till eight o'clock, for several hours*. Obviously, this addition does not change the situation itself. Therefore, it is important to distinguish carefully between properties of a situation and properties of the lexical content which describes this situation. In 11, world knowledge tells us that the time of situation has a beginning and an end, hence is bounded, although the lexical content itself does not say anything about these boundaries. It is misleading, therefore, to say that activity verbs such as *to work* refer to unbounded situations, or express an unbounded situation type.

3.2.2 FIN-LINKABLE VS NON-FIN-LINKABLE EXPRESSIONS. In what follows, we are mainly interested in the lexical content of verb stems and morphosyntactical constructions based on these. In contrast to adjectives, nouns or prepositions, verb stems are 'FIN-linkable'. Thus,

green, my friend, *in London* cannot be directly fused with FIN, whereas *be green, become my friend, remain in London* and, of course, *sleep, sleep on the floor, slay Abel* etc. are FIN-linkable. Infinitives and participles are not FIN-linkable, due to the application of specific morphosyntactic processes to the underlying verb stems. But the attachment of bare verb stem can make them again FIN-linkable. Repeated application of these operations leads to complex forms such as *geschlossen worden sein* 'to have been closed'.

It is important to distinguish between a full finite declarative sentence, such as *Eva was cheerful*, and its non-finite component [Eva be cheerful]. This non-finite component will be called SENTENCE BASIS. A sentence basis is an 'assertable construction'; minimally, it consists of the surface subject (which can be lexically empty) and a FIN-linkable part; other elements, for example adverbials, particles and other optional constituents can be added and then contribute to the lexical content of the entire sentence basis.

3.2.3 THE LEXICAL CONTENT OF VERB STEMS I: PROBLEMS. The lexical analysis of verb stems belongs to the most difficult areas in linguistics. In what follows, I will only sketch some baseline assumptions, shared in one way or the other by most theories, and try to make clear which additional distinctions are needed if we are to understand the functioning of the Perfekt. As usual, it is assumed that a lexical item, such as *dusch-,* is a complex of at least three types of information: (a) phonological, (b) categorial (it is a verb and belongs to a particular inflectional class), and (c) semantic. The latter is what is called 'lexical content' here.

What constitutes the lexical content of a verb stem? It has often been said that verbs somehow refer to 'events', whereas nouns refer to 'objects'. This notion, familar from the days of the Stoic grammarians, is at best somewhat sloppy; in fact, it is highly misleading. The lexical content of a verb CONTRIBUTES to the description of a situation. What it contributes is the specification of (qualitative or spatial) properties which some entities have during some temporal intervals. Thus, the verb *sleep* does not refer to an event; it assigns some property to some argument A at some time t_i. I shall say that it assigns a property to a pair $<A, t_i>$. It does not say, of course, what A and t_i are; these are variables which must be filled appropriately. The lexical content of a verb may also provide other types of 'argument slots', for example a world variable, a place variable, and perhaps others; these will not be considered here.

Here, we are specifically interested in the temporal features of verb stems. They come in because the qualitative and spatial properties assigned to the arguments are RELATIVE TO TEMPORAL INTERVALS. The crucial problem is here that more than one argument and more than one temporal interval may be involved. This obvious fact about the inherent temporal properties of verb meanings is only very insufficiently reflected in familar categorisations such as Vendler's four time schemata, and even less so in the common way in which the 'argument structure' of a verb is described. It would be more appropriate to speak of an 'argument-time structure'. Consider 12:

(12) Cain slew Abel.

It seems uncontroversial that the lexical content of the stem *slay* contributes at least the following bits of information:
1. There is a temporal interval t_1 at which the second argument (specified in 12 by *Abel*) is assigned the property of being alive, and another interval t_2 at which this same argument is assigned the property of being dead.
2. There is an interval t_3 at which the first argument (specified by *Cain*) is somehow active in a particular manner ('hit').

3. The three intervals are temporally related to each other. Clearly, t_2 is after t_1. It is less clear how t_3 is related to these; it must overlap with t_1, but surely, it need not be fully simultaneous to t_1: the lexical content of *slay* does not say that the first argument 'hits' during the entire lifetime of the second argument, and it it not excluded that this activity extends into t_2; sentence 12 is not false when Cain is still hitting when Abel is dead already.

4. They are also interrelated in non-temporal ways; we assume that the activity of Cain is somehow 'causally related' to Abel's death. Similarly, we assume that t_2 is not just after t_1 but that what is the case at t_2 would not be the case if t_1 would not be the case.

In view of these facts, what are the 'boundaries' of a situation described by 12? What is the 'posttime' or the 'poststate'? Is it the temporal interval after Cain's activity, is it the time after Abel's being alive, or even the time after Abel's being dead? In other words, which of the three temporal variables in the meaning of *slay* matters - t_1, t_2 or t_3? In this particular case, t_2 is excluded. There is no time after Abel's being dead at which Abel would not be dead, hence there is no reasonable notion of posttime in this sense. But this is different for otherwise similar verb stems, such as in *Cain opened the window*. In this case, the 'second interval of the second argument' is the window's being open; there may well be an interval afterwards at which the window is not open. It should be clear, therefore, that just talking about 'the time of a situation' or, accordingly, the 'time after the time of some situation' generally is a gross oversimplification. As was pointed out in section 2.2, we normally do not just deal with a single 'event time' but with a cluster of various temporal variables. Therefore, a satisfactory analysis cannot treat the 'event' as a whole and assign it a simple 'event time'; instead, it has to look at the various temporal variables within a construction and even within the lexical content of a simple verb.

3.2.4 THE LEXICAL CONTENT OF VERB STEMS II: ARGUMENT-TIME STRUCTURE. There are numerous proposals of how to decompose the lexical meaning of verb stems. In what follows, I will list five ingredients which I believe are indispensable if such an analysis is to be appropriate.

A. PROPERTIES FOR ARGUMENTS FOR TEMPORAL INTERVALS. The lexical content of a verb stem should be described as a cluster of pairs $<A_i, t_j>$, where A_i is some argument and t_j is some temporal interval, with qualitative or spatial properties provided for each of these pairs.

B. SOURCE STATE - TARGET STATE ASYMMETRY. If two temporal intervals are specified for an argument, I will call these temporal intervals 'source state' and 'target state', respectively, of that argument[ix]. The most salient case here is a 'yes-no'-specification, i.a., the argument has some property in the source state and does not have it in the target state (or vice versa). But weaker contrasts are also possible. An interesting borderline case of a '2-state specification' is given when some argument only exists in one state but not in the other; this is the case for 'verbs of creation and annihilation', such as in *John baked a cake* or *John ate a cake* (see von Stechow 1997).

C. DURATIONAL PROPERTIES OF TEMPORAL INTERVALS. The lexical content may also contain information about whether the argument has this property forever (as in for example *be a prime number*), whether there may be a prior but no later time at which it doesn't have it (*be dead*), etc.

D. INHERENT TEMPORAL RELATIONS. If properties are specified for different temporal intervals, then these are temporally related to each other: they may follow each other, overlap, be simultaneous, etc.

E. OTHER RELATIONS. Typically, the lexical content also indicates a 'counterfactual relation'

between the various specifications: t_x with properties P would not obtain unless t_y with properties Q obtains. In honour of David Hume, who was the first to use counterfactuality in order to characterise the necessary connection between two objects of our cognition, I will say that the two substates are 'H-connected'. In *Cain slew Abel* , the specification of the second argument for the second time (i.e., Abel's being dead) is H-connected to (a) Abel's prior state of being alive (Cain could not have slain Abel if Abel had not been alive before), and (b) to Cain's activity (Abel would not be dead if Cain had not done what he has done). The second of these relations is usually seen as a sort of 'causal relation', whereas the first is more of a general presupposition. The notion of 'H-connection', as defined here, seems sufficiently broad to encompass these various relations.

These ingredients of the lexical content are needed in order to sort out the contribution of past participle and auxiliary, respectively, to the Perfekt meaning. First, however, we will consider their contributions as a whole.

4. The meaning of the German Perfekt I: FIN and the sentence basis

A sentence with a finite verb form can be decomposed in the finite component FIN and a non-finite component, the 'sentence basis'. We shall illustrate this for four tense forms of *der Stuhl umkipp-* 'the chair topple over':

(13)	Finite sentence	FIN	sentence basis
a. Präsens	Der Stuhl kippt um.	$FIN0$	[der stuhl umkipp-]
b. Präteritum	Der Stuhl kippte um.	$FIN<$	[der Stuhl umkipp-]

(14)	Finite sentence	FIN	sentence basis
a. Perfekt	Der Stuhl ist umgekippt.	FIN_0	[der Stuhl umgekippt sei-]
b. Plusquamperfekt	Der Stuhl war umgekippt.	$FIN<$	[der Stuhl umgekippt sei-]

Semantically, FIN locates TT on the temporal axis. As a rule, $FIN<$ expresses that the TT precedes TU. The interpretation of FIN_0 is more difficult. I shall assume here that FIN_0 indicates that TT either includes TU or follows TU. Hence, it only excludes that the topic time properly precedes the moment of speech; since nothing is said about the boundaries of TT, this definition does not exclude that TT 'extend' into the past. In fact, TT can be 'the entire time', from beginning to end; after all, the entire time also includes TU. Alternative analyses are that FIN_0 only marks the relation 'TU is included in TT', or that it is an unmarked form with respect to the tense relation. For the moment, we shall not consider these alternatives and see later where the present analysis leads us.

The sentence basis is a compound construction, and this inevitably raises the question of its syntactic composition. Since I want to keep the following discussion as neutral as possible with respect to the various syntactic theories on the market, it will only be assumed that the sentence basis minimally consists of a 'surface subject' (abbreviated SUBJ) and some simple or complex construction PRED which expresses a predication over SUBJ. Hence, the minimal structure of a sentence basis is [SUBJ PRED]. This is a gross oversimplification on many grounds. In particular, it does not make explicit the various temporal parameters that go with SUBJ or with PRED. As should be clear from the discussion in 3.2.3, a predication that

assigns some properties to an argument is relative to some temporal interval and perhaps a place and a world. Hence, SUBJ should actually be considered a cluster of an argument at a time in a world at a place. Similarly, the predication may involve various argument specifications at various temporal intervals; this will be examined in section 6 below. For the moment, however, the discussion will be confined to the elementary structure [SUBJ PRED]. SUBJ is normally filled by one of the verb's lexical arguments, but it can also be a lexically empty argument or an expletive. PRED is a FIN-linkable expression; it can be a simple verb stem, a more complex VP, a copula construction, and perhaps others. This seems sufficiently general to be in agreement with most, if not all, syntactic theories.

In 13, the sentence basis is [der Stuhl umkipp-]. It does not sort out a specific situation but rather characterises all temporal intervals with those properties. The sentence basis by itself does not carry any claim that such a temporal interval, or several temporal intervals, with these properties ever existed, or will exist, or often exists, or that some particular time is such a temporal interval. This information is only brought in when FIN and the sentence basis are linked. Morphologically, the process of FIN-linking is realised by the inflection on the lexical verb in 13a,b. FIN marks that TT overlaps with a T-SIT with the properties described by the sentence basis. The only difference stems from FIN: in 13a, TT must not precede TU, whereas in 13b, it must precede TU.

In 14, the base form *umkipp-* is replaced with the compound form *umgekippt sei-*. The morphosyntactic changes are clear: the verb stem is replaced with the participle, and the auxiliary is added. Both operations have semantic effects. I will describe these effects jointly by a temporal operator POST. Its function is to assign posttimes to the interval to which it is applied. If t is some interval, then POST (t) is any interval after t. Note that POST is a purely temporal relation. It does not say anything by itself what is the case at some POST (t). But if the interval t itself is assigned particular properties, then POST (t), too, may have particular properties. This is best explained by applying it to 14.

The sentence basis of 14 is the same as in 13, except that now POST is added. Where is it added? If the sentence basis has the form [SUBJ PRED], then POST could be applied either to the entire sentence basis, resulting in a new, compound sentence basis [POST [SUBJ PRED]]; or it can be applied to just VP; in this case, the resulting sentence basis is [SUBJ POST-PRED]. Hence, 14a could be represented as 15 or as 16:

(15) FIN_0 + [POST [der Stuhl umkipp-]]
(16) FIN_0 + [der Stuhl POST-umkipp-]

Under the first reading, TT is a posttime of some situation which is selectively described [der Stuhl umkipp-], i.e., the sentence *Der Stuhl ist umgekippt* is false iff its TT is not preceded by a situation where the chair toppled over. Under the second reading, TT overlaps with an interval with the properties of [der Stuhl umgekippt sei-], that is, if SUBJ at TT does not have the 'posttime properties' of PRED at TT. If PRED is a verb stem such as *umkipp-,* then at least some of the posttime properties are lexically specified, since *umkipp-* specifies source state as well as target state of its only argument; world knowledge may add others. If, however, the verb only specifies the properties of some argument at a single time, as is the case for *arbeit-*, then all properties of the argument at the ensuing state must be inferred from world knowledge. The person referred to in SUBJ may be clean, for example; but this is implicated rather than asserted.

As for SUBJ, it must make sense to assign the 'posttime properties' of PRED to SUBJ at TT. If, for example, the chair was completely burned three weeks ago, then this chair cannot have the posttime properties of *umkipp-* right now. Therefore, sentence 14 can have the first but not the second reading, if the chair does not exist at TT. It is also possible that

SUBJ has no lexical argument and the lexical content of PRED does not include the specification of posttime properties. Impersonal constructions such as *Es hat geschneit* 'It has snowed' or *Hier ist getanzt worden* 'there was dancing here' are examples. They are still felt to have the two readings, although the LEXICAL CONTENT of the two sentence bases gives the same information for both of them. What is left is the intutive feeling that in the first case, the situation described by the sentence basis is in the past, whereas in the second case, the situation described by the sentence basis is in the present and has the 'posttime properties'. But since these are not lexically specified, they are not asserted but only implicated. If PRED is *schnei-*, then such an implicated posttime property may be the fact that right now, the 'world' is white outside. Imagine someone who wakes up in the morning, looks out of the window and says:

(17) Schau mal an, es hat geschneit.
        Look at that, it has snowed.

Here, the speaker characterises the present situation, as he or she sees it: the world at TT at this place is characterised as having the (implicated) posttime properties of *schnei-*. But *es hat geschneit* can also be used in contexts in which the entire situation is said to have obtained in the past, for example in a narrative sequence:

(18) Als wir gestern angekommen sind, war das Wetter noch gut. Aber kaum eine halbe Stunde später hat es geschneit.
        'When we arrived yesterday, the weather was still fine. But half an hour later, it *has been snowing'

The difference is more palpable if, as in *Hier ist getanzt worden*, the 'place parameter' of SUBJ is filled by a spatial adverbial. The place referred to by *here* exists in the past (at the time of dancing) as well as right now. But what is understood under the POST-PRED reading is something like that the 'here-right now' has some specific properties, say the various traces of earlier dancing at this place, whereas this is not required under the 'wide scope reading' of POST. This explains why in English, where only the former reading is possible, sentences such as *In Atlantis, there has been much dancing* are as odd as *Einstein has visited Princeton,* whereas the corresponding German sentences are fine.

Under the present analysis, we would expect the same ambiguity for the Plusquamperfekt, as in 14b *Der Stuhl war umgekippt*. Out of context, the most plausible reading is that at TT (which is in the past), the chair has the posttime property; hence, the chair is not in the scope of POST. But it can also mean that the entire situation precedes TT, for example in a narrative: *Der Stuhl war umgefallen, ich hatte ihn wieder aufgestellt, aber er war wieder umgefallen.* Hence, the prediction is indeed borne out.

5. Some consequences

In this section, we will resume some problems from the preceding sections and discuss how the present analysis accounts for them.

5.1 German Perfekt vs English present perfect

In German, POST can operate over PRED alone or over a full sentence basis. English only admits the first of these. Therefore, 19a is odd, whereas its German counterpart 19b (= ex. 4)

is fine:

(19)   a. The colossus of Rhodes has weighed 100 tons.
        b. Der Koloss von Rhodos hat hundert Tonnen gewogen.

In English, this would mean that for right now and for the colossus of Rhodes, this latter is claimed to be in the posttime of weighing 100 tons, an assertion which does not make much sense. In German, this reading is possible, too, and it is no less odd than its English counterpart. But there is another reading: the time right now is a time after an interval with properties of [the colossus of Rhodes weigh 100 tons]. And this is perfectly plausible.

For an English sentence with the present perfect to be felicitous, two conditions must be satisfied: (a) it must make sense to talk about 'posttime properties', and (b) the subject must 'exist' within TT, here and right now. If the lexical content specifies a permanent property of some entity (for example the lexical content of *be the son of a priest*), then it is pragmatically odd (though not wrong) to assign a posttime property to this entity. Therefore, 20 is odd:

(20) Our president has been the son of a priest.

Such a sentence would make sense only if it could be otherwise at TT, that is, if someone's being the son of a priest at some time would not require his being the son of a priest at any later time. Exactly this is meant by 'permanent property of someone'. The corresponding German sentence is odd, as well, for precisely the same reasons.

If the lexical content does not specify a permanent property, then a sentence of this form is still odd in English, if the subject does not exist at TT - and if this is known to the speaker:

(21) Einstein has visited Princeton.

This sentence is not odd to a speaker who does not know that Einstein has passed away, just like the sentence *The king of France was bold* is not odd to anyone who does not know that there was no king of France at the time for which the assertion is made. Nor is it odd if Einstein does not refer to the physical person who can visit Princeton, but to some entity which, in a way, is still present, as in *Einstein has influenced me more than any other patent office employee.* Having influenced someone is a 'posttime property' which still can be assigned to Einstein, although he is dead.

5.2 Perfekt vs Präteritum

Under the POST-[SUBJ PRED] reading, the Perfekt is normally translated by the simple or progressive past in English. In German, it can be replaced with the Präteritum. But there is still a subtle difference between Perfekt and Präteritum. In both cases, the situation itself is in the past. Thus, a speaker who wants to talk about some situation in the past is free to choose either form. They differ, however, in what is chosen as the time for which an assertion is made. This can be a time at which an interval with the described properties is over (Perfekt), or it can be a time which overlaps such an interval in the past (Präteritum). Thus, the choice is more an issue of how the situation in the past is presented: the Präteritum places the listener, as it were, in the midst of the situation in the past, as 'on-going, process-like'; whereas the Perfekt (under this reading) sees it from after the fact, as 'completed'. Exactly these are the

metaphorical characterisations found in descriptive grammars for the these forms (cf. section 2.2 above). But these intuitions do not define the meaning of these forms, they naturally follow from this meaning. By the same token, it becomes plausible why the 'Perfekt' often gives the impression of 'describing the world', whereas the Präteritum gives the impression of 'narrating the world' (Weinrich 1974): the former talks about the 'now' as the result of something that occurred in the past, whereas the latter talks about the past itself and what then occurred.

5.3 Posttime infinitives

Under the present analysis, the two components of a Perfekt, FIN_0 and POST, are given an independent meaning, and the entire meaning results in a well-defined way from their interaction. FIN_0 indicates that TT does not precede TU. The meaning contribution of POST is 'time after the time of full sentence basis' or 'posttime properties of a VP'. If no sentence basis is involved, as in non-finite forms of the VP alone, then the difference should disappear, and German and English should behave alike. There is indeed no reason to assume that, e.g., *im Garten gearbeitet zu haben* can have two different readings:

(22a) Im Garten gearbeitet zu haben, ist ein gutes Gefühl.
    In the garden worked to have, is a good feeling.
(22b) Er bestreitet lebhaft, gestern um zehn im Garten gearbeitet zu haben.
    He denies vividly yesterday at ten in the garden worked to have.

Note that here, English tolerates an adverbial which refers to the past, whereas this is not possible with the finite form of the present perfect.

5.4 The role of adverbials

Nothing in the form of the Perfekt itself tells us which reading is intended. This is simply a matter of which scope the operator POST has, and as is often the case with operators, this scope is not structurally fixed. But there may be preferences, just as with quantifier scope in sentences such as *every cat loves a dog*. There seems to be such a preference for the 'wide scope' version of POST. In fact, it takes some effort to find convincing examples for the POST-PRED reading Like all preferences, this one can be overruled by other factors, for example by a particular context, or else by adverbials which are only compatible with the non-preferred reading. An example of such a context is the situation described in connection with ex. 5, where the invitation to join a meal is turned down with *Danke, ich habe schon gegessen*. What is at stake here are the (inferred!) posttime properties of the invitee and speaker who, as a consequence, does not just talk about a situation in the past but about what is the case with him or her ('not being hungry').
    Consider now adverbials that specify the position of some interval on the time line, such as *at that time, once, tomorrow at ten, now, then* etc. In a sentence such as *Ich habe im Garten gearbeitet*, there are two temporal intervals that could be specified by a temporal adverbial: a temporal interval at which the speaker is working in the garden, and a temporal interval after such an interval. The latter is TT. Examples 8a-c, repeated here, illustrated this:

(8a) Gestern um zehn hat er die Stadt verlassen.
    Yesterday at ten has he the city left.

(8b) (Gestern hättest du ihn treffen können.) Aber jetzt hat er die Stadt verlassen.

(Yesterday you could have met him.) But now has he the city left.

(8c) Morgen um zehn hat er die Stadt verlassen.

Tomorrow at ten has he the city left.

In 8a, the past-time adverbial *gestern um zehn* cannot specify TT, since TT must include or be later than TU. Therefore, the adverbial must indicate an interval of the type [er die Stadt verlass-]. Sloppily speaking, it gives the 'event time', not a time at which the 'event' is over (the 'reference time'). No such contradiction arises, if the adverbial indicates a time which includes TU, such as *jetzt*, or which is later than TU, such as *morgen um zehn*. In these cases, the adverbial can easily specify a posttime.[x]

6. The meaning of German Perfekt II: The contribution of participle marking and auxiliary

 In this section, we will try to disentangle the role of the two components of POST - the effect of applying GE- to the verb stem and of adding an auxiliary to the resulting form.

6.1. The contribution of the verb stem

A full description of the lexical content of some V_s must indicate (a) what the spatial or qualitative properties of the various time-argument pairs are, and (b) how the various property assignments are related to each other (cf. 3.2.4). As with all lexical information, this can be done individually for each lexical item, by lexical default rules, or by a combination of both. Since this is not a study on the various types of verb contents, the following discussion will be confined to four examples (*schlaf-* 'sleep', *einschlaf-* 'fall asleep', *hass-* 'hate', *öffn-* '(transitive) open'), which represent four core types of lexical contents. There are more complex cases; but I not think that these affect the analysis of the Perfekt. I shall use the abbreviations $<A, t_s>$ for 'first argument at first (and perhaps only) interval', $<A, t_t>$ for 'first argument at second interval', $<B, t_s>$ for 'second argument at first (and perhaps only) interval' and finally $<B, t_t>$ for 'second argument at second interval'.[xi] As for the argument variables A and B, it will be only assumed that the verb treats them as asymmetrical; in particular, no assumption is made about 'thematic roles'.[xii]

schlaf-
There is only one property assignment for $<A, t_s>$: A is assigned the property 'asleep' throughout t_s. In the event of FIN-linking, A becomes SUBJ, or in somewhat different terms: The noun phrase in SUBJ is assigned the properties which the lexical content provides for $<A, t_s>$.

einschlaf-
Again, there is only one argument variable, A. But distinct properties are assigned to it for two distinct subintervals. Hence, we have an assignment for $<A, t_s>$ AND an assigment for $<A, t_t>$. In the first state, A is specified as being not asleep; in the second state, A is specified as being asleep. The two states are H-connected: you cannot fall asleep unless you are not asleep to begin with. The lexical content does not say anything about the temporal nature of the transition between source state and target state, although world knowledge may inform us about it. In the case of FIN-linkage, the noun phrase in A is assigned the properties of $<A, t_s>$.[xiii]

hass-
There are two argument variables, A and B, each characterised for one interval; hence, we have property assigments to $<A, t_s>$ and $<B, t_s>$. It is difficult to specify the relevant qualitative properties: As for A, it is somehow strongly emotionally involved ('Hatred is the longer pleasure', Byron); there is hardly any qualitative (or spatial) characterisation of B, except that it is somehow the object of A's feelings. In an intuitive sense, the property which the lexical content assigns to A is 'stronger' than the one which it assigns to B. Again the noun phrase in SUBJ is assigned the properties which the lexical content provides for $<A, t_s>$.

öffn-
Here, the argument-time structure is $<A, t_s>$, $<B, t_s>$ and $<B, t_t>$, where the last pair is H-connected to the two other ones. The property assignment is that at t_s, B is not open, and at t_t, B is open. As for A, it is only specified that there is some activitiy of whatever sort at some interval t_s. If, for example, John opens the garage, then he might turn a handle, push a button, or say 'Open, Sesame!'. If John opens a letter, the nature of his activity is very different. All that matters is that this activity overlaps with the source state of B, and that the two states are H-connected: For *John opened the garage* to be true, the garage must be open AND it were not open without John's activity AND it were not open if it had already been open before. In the case of FIN-linking, the noun phrase in SUBJ is assigned the $<A, t_s>$ property.

6.2. The meaning contribution of GE-

GE- operates on $V_S.$ Morphosyntactically, it turns V_s into a form, the past participle, that is no longer FIN-linkable. This has two consequences. First, it cannot bear finite verb morphology. Second, it is no longer possible to construct a 'sentence basis'. This does not mean, of course, that GE-V_s cannot specify the properties of some argument, for example as a nominal modifier.

It is much more difficult to characterise the semantic effect of GE-, since the past participle occurs in a variety of constructions. The most important of these are (see, e.g., Litvinov and Nedjalkov 1988, Lenz 1993, Rapp 1997, Wunderlich 1998):

A. THE PERFEKT. This is the construction in which we are primarily interested here.

B. THE PASSIVE. This is normally formed by combining the participle with the auxiliary *werd-* (there are some other auxiliary-like verbs in this function, such as *kriegen, bekommen* etc., cf. Leirbukt 1997).

C. PREDICATIVE CONSTRUCTIONS. These are formed by combining the participle of transitive verbs with the copula *sei-*, as in *die Tür war zugesperrt* 'the door was locked' (or some other 'light verbs', such as *wirk-*, *bleib-*, as in *die Tür wirkte zugesperrt* 'the door gave the impression of being locked', *die Tür blieb zugesperrt* 'the door remained locked'). The first construction is often called 'Zustandspassiv' ('stative passive') in German, in contrast to the dynamic 'Vorgangs-Passiv' ('process passive'), which is formed with *werd-*.

D. ATTRIBUTIVE USES. In this function, the participle modifies a noun, as in *eine zugesperrte Tür, der ertrunkene Riese*. In German, this construction is far more elaborate than in English. Essentially, all participles derived from transitive verbs can occur in this function, as well as participles from intransitive verbs, if these are 'telic', i.e., if, in the framework used here, the

argument is lexically characterised for two time variables. In both cases, the attributive participle can be extended, as in *eine von mir selbst zugesperrte Tür* 'a by myself locked door' or *der im heimischen Schwimmbad ertrunkene Riese* 'the in the local swimming pool drowned giant'. In some cases, attributive participles are even infelicitious unless they are extended; thus, *ein umgebenes Dorf* 'a surrounded village' is odd, whereas *ein von allen Seiten von Wäldern umgebenes Dorf* 'a from all sides by forests surrounded village' is fine.

Do all of these uses reflect a uniform semantic operation of GE- on the verb stem? Two substantial obstacles render such an analysis difficult. First, there are clear instances of INTRANSITIVE verbs in which the participle has the feature 'posttime' but not the feature 'passive', as in *der ertrunkene Riese, der entlaufene Hund, der verstorbene Papst.* Second, there seem to be clear cases in which the participle has the feature 'passive' but does not express a posttime property, as in *das Dorf ist von Wäldern umgeben* 'the village is surrounded by forests'.

One solution, tentatively assumed in Bierwisch (1996), is as follows: GE- changes the morphosyntactic properties but is semantically empty; the components 'passive' and 'posttime' ('Perfekt' in Bierwisch's terms) are brought in by the auxiliaries *haben, sein, werden.* This solution is ruled out because essentially the same semantic regularities are found in attributive use where there is no auxiliary: *a drowned giant* is dead already, due to earlier drowning, and *ein von Wäldern umgebenes Dorf* is a village which is surrounded by forests, and not surrounding them.

The safest position, as always, seems the assumption that the contribution of GE-, and hence the participle, do not have a uniform meaning at all. This is surely possible but not very desirable. Morphologically, the participle behaves exactly alike in all uses (except that it is inflected as an attribute, cf. *ein entlaufener Hund* vs. *der Hund ist entlaufen*; but this is generally true for attributive vs predicative constructions, cf. *ein grünes Haus* vs *das Haus ist grün*). Moreover, it does not explain which meaning the participle has under which circumstances.

The line which I will follow here is somewhat different. The idea is this. In the bare verb stem, it is always the property assigment to <A, t$_s$> which is used for predication and, where possible, modification - that is, the property assignment to the first (and perhaps only) argument at the first (and perhaps only) time span. GE- operates on the lexical content of the verb stem and selects a different property assigment:

(23) GE- changes the property assignment for modification and predication.

We will illustrate this with the four examples from 6.1. Consider first *schlaf-*; its lexical content contains only one property assignment, i.e., the one for <A, t$_s$>. As a consequence, no other property assignment is possible. Hence, *geschlafen* by itself does not indicate the properties of any argument to which it is syntactically applied. Therefore, constructions such as *ein geschlafener Riese* should not be interpretable. This is indeed the case. In the case of *einschlaf-,* by contrast, we have assigments for <A, t$_s$> as well as for <A, t$_t$>. Rule 23 requires a change, hence the second property assignment must be chosen. Therefore, *ein eingeschlafener Riese* describes a giant which is asleep after having been not asleep before; and this is exactly what it means. If there are two arguments A and B but only one temporal interval for each, then the assigment for <B, t$_s$> is chosen. Therefore, *der gehasste Riese* should be the giant which has the second argument properties of *hass-.* And in fact, it is. Note, though, that in its bare form, this construction is sometimes felt to be a bit odd. It is perfect, however, when the participle is expanded, as in *der von vielen gehasste Riese.* We shall return to this point in a moment. Consider, finally, verb stems such as *öffn-*;

their lexical content specifies properties for $<A, t_s>$, for $<B, t_s>$ and for $<B, t_t>$. There is a problem here because two 'other' property assignments are available, and it is not clear from 25 which one is to be chosen. If the maximally different property assignment is selected (different argument, different time), then *ein geöffnetes Fenster* 'an opened window' should be a window which has the target state properties of the second argument of *öffn-* (including H-connection): it is open, and it would not be open if it had not been closed before, or without the activity of someone. This is indeed the normal interpretation. Hence, one would have to add to 23 the clause: 'and if there are several, it takes the maximally different one'.

There is a slightly different way to state the effect of GE-. It maintains the same idea, but is much simpler than 23 in its revised form - at the price of a debatable assumption about lexical contents. If the lexical content assigns two mutually exclusive properties to some argument, then this is only possible if it contains two temporal variables for this very argument. Thus, a window cannot be open and not open at the same time. It may well be, however, that the lexical content assigns identical properties to an argument at different times. At first, this looks somewhat odd: if the lexical properties of argument A are the same at t_i and t_j, why should there be two variables? But there are clear cases of this sort. Consider, for example, the difference between *John was in Spain* and *John remained in Spain*; whereas the former simply says with respect to some temporal interval that John is in Spain at that time, the latter involves two times spans, both characterised by the fact that John is in Spain. This naturally explains why *John was dead* is a normal sentence, whereas *John remained dead* is odd - unless one believes that someone who is dead at interval t_1 could be not dead at some later interval t_2. Another type of examples are sentences such as *Chris kept the door open*, in which the second argument is specified for two temporal intervals with identical properties. Hence, the idea that property assignments could be identical for the same argument at two different temporal intervals makes perfect sense. With this possibility in mind, we may assume the following default rule for the lexical content of verbs with two arguments:

(24) In the default case, the first of two arguments is specified for one interval, and the second is specified for two intervals.[xiv]

This is much in line with Dowty's idea that the prototypical 'patient' is a change-of-state argument (Dowty 1991, ex. 28) - except that we only assume that the second argument is specified for two temporal variables, with possibly identical property assignments. Note that sameness refers to what the lexical content specifies for the two intervals. This does not preclude choice of the earlier or the later interval invites somewhat different connotations.

Under this assumption, we can replace 24 with the following rule:

(25) GE- selects the property assigment of the second temporal interval.

If there is only one argument and only one time, as in *schlaf-*, there is no appropriate property assigment. This explains why *der geschlafene Riese* is not interpretable. If there is only one argument, but two times, then the specification of the second time is selected. This gives us the correct reading of *der eingeschlafene Riese*. If there are two arguments, the target state property of the second one is selected, and this gives us the correct reading of *der gehasste König* as well as *das geöffnete Fenster*.

This analysis is extremely simple. In particular, it explains, rather than stipulates, why 'atelic verbs' cannot have an attributive participle, whereas 'telic verbs' can. It also explains why the participle is sometimes 'passive': the first argument cannot have a second temporal interval if there are two arguments; hence, $<B, t_t>$ is chosen. It does not explain, though, why

the attributive participle is sometimes a bit odd, when B is identically specified for both intervals, as in *gehasst.* There may be two interrelated reasons for this. First, the properties selected in this case are close to nil, and second, they are identical to what is assigned to <B, t_s>. Which properties, for example, does *hass-* assign to its second argument? They are faint, and therefore, *der gehasste Riese* has hardly any additional lexical content and hence hardly any 'contrastive potential', unless it is enriched by some additional information such as *der von seinen eigenen Kindern gehasste Riese* - in which case the construction is fine. We observe the same problem when the difference between the source state properties and the target state properties of a single argument is weak. Thus, *ein erheblich gewachsener Baum* is much better than *ein gewachsener Baum*, in which the contrast is less clear. In general, there is a tendancy to 'maximise' the contrast between what is assigned at two different time spans, if the lexical content by itself does not provide such a constrast. Thus, a verb such as *beobacht-* 'observe-' does not specify two states for its second argument. Hence, *ein beobachtetes Haus* should simply be a house which is under observation. Since this assignment is the same for both time spans, it should correspond to the two sentences *Ein Haus, das beobachtet wird* ('process passive'), as well as to *Ein Haus, das beobachtet ist* (so-called 'state-passive'), and this is indeed the case. Nevertheless, there is a intuitive feeling that *ein beobachtetes Haus* has a particular property which 'results' from the fact that it is under observation.

The inclination to add information beyond the straight effect of applying GE- often leads to a certain independence from this operation, that is, the participle becomes more or less 'lexicalised'. This process can take two forms. First, qualititave or spatial properties that are not part of the underlying lexical content of the verb stem but are typically implicated, can be added. This is, for example, the case in *ein gekochtes Ei* 'a boiled egg', where the egg must not just be in the target state of being boiled: it must have a particular consistency. Second, the H-connection may be lost; a typical English example is *a crooked street*, where the adjective is not felt to describe a property that is H-connected to some preceding action by someone (the Lord? the builders?). In both cases, the participle has acquired a more or less independent meaning: essentially, it is has become an independent adjective; in fact, the German counterparts of *crooked* or, similarly, *tired,* are adjectives: *krumm* and *müde.*

The present analysis of GE- leaves, of course, 'einiges, das immer noch zu fragen oder zu bemerken bleibt bei diesem wunderbarsten worte unserer sprache' ['something that remains to be asked or noted about this most wondrous word of our language'] (Grimm's Dictionary, 4, col. 1622, about *ge-*). But in general, it seems to account very well for the attributive usage of the participle above; note that under this analysis, notions such as 'passive function' vs 'perfect function' of the participle disappear; they simply follow from (25).

6.3. The meaning contribution of the auxiliary

Various verb stems combine with the participle in order to build FIN-linkable expressions. The most important of these are *hab-, sei-, werd-, bleib-* 'have, be, become, remain'. Traditionally, *hab-* and *sei-* are called 'auxiliaries', when used to form the Perfekt; *sei-* and *werd-* can be used to form the two 'passives'; *bleib-* is normally not considered to be on a par with the other three. The conventional picture is surely not false, but it misses some important facts. In particular, it ignores that *sei-*, *werd-* and *bleib-* are regularly used in 'copula constructions', such as *grün sei-, grün werd-, grün bleib-*. This is not the case for *hab-*. Therefore, it would be much more natural to consider all combinations of a participle with *sei-, werd-, bleib-* as copula constructions; the verb stems should have the same function as in

other copula constructions, independent of whether the result is traditionally called a 'passive' or a 'Perfekt'.[xv] Only *hab-* requires a special analysis. This is the line which we will follow here.

6.3.1 Copula constructions

What is the function of the copula in sentences such as 26?

(26)   a. Der Himmel war blau 'the sky was blue'
        b. Der Himmel wurde blau 'the sky became blue'.
        c. Der Himmel blieb blau 'the sky remained blue'.

The expression to which they apply, here *blau*, expresses a qualitative property of some argument at some time, i.e., it is of type $<A, t_s>$. It is not FIN-linkable, but the copula renders it FIN-linkable, and A is to become the grammatical subject. So far, all three copulae behave in the same way; but they differ in their temporal function. The copula *sei-* leaves the temporal characteristics unaffected; it simply assigns this property to A at t_s. The copula *werd-* adds a property assigment for the same argument at an earlier time, $<A, t_x>$, with t_x before t_s; this assignment is different from what is assigned to $<A, t_s>$. The copula *bleib-* adds a property assignment to the same argument at a later time, $<A, t_y>$, with t_y after t_s; in this case, however, the properties assigned to A at t_s and at t_y are the same. In other words, *werd-* as well as *bleib-* add a second temporal interval for the single argument. As a result, both *Der Himmel wurde blau* and *Der Himmel blieb blau* are two-state expressions, but only the former expresses a change of state.

What happens if the expression to which the copula applies is not an adjective but a participle? This depends on the lexical content of the particular participle. In cases such as *geschlafen*, there is no argument-time pair, hence, no copula construction should be possible. This is borne out out by the facts: neither *Hans ist geschlafen* nor *Hans wurde geschlafen* nor *Hans blieb geschlafen* is interpretable. Next, consider *eingeschlafen*, which assigns the posttime properties of *einschlaf-* to its argument. Exactly this is expressed by *Hans ist eingeschlafen* - the Perfekt of *einschlafen*. Similarly, we get the predicted reading when attaching *bleib-*: a sentence such as *Hans blieb eingeschlafen* means that he is still *eingeschlafen*, after some earlier interval at which he already had this property. Normally, it needs a special context in which it makes sense to say this; but the sentence has exactly the reading which is predicted by the copula function of *bleib-*. This, however, is not true for *werd-*: it is not possible to say *Hans wurde eingeschlafen*. I have no convincing explanation of this peculiar behaviour; it seems a total idiosyncrasy.[xvi]

Let us now first look at the fourth type of participles, such as *geöffnet*. Combination with *sei-* simply indicates that the argument has this property, i.e., *Das Fenster ist geöffnet* means that the window has the $<B, t_t>$ property of *öffn-*. Combination with *bleib-* adds a later interval with the same property assignment. The more interesting case is *geöffnet werd-;* it goes back to an interval before the posttime of the second argument. In contrast to *blau werd-*, the earlier interval is lexically characterised; it is the time at which the window is not open and at which someone is somehow active. In other words, *werd-*, when attached to *geöffnet*, brings us back to a stage with the $<A, t_s>$ property and the $<B, t_t>$ property of *öffn-*. It reverses the effect of GE-, except that now, the second argument is the grammatical subject. The so-called 'process passive' simply results from the meaning assigned to GE- by rule 25, on the one hand, and the application of the copula *werd-*, on the other.

This leaves us with participles of the sort *gehasst*. They behave exactly as *geöffnet*, except that *gehasst ist* and *gehasst wird* assign the same property to their argument. As a

result, we have two sentences, such as Der *König wurde gehasst* and *Der König war gehasst*, which mean more or less the same, except that the interval is different; in the first case, it is the interval at which the other argument 'hates', i.e., it is the interval with the property assignment $<A, t_s>$. Normally, the first of these two sentences is preferred; the second one is not impossible, though; it somehow gives a particular flavour of a 'resulting property'. This is parallel to what has been said above (end of section 6.2) about *das beobachtete Haus:* A sentence such as *Das Haus ist beobachtet* gives much more of an impression of some specific property assigned to the house than does *Das Haus wird beobachtet.*

Summing up, the copula analysis proposed here correctly predicts the relevant properties of the *sein*-Perfekt as well as the two passives. There is one asymmetry, though, not mentioned so far, between the *sein*-Passiv and the *sein*-Perfekt. Compare the following two sentences:

(27) Der Riese ist eingeschlafen.
(28) Der Riese ist erschlagen.

Sentence 27 can be used to describe a present property of the giant but also an event in the past. It could be continued by ... *laßt uns jetzt fliehen* 'let us try to escape'. It could also be followed by *... und hat bald darauf ganz fürchterlich geschnarcht* 'and in a moment, he was snoring terribly'. In short, it can have a [SUBJ POST- PRED] reading, but also a POST [SUBJ PRED] reading (cf. section 5). Ex. 28 can only have the first reading - it describes present properties of the giant; the other reading must be expressed by *Der Riese ist erschlagen worden*. This asymmetry is apparently due to the different status of the argument which is marked as grammatical subject. This will be discussed in section 6.4.

6.3.2 The auxiliary *hab-*

Apart from its function as a main verb and in some modal constructions such as *Hans hat zu kommen* 'Hans has to come', *hab-* can only be combined with participles in order to form a Perfekt, more precisely, with participles of the type *geschlafen, gehasst, geöffnet*. These are exactly those that have no 'posttime specification' for the first argument, either because they provide no second time interval at all, as *schlaf-*, or because they provide such an interval, but only for the second argument, as *hass-* and *öffn-*. But clearly, a Perfekt such as in *Eva hat geschlafen* involves such a later time span. Hence, it is the function of *hab-* to provide a $<A, t_t>$ slot. This means that *geschlafen hab-, gehasst hab-, geöffnet hab-*, but also *eingeschlafen sei-* have $<A, t_s>$ as well as $<A, t_t>$. But whereas in *geschlafen sei-*, the second slot comes from the lexical content of the verb stem, the three other constructions owe it to the addition of *hab-*.

Note that *hab-* provides no additional qualititative or spatial properties; it only gives us A LATER TIME for A. All we can say about what is the case with A at that time comes from world knowledge.This corresponds exactly to what was said in section 1 about examples such as *Ich habe geduscht*: it may be that the speaker is clean, but this is not asserted - it is only inferred. In those cases in which the lexical content of the verb stem provides us with a property assignment for $<B, t_t>$, we may, of course, say something about the properties of B at that later stage. Thus, in *Georg hat das Fenster geöffnet*, the lexical content does not allow us to say anything about what is the case with Georg at that later time; but it allows us to say that the window is open. There is a caveat, however: *hab-* provides us with a second interval for A, and *öffn-* provides us with a second interval for B. This means that t_t in $<A, t_t>$ and in $<B, t_t>$ need not completely coincide. Therefore, *Georg hat das Fenster geöffnet* should have

a reading at which, at the later time, the window is closed again. And so it is.

In conclusion, this analysis gets us exactly the semantic properties of *hab-* and *sei-*Perfekts that we expect. There are some borderline cases, though. For example, there are a number of intransitive verbs for which it is not entirely clear whether they specify only one interval for their argument or two, especially motion verbs such as *lauf-, schwimm-, flieg-*. They take *sei-* as well as *hab-*. But they must take *sei-* if it clear that there is a target interval: thus, **Er hat in den Garten gelaufen* is impossible, whereas *Er hat im Garten gelaufen* is not excluded. Therefore, these verbs do not speak against the present analysis; they just reflect transitory cases of lexical content, surely not an uncommon phenomenon. But they are much in agreement with an analysis that does not speak of 'posttime' in general but of individual 'posttimes' for different arguments.[xvii]

6.4 The two readings of the Perfekt revisited

The Perfekt ambiguity arises as soon as the non-finite but FIN-linkable constructions *geschlafen hab-, eingeschlafen sei-, gehasst hab-* and *geöffnet sei-* are integrated into a full finite clause. This means, first, that the verb stem undergoes certain morphological changes; second, that TT is marked; and third, that SUBJ is appropriately filled. Consider, for example, *Eva hat geschlafen.* The morphological change goes from *hab-* to *hat*. The time interval of this verb is marked as TT, and since in this case, FIN is FIN_0, the time for which the assertion is made must not precede the moment of speech. This temporal interval is the 'posttime of A'. The NP in SUBJ is *Eva*. Two argument-time slots are contained in *geschlafen hab-*: $\langle A, t_s \rangle$ and $\langle A, t_t \rangle$. This leaves open whether the NP in SUBJ is interpreted with respect to interval t_s or with respect to interval t_t. In the first case, Eva is assigned the property 'asleep', and it is said that TT is a temporal interval after an interval where Eva has this property. This is the 'simple past'-reading of the Perfekt. In the second case, Eva is interpreted at this later interval itself, that is, at TU, which implies, among other things, that Eva must somehow exist at this time; this gives us the 'present perfect' reading of the Perfekt. The situation is exactly the same with *eingeschlafen sei-*, except that here, $\langle A, t_t \rangle$ stems from the lexical content of *einschlaf- itself*, rather than from the auxiliary.

This becomes clearer when we have a closer look at what, under a more detailed analysis, is involved in SUBJ: It should include a time parameter (the topic time), a place parameter (which is optional), a world parameter, and finally a nominal argument. German, as many other languages, requires a 'grammatical subject' marked by case and perhaps other features, such as position or agreement with the verb. This does not mean, however, that an NP which satisfies these syntactical requirements is also interpreted with respect to the other parameters in SUBJ, in particular with respect to time - if the lexical content provides options. English requires this: if the first argument 'is raised to SUBJ', to use a familiar *façon de parler*, then it must be interpreted with respect to the other parameters there. In German, 'raising to SUBJ' does not imply this. It is this difference which is eventually responsible for the difference between German Perfekt and English present perfect, despite their similarity in origin and in formal composition.

7. Conclusion

The present analysis of the German Perfekt only operates with notions that are needed independently - temporal relations, temporal intervals, the characterisation of these intervals

by the lexical content of simple and complex expressions, the distinction between 'finite' and 'non-finite' expressions, and finally the notion of assertion (in the case of declarative clauses). It appears that this notional repertoire suffices to assign a uniform meaning to the Perfekt, which results from the meaning of its parts and which predicts the different readings which the Perfekt is supposed to have. It also neatly explains its difference from the Präteritum, with which it often competes, as well as its difference from the English present perfect. At the same time, this analysis gives us the core properties of the German 'Vorgangspassiv' and 'Zustandspassiv'. Traditional categories such as 'Perfekt' or 'Passiv' are not primitive notions of linguistic theory; they turn out to be nothing but gross ways of clustering semantic and syntactic properties of their components.

In the epigraph to this paper, I quoted the most famous switch from Präteritum to Perfekt in the German literature - the end of Goethe's 'Die Leiden des jungen Werthers'. The most recent English translation (by E. Mayer and L. Brogan, The Modern Library, N. Y. 1993) does not, and cannot, contain such a switch: 'The old man and his sons followed the body to the grave; Albert was unable to; Lotte's life was in danger. Workmen carried the coffin. No clergyman attended.' In the original, the narrative up to Werther's funeral is in the Präteritum, i.e., TT precedes TU and overlaps with T-SIT. But then, the last sentence all of a sudden shifts to the Perfekt. This indicates that the time about which something is asserted switches to the here-and-now, that is, to a perspective from which the event itself is done and over. Exactly this is the intuitive feeling which we have here.

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[ii] German does not distinguish between a simple form and a progressive form; in the English glosses and translations, I will normally use the simple form; but it should be kept in mind that the German form may have the meaning of a progressive.

[iii] Note, however, that this is not true for Standard German, or for speakers of southern dialects when they speak Standard German (for a survey, see Hauser-Suida and Hoppe-Beugel 1972). In my own dialect, for example (southwest Germany), the Präteritum is not used except for the copula *war* 'was' and occasionally a modal. But everyday observation clearly shows that people regularly use the Präteritum when speaking Standard German.

[iv] There is also a kind of 'future Perfekt' in German (*werde eingereicht haben, werde geduscht haben*), which can be used in these contexts; but it is by no means necessary, not even preferred.

[v] Fabricius-Hansen's own account of the Perfekt is very sophisticated, because it systematically distinguishes between 'definite' and 'indefinite' uses of the Perfekt (and other tense forms). As a consequence, no uniform meaning is assigned to the Perfekt, either, though for different reasons.

[vi] Thieroff (1992:86s, 189) says that his notion of 'reference time' is different from Reichenbach's; but no definition whatsoever is given, except that it is different from the moment of speaking and the event time.

[vii] Neither Ballweg nor Grewendorf formulate their analysis literally in Reichenbachian terms; therefore, the following remarks do not do justice to their analysis in general. I am picking out here only how it might account for the Perfekt ambiguity. (Zeller explicitly states that there is no solution to the ambiguity problem under his analysis).

[viii] Imperatives, for example, do not express an assertion but the obligation to perform some action. Their topic time is not the time for which an assertion is made but the time for which the obligation holds. Subordinate clauses do not express an assertion, either (though they may somehow involve an assertion, as in the case of factives). The interpretation of their topic time depends on the particular kind of complementizer and the lexical properties of the matrix clause. It is also possible to stipulate an invisible complementizer for main clauses as the carrier of assertion (and other illocutionary roles); on the surface, its function is realised on the finite verb. This would allow a more uniform treatment across sentence types, but it raises other problems (for some discussion, see Klein 1994, chapter 8).

[ix] Note that 'target state' and 'source state' are relative to individual arguments; this is different from many older distinctions found in the literature, e.g., Abraham's (1995: 138-9)

'monophasic' and 'biphasic' verbs, or '1-state' and '2-state' verbs in Klein 1992.

[x] This analysis naturally accounts for the fact that the adverbial can have a 'reference time reading' in 8b, c but not in 8a. But it does not exclude an 'event time reading' for 8b, c - which these sentences normally do not have. This must have a different reason. Musan 1998 suggests an explanation which I am adopting here. Note that FIN_0 in itself already contains some information about the position of TT on the time line: TT includes or follows TU. Ehrich 1992 has noted that 'stative verbs' can hardly have the 'future reading' by themselves; they require an adverbial. Musan argues that the 'result state' (in her terminology) is a state and hence obeys this constraint. In the present framework, this means that if an assertion is made about some time in the future, this has to be marked by an adverbial; therefore, a future time adverbial is regularly interpreted as indicating that TT is after TU. In 8b, there is no adverbial that could shift TT into the future; hence, TT must include TU and follow T-SIT, and consequently, the adverbial *jetzt* cannot modify T-SIT itself. It only higlights that the assertion is made about the 'now'.

[xi] The subscripts in t_s and t_t are reminiscent of 'source state' and 'target state' respectively. But note that the first interval of the first argument need not be fully simultaneous to the first interval of the second argument; normally, it is only required that they have a common subinterval (cf 3.2.4).

[xii] It appears to me that notions such as 'thematic role' or 'case role' are only a gross and not very informative categorisation of the properties which the lexical content assigns to particular arguments. The 'theta-criterion' in generative grammar, for example, is simply a consequence of the fact that the verb content assigns spatial or qualitative properties to its arguments.

[xiii] It is assumed here that even if the verb stem contains two intervals for the argument that is to become SUBJ, only one of those is chosen as TT (the first one), when this verb stem is made finite. But it may well be that the property assignments of $<A, t_s>$ and of $<A, t_t>$ are asserted together, i.e., TT contains t_s and t_t. I believe that this is the case with the English simple form (except for some verbs such as *to know*), whereas it is not, or at least not generally, true in German.

[xiv] Since 24 is a default assumption, there may be deviations, which then must be noted as idiosyncrasies in the lexicon. Candidates are, for example, receptive verbs such as *krieg-, bekomm-* 'to get, to obtain' or verbs such as *kost-* in *zehn Mark kosten* 'to cost ten marks'.

[xv] Various authors have proposed analysing the 'Zustandspassiv' in this way, see recently Rapp 1998). The idea to treat the 'Vorgangspassiv' on a par with the copula-function of *werd-* was first elaborated in Musan 1996.

[xvi] The point made here is not that 'predicative constructions' and 'passive constructions' with *werd-* are exactly the same but that the meaning contribution of *werd-* is the same in both cases; differences result from the other component. In both cases, there might be additional constraints. Thus, *werd-* cannot be used with spatial properties, i.e., is possible to say *Hans war hier*, *Hans blieb hier*, but not *Hans wurde hier*. It is even odd for some qualitative adjectives, such as *tot*; the sentence *Hans wurde tot* is understandable but surely not what one would normally say. It may be that the formation of these constructions is blocked by the systematical availability of synomymous expressions. Thus, *Hans wurde eingeschlafen* would

mean exactly the same as *Hans schlief ein*; similarly, *Hans wurde tot* would mean the same as *Hans starb*.

[xvii] A real exception are the three copula verbs which, against all odds, form their Perfekt with *sei-* rather than with *hab-*. This seems to be a lexical idiosyncrasy, and in fact, traditional grammars regularly describe it as such.