

Introduction: the modules of Perfect constructions

*Artemis Alexiadou, Monika Rathert, and
Arnim von Stechow*

1. Contents of this volume

This volume presents a collection of papers dealing with the semantics, syntax and morphology of perfect constructions in several languages (e.g. Arabic, English, Bulgarian, German, Greek, Italian, and Russian). The volume has its origin in two workshops, one on the Perfect organized by the University of Thessaloniki in May 2000, and one on Participles organized by the University of Tübingen in April 2001. However, the book is independently structured and features a different set of contributors than did those events.¹

The papers present the state of the art in current research on Perfect constructions. Although the approaches differ in their details, a general consensus emerges concerning structural aspects of tense/aspect/aktionsart distinctions (T/A/A). In our introduction we discuss these aspects in detail. Furthermore, we introduce the temporal meaning components that the contributors use in their analysis. We address issues that relate to the interpretation of simple tenses, the perfect, viewpoint aspect, aktionsarten, aspectual and durative adverbials. As will become evident, the amazing complexity of perfect constructions relates to the ways the morpho-syntax of such constructions expresses their semantics.

2. Perfect constructions

Perfect constructions interact with Tense (present/past), with viewpoint aspect, with aktionsarten and with temporal adverbs of different sorts. Any analysis of these constructions has to take into account all these factors, which are often only partly understood.

There are two main perfect constructions that the contributions to this volume focus on: one expressed by the *have*-perfect and one by the *be*-perfect. Note that what we call here *have* and *be*-perfects do not strictly correspond to the phenomenon of auxiliary selection. Rather with *be*-perfects we describe adjectival passives, which can have readings that relate to uses of the perfect (see e.g. Anagnostopoulou's contribution). We discuss these in turn.

2.1. *have*-perfect

The following examples illustrate the different kinds of the *have*-perfect², taken from (Pancheva, (this volume)):

- | | | | |
|-----|----|---|---------------|
| (1) | a. | <i>Since 2000, Alexandra has lived in LA.</i> | UNIVERSAL (U) |
| | b. | <i>Alexandra has been in LA (before).</i> | EXPERIENTIAL |
| | c. | <i>Alexandra has (just) arrived in LA.</i> | RESULTATIVE |

The experiential and the resultative perfect are often grouped together under the heading “existential perfect” (E-perfect) ((McCawley, 1971), (Mittwoch, 1988)). The U-perfect predicates Alexandra’s living in LA of a time span that starts at some time in the past and reaches into the speech time. The experiential perfect says that Alexandra was in LA at some time in the past, and the resultative perfect says that Alexandra arrived shortly before the speech time and is actually here. The constructions raise the following questions (Pancheva): “Is it possible to posit a common representation for the perfect – a uniform structure with a single meaning – which, in combination with certain other syntactic components, each with a specialized meaning, results in the three different readings?” This is the content of the so-called U/E debate; cf. Iatridou et al. (this volume) and Rathert (this volume).

An important problem for any semantic account of the *have*-perfect is what (Klein, 1992) calls the Present Perfect Puzzle: how can we account for the following contrast between English and German?

- | | | | |
|-----|----|--|--|
| (2) | a. | <i>*John has left at six.</i> | |
| | b. | <i>^{OK}Hans ist um sechs abgereist.</i> (German) | |
| | c. | <i>^{OK}John had left at six.</i> (ambiguous; see below) | |

To this we can add a further question: why do we get an acceptable sentence if *have left at six* is non-finite, as in the sentence below?³

- | | |
|-----|---|
| (3) | <i>^{OK}John must have left at six.</i> |
|-----|---|

There is no consensus as to how these questions should be resolved.

2.2. *be*-perfect

The second perfect construction studied in this volume is the *be*-perfect, which has a resultative interpretation.

- (4) *Das Geschäft ist noch immer geöffnet.* (German)
 the shop is still always opened

The sentence means that the shop is in the state of being open which is caused by an opening event in the past. The adverb *noch immer* ‘still’ indicates that the state caused still holds at the reference time and is not irreversible.

The perfect constructions studied in this volume belong to one of the two types. While we can offer adequate descriptions of these patterns, difficulties arise when one attempts to offer a precise semantic and syntactic analysis of these constructions. Below we summarize the syntactic as well as semantic distinctions that any analysis needs to make.

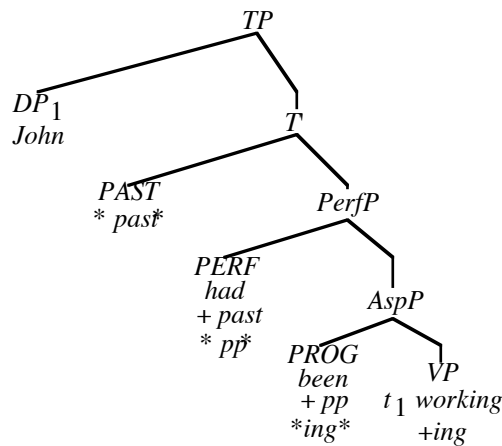
3. T/A/A-architecture

Most authors adopt a T/A/A architecture of the type in (6), where Tense, Perfect and Aspect are represented as functional heads. Hence researchers seem to agree that the following sentence is composed of at least a tense phrase (TP), perfect phrase (PerfP), an aspect phrase (AspP) and a VP.

- (5) *John had been working for several hours (when he was interrupted).*

A reasonable LF of this sentence would have the following form:

- (6) The T/A/A-architecture



Disregarding some notational differences⁴, this is a structural representa-

tion in the style of Radford (1997: 181 f.), and in fact compatible with proposals in (Chomsky, 1957). There are different approaches to the question of how features are handled, often subject to crosslinguistic variation. Features could be regarded as being instantiated by affixes which are moved from a higher head to the lower head ('affix hopping'). Alternatively, they could be checked by movement of the lower head to the higher one ('head movement'), or they could be checked in the configuration we see here (a classical subcategorization approach). Morphemes in capital letters indicate meanings, those in small letters PF-realizations.

The tree structure above has a straightforward semantic interpretation, if we assume functional application as the relevant principle of composition and the following meaning rules⁵:

- (7) a. Priorian Past/Perfect⁶ || PAST (or PERF:) || = $\langle P \ \langle D_{it} \ \langle i \ \langle D_i \ \langle i' \ \langle D_i \ \langle i' < i \ \& \ P(i') \rangle \rangle \rangle \rangle \rangle$
 b. PROG/IMP⁷: || IMP || = $\langle P \ \langle D_{vt} \ \langle i \ \langle D_i \ \langle e \ \langle D_v \ \langle i \ \langle \langle e \rangle \ \& \ P(i') \rangle \rangle \rangle \rangle \rangle$
 c. || John working || = $\langle e.e \ \text{is a working of John} \rangle$

Note that (Prior, 1967) doesn't distinguish between PAST and PERF. The semantic perfect simply is an embedded PAST. The LF (6) will express truth iff $\langle i \ \langle i' \ \langle i' < i \ \& \ \langle i' \ \langle i' < i' \ \& \ \langle e \ \langle i' \ \langle \langle e \rangle \ \& \ e \ \text{is a working of John} \rangle \rangle \rangle \rangle \rangle$ applied to the speech time n is the truth.

While the details of the semantic analysis are much debated, the hierarchy of the functional heads

- (8) Tense > Perfect > Aspect > VP

where VP is a tense- and aspectless aktionsart, is accepted by most researchers and thought of as being present across languages.

(Musan, (this volume)) is the only contribution that assumes a different clausal architecture, while Moser and Veloudis do not make structural claims. Musan situates the Aspect node between Tense and Perfect. (Paslawska and Stechow, (this volume)) closely follow the system outlined in (Klein, 1994), which classifies the perfect as an aspect and assumes only one aspect pro sentence. Note that Klein's system leaves no natural position for the progressive. The proposal in (Paslawska and Stechow, (this volume)) could easily be adapted to the hierarchy in (6). (Pancheva, (this volume)) calls the perfect a second aspect. Other authors call the perfect a second tense, e.g. (Giorgi and Pianesi, 1997) or (Fassi Fehri, (this volume)).

4. Approaches to tense

4.1. Reichenbach-tenses

Let us briefly review the different approaches to the semantics of tense. One influential approach to tense is that in (Reichenbach, 1947). Reichenbach treats the Perfect on a par with the simple tenses Present and Past. His tenses are holistic relations between the three points of time S (speech time), R (reference time), E (event time), which are defined via the local relations of coincidence (written as “,”) and precedence (written as “_”). The simple past is symbolized as E,R_S and the present perfect is symbolized as E_R,S. Reichenbach hasn't given a semantics for his system. One of the few precise interpretations is (Nerbonne, 1984). A related system is (Dowty, 1982). Reichenbach's account appears to be able to solve the Present Perfect Puzzle:

(9) **John has left at six.* E_R,S & at six(R)

(10) ^{OK}*John had left at six.* E_R_S & at six(R)

Reichenbach assumes that temporal adverbials specify the reference time, which is impossible for the present perfect but possible for the pluperfect as shown in (10). (2b) is ambiguous between a reading where the temporal adverb specifies the event time and one where it specifies the reference time. Thus the following representation should in principle be possible:

(11) *John had left at six.* E_R_S & at six(E)

But once we admit that the adverbial can specify the event time, we predict that the present perfect sentence (9) is grammatical, because the adverb could specify E in that sentence. Thus Reichenbach's theory needs some additional rules that specify under which conditions E can be temporally specified and under which conditions this is forbidden; (Klein, 1992) may be regarded as an attempt along these lines.

A general problem for Reichenbach's theory is that it is hard to see how it could be combined with a theory of aspects, which requires that time intervals can stand in the inclusion relation. The semantics given for the progressive was an example. There is no way to interpret (5) in Reichenbach's framework without substantial revisions. To mention just one more empirical problem: why is it possible to modify a non-finite Perfect embedded under a modal?

The authors of this volume that give a formal semantics of tense follow the architecture outlined above and decompose perfect tenses (present, past or future perfect) into a simple tense (Present, Past, Future) and the Perfect.

4.2. Priorian tenses

Some authors (Pancheva, Rathert, Iatridou, Iatridou et al.) treat simple tenses as operators in the style of (Prior, 1967). (Montague, 1973), (Dowty, 1979), (Ogihara, 1989), (Krifka, 1989) and (Herweg, 1990) and many others belong to that tradition as well. (Musan, (this volume)) advocates a complex operator, according to which tenses and the perfect are relations between two times and figure as restrictions of quantifiers or adverbs of quantification. Each temporal quantifier binds a time variable of the lower projection. The (logical) syntax of this system is more complicated than that sketched in (6).

4.3. Tenses as variables

Others ((Arosio, (this volume)), (Fassi Fehri, (this volume)), (Katz, (this volume)), (Paslawska and Stechow, (this volume))) treat tenses as variables with presuppositions in the style of (Partee, 1973) and (Heim, 1994). Here are rules for the Past and the Present:

- (12) a. $\ll \text{PAST}_i \ll^{g,n} = g(i)$, if $g(i)$ is a time before the time of speech n ;
 undefined otherwise.
 b. $\ll \text{PRES}_i \ll^{g,n} = g(i)$, if $g(i)$ is a time identical with n ; undefined otherwise.

(Note that Arosio's tenses are more complicated than that. He reconstructs Varro's *infectum/perfectum* distinction. A *tempus infectum* modifies a homogeneous property of times, a *tempus perfectum* modifies a property that is not homogeneous.)

4.4. Present tense

While the interpretation of the simple past seems uncontroversial, there is little agreement on the interpretation of the present. Virtually every conceivable option has been considered in the literature. (Mittwoch, 1988), (Katz, (this volume)), (Paslawska and Stechow, (this volume)) and many others claim that the present denotes the speech time conceived as a point.

Among other things, this assumption provides an explanation for the stativity of the Present and the Present Perfect.

Most semanticists that have investigated German claim that the present denotes an interval that is not before the speech time ((Ballweg, 1989), (Ehrich, 1992), (Abusch, 1997), (Thieroff, 1994), (Comrie, 1995), (Musan, 2002), among others).

In (Fabricius-Hansen, 1986), the present has several meanings. Under one reading, it denotes a time surrounding the speech time, which might be the entire time.

For (Kratzer, 1978) and (Bäuerle, 1979), the Present denotes a “Now Extended toward the Future”, i.e., the entire time span which contains no subinterval before the speech time.

For (Heny, 1982) and (Richards, 1982), the Present is appropriate in any context that gives us a time that extends the speech time towards the Past, i.e., an *Extended Now* (XN) in the sense of (McCoard, 1978). (For the precise semantics, see (14).) In some sense this is exactly the mirror image of Kratzer’s and Bäuerle’s semantics.

In view of this puzzling variety of proposals, two reactions seem natural. The first one is to say that the semantics of the present is still poorly understood. The second one is to say that the meaning rules have to be assessed within a more comprehensive theory of grammar. The analyses given by different authors may work for the examples motivating them. They might fail, however, once a larger range of examples and languages is studied.

4.5. Tense under attitudes

To make the point more explicit, consider the variable approach to tense given in (12). We know from (Stechow, 1982) that this doesn’t work for examples like the following ones:

(13) *John thinks (thought) that it is (was) 10 o’clock.*

John might be wrong about the actual time. Nevertheless the sentence might be true. Thus the embedded present or past cannot be co-referential with the matrix present or past. An elegant way to solve the problem is indicated in (Kratzer, 1998): there are zero-tenses \emptyset_i , which are temporal variables without any presupposition. They obtain the phonetic features at PF from an antecedent via co-indexation. For the derivation of (13) in Kratzer’s system, see loc. cit., p. 12. Still, this kind of semantics is closely related to the variable approach sketched. If one applies an operator approach, one has to work with tense deletion as in (Ogihara, 1989). No pa-

per in this volume addresses the problem of temporal subordination.

5. Approaches to the *have*-perfect

There are two main approaches to the meaning of the *have*-perfect. On one view, the *have*-perfect is interpreted as Priorian past. On a second view, the Perfect is interpreted as an Extended Now. The entire Reichenbach tradition belongs to the former group as do many of the German semanticists, including (Klein, 1994) and (Herweg, 1990).

5.1. Status of the *have*-perfect

What is the *have*-perfect, a tense or a viewpoint aspect (Iatridou & al., Moser (this volume))? (Klein, 1994) defines tenses as relations between the speech time and the reference time (his topic time or time of the claim). The perfect obviously doesn't relate the speech time to the reference time. Klein supposes that it relates the reference time to the event time. Relations of this kind are called "aspects" by Klein. Therefore Klein regards the *have*-perfect as an aspect. (Paslawska and Stechow, (this volume)) follow Klein's terminology and call the perfect an aspect as well. But this decision is not without problems as example (5) shows: by all standards, the progressive is an aspect and obviously embedded under the perfect. (Pancheva, (this volume)) calls the *have*-perfect a second aspect. This not compatible with Klein's theory either. The most appropriate terminology seems to be the traditional one, according to which the *have*-perfect is a relative tense. It relates the reference time to some other time in the past, say a second reference time. Moser, on the other hand, argues that the Perfect is more temporal rather than aspectual in nature.

5.2. *have*-perfect as XN

Since (McCoard, 1978), semanticists of English mostly have favored an XN-semantics for the *have*-perfect. The classical definition of this perfect meaning is due to (Dowty, 1979, p. 342):

- (14) XN-Perfect: $\| \text{XN-PERF} \| = \langle P \rangle \langle D_{it} \rangle \langle i \rangle \langle D_i \rangle \langle i' \rangle \langle D_i \rangle [\text{XN}(i', i) \ \& \ P(i')]$, where $\text{XN}(i', i)$ means that i is a final subinterval of i' .⁸

In the structure in (6) we can replace PERF by XN-PERF. The LF (15a) now expresses the temporal property (15b):

- (15) a. $[_{TP} \text{PAST}_i [_{PerfP} \text{XN-PERF} [_{AspP} \text{IMP} [_{VP} \text{John working}]]]]$
 b. $[\lambda i \lambda i' [i' < i \ \& \ \lambda i'' [\text{XN}(i'', i') \ \& \ \lambda e [i'' \ \square \ \square(e) \ \& \ \text{VP}(e)]]]]$.

This is a U-reading: John was working up to the time point in the past when he was interrupted. There seems to be no way to obtain this meaning within an anteriority theory that interprets the perfect as Priorian past. Hence an XN-perfect seems appropriate for English.

5.3. Bäuerle's covert \square

(Iatridou et al., (this volume)) claim that the U-reading never comes in isolation; it is triggered by an appropriate adverbial (e.g. a *when*-clause). When sentence (5) is uttered in isolation, it has an E-reading, which requires the insertion of a covert “inclusive” adverb between the Perfect head and the Aspect head. This adverb has been introduced into the literature in (Bäuerle, 1979). It has the meaning indicated below:

- (16) Bäuerle's covert adverb of quantification:
 $\|\square\| = \lambda P \lambda D_{it}. \lambda i \lambda D_i. \lambda i' [i' \ \square \ i \ \& \ P(i')]$

(Iatridou et al., (this volume)) have observed that U-readings select an “unbounded” aktionsart, which requires the progressive for nonstative verbs. (Klein, 1994) describes the perfective aspect as the inclusion of the event time in the reference time. This can be made precise as below (Kratzer, 1998):

- (17) Perfective aspect:
 $\|\text{PF}\| = \lambda P \lambda D_{vt}. \lambda i \lambda D_i. \lambda e \lambda D_v. [\square(e) \ \square \ i \ \& \ P(e)]^9$

Greek participles only have perfective morphology and therefore never exhibit a U-reading. In English, nonstative participles are analyzed as perfectives, whereas statives are unmarked with respect to aspect and therefore allow for both E- and U-readings. German participles are unmarked with respect to aspect and therefore always allow for the E and U-readings.

5.4. Is every *have*-perfect an XN-PERF?

(Iatridou et al., (this volume)) hold the view that *have*-perfects are always interpreted as XN-PERF. This raises the question of how cross-linguistic variation is explained. Recall that the German sentence (2c) is grammatical.

Similarly, the contrast between (9) and (10) has to be explained. Versions of the XN-semantics for the *have*-Perfect are accepted by (Anagnostopoulou, this volume), (Fassi Fehri, (this volume)), (Iatridou, (this volume)), (Pancheva, (this volume)), (Rathert, (this volume)), (Moser, (this volume)). (Paslawska and Stechow, (this volume)) claim that the Russian past imperfective morphology can express the XN-Perfect.

5.5. *have*-perfect as Priorian Past

(Katz, (this volume)) defends a Priorian Past semantics for the English perfect. (Paslawska and Stechow, (this volume)) claim that the perfect is ambiguous between a Priorian Past and an XN-perfect. (Musan, (this volume)) puts forward a special system that obtains the XN-perfect as a limiting case of a sort of Priorian Past.

5.6. Other approaches to the *have*-perfect

A number of further approaches to the *have*-perfect can be found in the literature. (Heny, 1982) and (Richards, 1982) claim that *have* expresses the Perfective (PF), whereas the XN-PERF-information stems from the present tense. (Kamp and Reyle, 1993) relate the *have*-perfect to resultativity. Others emphasize the relationship between the Perfect and possessive/ nominal constructions (e.g. Veloudis (this volume) and (Iatridou, (this volume))). In particular, Veloudis argues that the Perfect is a pragmatic category in its own right, and it cannot be classified as a temporal or aspectual category.

6. Approaches to (viewpoint) aspect

6.1. Viewpoint aspect vs. situation aspect/aktionsart

The theories of aspect assumed by the contributors to this volume all fit into the general architecture outlined by tree (6). The aspects Imperfective and Perfective mentioned thus far are what (Smith, 1991) calls *viewpoint aspects*. They are relations between a reference time and an event time. More specifically, they are operators mapping a property of events/states into a property of times. Klein calls these relations *viz. operators aspects simpliciter*. (Kamp and Reyle, 1993) speak of *location times*.

Viewpoint aspects have to be distinguished from *aktionsarten* such as accomplishments, achievements, states and activities. The later are labeled *situation aspects* by Smith. We discuss them in the next section. It is not clear how viewpoint aspects are exactly related to the aspects used in Slavic

philology. For some discussion, see (Klein, 1995) and (Paslawska and Stechow, (this volume)). As has already been mentioned, Klein and Paslawska/Stechow interpret the perfect as a viewpoint aspect as well.

6.2. NEUTRAL and RESULTATIVE

(Pancheva, (this volume)) discusses two further viewpoint aspects, viz. NEUTRAL and RESULTATIVE. The first was introduced in the literature by (Smith, 1991). It means that the first moment of the event time is included in the reference time. Pancheva claims that the three different perfect readings in (1) are the consequence of the choice of three different viewpoint aspects, viz. IMP, NEUTRAL and RESULTATIVE.

This theory needs a number of auxiliary hypotheses. For instance, in Bulgarian NEUTRAL is not combinable with the past participle, it has to combine with a finite verb. According to Pancheva, the opposite is true for English, where NEUTRAL can only combine with the past participle but not with the finite verb. In addition, NEUTRAL is always covert in English.

6.3. Progressive

Conceptually, the most difficult viewpoint aspect is the Progressive, because (Dowty, 1979) has shown that it is a modal operator. The IMP/UNBOUNDED viewpoint aspect used by the authors of this book may be regarded as a first, in fact crude, approximation to Dowty's semantics.

7. Approaches to aktionsarten/ situation aspect

The layer under (viewpoint) Aspect, the tense and aspectless VP in (6), is called *situation aspect* in the literature (cf., e.g., (Smith, 1991), (Pancheva, (this volume))). Other authors speak of *aktionsart* (e.g. (Klein, 1994)). The most influential characterization of different aktionsarten goes back to (Vendler, 1957), (Taylor, 1977) and (Dowty, 1972), who classify VP-meanings in terms of temporal properties.

7.1. States, achievements, accomplishments

Dowty calls a VP-meaning a *state* if it denotes a set of points of times; similarly (Katz, (this volume)).

Somehow we have to distinguish states from *achievements*, which are sets of isolated points of time having the property expressed by the VP. On the other hand, states are not isolated points: if a point is a state with property P then it has at least one neighbor point with property P; see (Paslawska and Stechow, (this volume)) on this issue.

(Krifka, 1989) calls a VP *quantized* if it applies to an event/time without being true of any proper subevent/subtime. What has been called *accomplishments* in the literature is an instance of a quantized property. Krifka has interpreted the perfective morphology of Czech as an indicator of this property; (Paslawska and Stechow, (this volume)) follow Krifka and define telic aktionsart by means of quantization.

Since (Verkuyl, 1972) we know that aktionsarten do not depend on the meaning of verbal morphology only, but also on the semantics of the verbal arguments and adverbs. (Dowty, 1972) is presumably the first systematic compositional semantics of aktionsarten and still the most successful one.

7.2. Imperfective paradox

There is a systematic interaction between aktionsart, viewpoint aspect and the *have*-perfect. For instance, (18a) should not entail (18b), a perfect version of the famous Imperfective Paradox (cf. (Dowty, 1979, p. 131 f.)).

- (18) a. *John has been building a sandcastle.*
 b. *John built a sandcastle.*

Using the formalization assumed in (Pancheva, (this volume)), we obtain the correct result for these examples:

- (19) a. PRES XN-PERF IMP John build- a sandcastle
 b. PAST PF John build- a sandcastle

This is an “extensional” interval solution in the style of (Bennett and Partee, 1978) and is therefore open to Dowty’s (1972) criticism: the LF in (19) entails the existence of a sandcastle after the speech time. So IMP should rather be a version of Dowty’s modal operator PROG, which says that the embedded VP is true only in the inertia worlds. Unfortunately, Dowty’s theory is not entirely successful either. On his view, the verb *build* should receive an analysis along the lines in (20):

- (20) $\Box Q. \Box x. Q(\Box y. \text{build}'(x) \text{ CAUSE exist}'(y))$, where Q is of the quantifier type.¹⁰

As a consequence, the VP embedded under IMP/PROG in (19) would mean the following:

(21) $\Box y[\text{sandcastle}'(y) \ \& \ \text{build}'(\text{John}') \ \text{CAUSE} \ \text{exist}'(y)]$

This statement is under the modal operator PROG, so there need not exist a sandcastle in the actual world at the reference time. But that does not seem to be very helpful: in the inertial worlds there is a sandcastle from the beginning of the building on, which is absurd. Hence a more refined analysis is called for; for a proposal, *vide* (Stechow, 2001).

7.3. Composition of aktionsarten

A compositional semantics for aktionsarten is the most difficult problem in lexical semantics and only few authors in this volume address this issue, e.g. (Iatridou et al., (this volume)) and (Paszewska and Stechow, (this volume)). The latter two authors distinguish between telic and atelic verbs in the lexicon and outline a compositional theory of aktionsarten.

8. Approaches to the *be*-perfect

The authors of this volume that treat the *be*-perfect all build on the theory developed by A. Kratzer in a series of papers, especially in (Kratzer, 2000). There are two kinds of *be*-perfect. One simply involves the post time of an event, which has been called somewhat unfortunately *resultant state* in (Parsons, 1990). The other, more interesting, version describes a lexically specified state caused by a prior event and has been called *target state* in (Parsons, 1990).

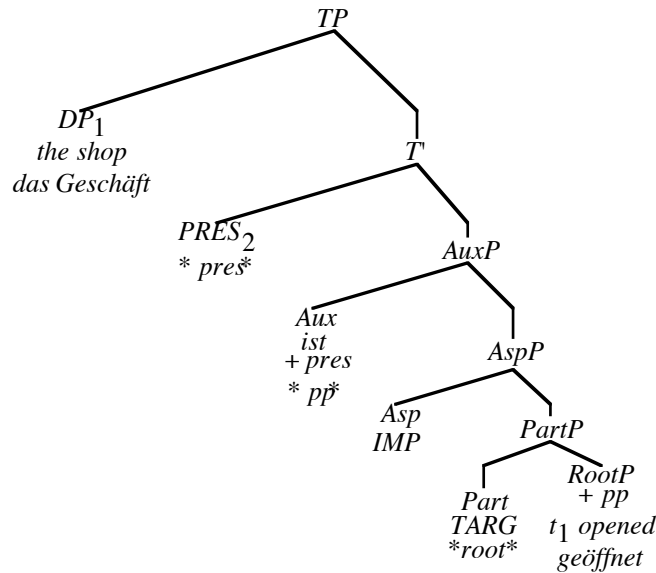
8.1. Target states

The second kind of *be*-perfect is possible only for certain accomplishments that have a “visible” target state. The relevant Perfect operator resides in the past participle morphology and operates on a verbal root that expresses a relation between an event and a lexically characterized target state: the target state is projected and the event is existentially quantified. (Anagnostopoulou, this volume) uses the name TARG for this operator. Kratzer offers the following semantic analysis:

- (22) The *be*-Perfectiviser (Kratzer, 2000)
 $\| \text{TARG} \| = \langle R \rangle \langle D_{v(vt)} \rangle s \langle D_v \rangle \langle e \rangle \langle D_v \rangle R(s)(e)^{11}$

Leaving the adverb *noch immer* aside, the German sentence (4) could then be analyzed as below:

- (23)



A semantics for the verbal root phrase in the style of Kratzer’s article is shown below:

- (24) $\| \text{open-} \| = \langle y \rangle \langle D_e \rangle \langle e \rangle \langle D_v \rangle \langle s \rangle \langle D_v \rangle [\text{cause}(s)(e) \ \& \ \text{open}(y)(s)]$

This correctly predicts that the shop is in a state of being open at the reference time. If we localize the stativized participle within the T/A/A-architecture, we see that it gives us an aktionsart.

8.2. No individual states?

The analysis in (23) is puzzling in one respect, however, for it embeds the PartP under an imperfective viewpoint aspect. It is an old observation that states don’t have progressive morphology, and they have no perfective morphology either. This is one of the reasons for Katz’s ((this volume)) claim that states are simply sets of points of times. In Katz’s theory, we can

embed the PartP directly under PAST, i.e., we don't need a viewpoint aspect.

One of the prices one has to pay for Katz's view is that the lexical semantics for *open-* has to be changed: *cause* must be a relation between an event and a time, i.e., times are caused by particular events. At first sight, this seems to be problematic, because a time may be regarded as a huge event encompassing all events that occur at that time, whereas a state is a very small event.

8.3. Cross-linguistic variation

There is cross-linguistic variation as to the syntax of the TARG participle phrase. While German and English cannot have an agent, agent related modifiers and temporal adverbs in the TARG participle (vide, e.g., (Rapp, 1998)), Modern Greek and Russian allow for these possibilities and therefore have a richer participle syntax (vide (Anagnostopoulou, this volume) and (Paslawska and Stechow, (this volume))). Here are some examples illustrating the point.

- (25) a. *Ta keftedakia ine tiganis-mena apo tin Maria.*
 the meatballs are fried of the Mary
 b. **Die Klopse sind von Maria gebraten.*
 the meatballs are by Mary fried
- (26) a. *Okno zakryto Ma_ej.*
 window closed Ma_a-I
 'The window is in the state of having been closed by Ma_a.'
 b. *Okno zakryto special'no.*
 window closed deliberately
 'The window is in the state of having been closed deliberately.'

(Anagnostopoulou, (this volume)) and (Paslawska and Stechow, (this volume)) analyze these by embedding Kratzer's VoiceP under TARG in Greek and Russian, but not in German or English.

9. Adverbial modification and aspect selection

One of the most puzzling features of certain durative adverbs is that they select the *have*-perfect or a particular aktionsart. Perfect level adverbials like *since* \square require the Perfect. The 'aspectual' adverbials *in* \square *time*¹² and *for* \square *time* select a particular aktionsart, viz. a quantized and a non-

quantized, respectively. The implementation of these requirements is a permanent challenge for the analyst.

Consider the ‘aspectual adverbials’ first. Dowty’s (1979) explanation of the difference in aktionsart selection lies in the assumption that these adverbs have different quantificational force. The first adverb says that the local evaluation time contains a subinterval of length Δ that contains exactly one P-event, where P is the modified property. This uniqueness condition can be satisfied by a quantized property only. The *for*-adverbial says that there is a time in the local evaluation time that has the length Δ and of each subinterval of that time the modified property is true. This requirement can only be satisfied by a non-quantized property, i.e. a state or activity. A meaning for *for* in the style of (Dowty, 1979, p. 333) is given below:

$$(27) \quad \| \text{for } 10 \text{ minutes} \| = \lambda P \lambda D_{it}. \lambda i \lambda D_t. \text{li} = 10 \text{ minutes} \ \& \ \lambda i' [i' \subseteq i \ \& \ P(i')]$$

$|i|$ is the duration of i . The semantics for the aspectual adverbial *in 10 minutes* is less trivial. Consider the following sentence with its intended interpretation.

- (28) a. *Olga drank the wine in 10 minutes.*
 b. $\lambda i [i \subseteq \text{PAST}_j \ \& \ |i| = 10 \text{ min} \ \& \ \lambda!e [\lambda(e) \subseteq i \ \& \ \text{Olga drink the wine}(e)]]$

$\lambda!e$ means “there is exactly one $e...$ ”. The quantifier $\lambda!e$ is part of the meaning of adverbial *in 10 minutes*. Therefore this adverb must quantify over an aktionsart, i.e. a quantized VP. The most natural adaptation of Dowty’s (1979, p. 335) meaning rule to the framework outlined here would be the following:

$$(29) \quad \text{The aspectual adverbial } \textit{in } 10 \textit{ minutes} \\ \| \textit{in } 10 \textit{ minutes} \| = \lambda P \lambda D_{vt}. \lambda i \lambda D_t. \lambda i' \lambda D_t. [i' \subseteq i \ \& \ |i'| = 10 \text{ min} \\ \ \& \ \lambda!e \lambda D_v. [\lambda(e) \subseteq i' \ \& \ P(e)]]$$

This adverbial establishes a viewpoint aspect, because it maps a property of events into a property of times. Therefore the proper LF of (28) seems to be (30a) but not (30b).

- (30) a. ${}^{OK}[\text{PAST}_1 \text{ } [_{\text{Aspp}} \textit{in } 10 \textit{ minutes} \text{ } [_{\text{VP}} \textit{Olga drink- the wine}]]]$
 b. $?[\text{PAST}_1 \text{ } \textit{in } 10 \textit{ minutes} \text{ } [_{\text{Aspp}} \text{PF } [_{\text{VP}} \textit{Olga drink- the wine}]]]$

Could we have the adverb as a temporal modifier, while introducing the viewpoint aspect PF separately as in (30b)? This seems possible if we

complicate the meaning of the adverbial:

- (31) *in 10 minutes* as a temporal modifier
 $\| \text{in 10 minutes} \| = \langle P \rangle \langle D_{it} \rangle \langle i \rangle \langle D_i \rangle \langle i' \rangle \langle D_i \rangle \langle i' \rangle \langle i \rangle \& \langle li' \rangle = 10 \text{ min} \& \langle i' \rangle \langle D_i \rangle \langle i' \rangle \langle i' \rangle \& P(i'')]$

The revised preposition will give us the intended meaning, because (30b) now expresses the following proposition:

- (32) $\langle i' \rangle \langle D_i \rangle \langle i' \rangle \langle \text{PAST}_1 \rangle \& \langle li' \rangle = 10 \text{ min} \& \langle i' \rangle \langle D_i \rangle \langle i' \rangle \langle i' \rangle \& \langle e \rangle \langle (e) \rangle \langle i' \rangle \& \langle \text{Olga drink. the wine}(e) \rangle]$

The statement requires that the frame i' established by the adverbial coincides exactly with the event time. But the approach looks suspiciously complicated. The direct analysis of the adverbial as an aspectual adverb seems more promising, though it is not entirely compatible with the general architecture outlined above. The example shows that adverbs may become very complicated if we take the T/A/A-architecture outlined earlier on seriously.

To conclude the discussion of aspectual *in* and *for*: Dowty's strategy of analyzing these adverbials as quantifiers seems correct, but does this kind of explanation apply to the perfect level adverbial *since* $\langle \rangle$ and its mirror image *until* $\langle \rangle$? Are these adverbials quantifiers, or rather are they universal quantifiers similar to *for*?

9.1. *since* $\langle \rangle$: Perfect selection

Consider the perfect level adverbial *since* $\langle \rangle$ first. The first question is the following: how can the fact that this adverbial selects the perfect be encoded? Suppose the only principle of composition for adverbial modification is functional application. The syntax outlined thus far makes the prediction that these adverbials are *in* the scope of PERF or XN-PERF, i.e., they are not attached to the PerfP but contained in it. This must be so if these Perfect operators are existential quantifiers, a standard assumption. On this view, the proper representation of (33a) must be (33b), but not (33c):

- (33) a. *John has been to Boston since last summer.*
 b. ${}^{\text{OK}}\text{PRES}_i \text{ XN-PERF since last summer AspP}$
 c. $*\text{PRES}_i \text{ since last summer XN-PERF AspP}$

It might come as a surprise that perfect level adverbials must be *under* the

Perfect and not above it. Given that *since* $\bar{\square}$ selects a PerfP, we are inclined to think that the adverbial must be attached to the phrase selected. That, however, would not be compatible with the following minimal semantics for *since*:

- (34) A minimal semantics for *since*
 $\llbracket \text{since} \rrbracket = \bar{\square} i \bar{\square} D_i \bar{\square} P \bar{\square} D_{it} \bar{\square} i' \bar{\square} D_i \bar{\square} i'' [i'' \bar{\square} i' \& \text{LB}(i, i'')] \& P(i'')]$

$\text{LB}(i, i'')$ means that i is the left boundary of i'' . It is easy to see that (33b) gives the correct meaning for (33a), whereas (33c) doesn't make sense because it would mean that the speech time starts last summer. The semantics given assumes the existence of an XN-PERF, an assumption shared by the majority of the authors of this volume.

The authors who reject the XN-analysis of the *have*-perfect, (Katz, (this volume)) and (Musan, (this volume)), face a problem here. Adverbs such as *ever since* $\bar{\square}$ only have an up-to-now reading. (Katz, (this volume)) claims that the perfect time span is before the speech time. Hence, according to Katz, a sentence such as

- (35) *I have been dancing ever since this morning.*

cannot make a claim about the time of utterance, the adverbial *ever since this morning* tells us that the Perfect time must abut the tense time. Therefore the adverbial must contain a variable that is somehow anaphoric to the speech time. This complicates the semantics of *since* considerably; cf. (Musan, (this volume)) for this issue. It is easy to find many predecessors for the complicated, anaphoric solution, e.g. (Fabricius-Hansen, 1986) or (Kamp and Reyle, 1993).

Many linguists would say that the semantics for *since* stated in (34) is an oversimplification because the adverbial appears to impose a restriction on the aktionsart modified and it is therefore an aspectual adverbial. For instance, the following sentence seems ungrammatical:

- (36) **I have lost my glasses since Monday.*

Since-adverbials seem to select states, and therefore Dowty builds a universal quantifier into the meaning of *since*. Simplifying the semantics given in (Dowty, 1979, p. 344), the meaning of aspectual *since* would be something like this:

- (37) Aspectual *since*
 $\llbracket \text{since} \rrbracket = \bar{\square} i \bar{\square} D_i \bar{\square} P \bar{\square} D_{it} \bar{\square} i' \bar{\square} D_i \bar{\square} i'' [i'' \bar{\square} i' \& \text{LB}(i, i'')] \& \bar{\square} i''' [i''' \bar{\square} i'' \bar{\square} P(i''')]$

This semantics immediately explains why the embedded AspP has to be a state: only states have the subinterval property. Such a theory runs into problems with sentences such as the following, however.

(38) *I have lost my glasses three times since last summer.*

And even (36) could be saved by an appropriate context¹³. A better strategy seems to be to separate the quantificational part from the boundary setting part. The latter belongs to the meaning of *since*, the former doesn't; see (Iatridou et al., (this volume)). It follows that *since* is a perfect level adverb but not an aktionsart selector, i.e. not a genuine aspectual adverbial.

The so-called U/E ambiguity could then be described by inserting the appropriate adverb of quantification under the *since*-adverbial, where the correct choice depends on the embedded aktionsart. A better representation of (33a) is therefore one of the two following LFs (cf. Rathert (2003)):

(39) $\text{PRES}_i \text{ XN-PERF since last summer } \square_{\square} / \square_{\square} \text{ AspP,}$
 where AspP = IMP John been to Boston

Here *since last summer* has the minimal semantics given in (34). \square_{\square} is a universal quantifier over subintervals, which is defined in analogy to \square_{\square} . The combination of \square_{\square} + IMP gives the U-perfect, \square_{\square} + IMP gives what (Pancheva, (this volume)) calls NEUTRAL and \square_{\square} + PF gives the experiential perfect. Further support to this kind of analysis comes from the fact that adverbs of frequency such as *often* or *seldom* can be embedded under *since* \square . They would not be compatible with Dowty's aspectual semantics in (37).

9.2. German *seit*

Since-constructions exhibit cross-linguistic variation. In languages such as German or Swedish *since*-adverbials can modify the simple tenses, in particular the present:

(40) *Fritz ist seit Donnerstag krank.* (Germ.)
 Fritz is since Thursday sick
 'Fritz has been sick since Thursday.'

(Stechow, 2002) describes the contrast between German and English by giving *seit* a semantics that is slightly different from that of *since*: while *since* \square modifies a given XN-interval, the German adverbial introduces

this interval and predicates the AspP thereof. This is compatible with the assumption that the present can be conceived as a point despite the fact that the XN-interval may be very long. (Musan, (this volume)) addresses the same issue and offers a related (independently developed) proposal. Note by the way that the German construction requires a non-quantized aktionsart, a fact that should follow in a natural way from the analysis.

9.3. *until*

Let us consider *until*-adverbials next. They are the mirror image of *since*-adverbials in so far as they give the right boundary of the modified time span. The main difference is that they do not select the perfect but can modify any tense. They are studied in (Giannakidou, this volume) and (Rathert, (this volume)). Starting with (Dowty, 1979, p. 367), most formal semanticists have assumed that *until* is inherently durational. According to Dowty, *until* \square gives us a subinterval of the local evaluation time together with its right boundary and predicates the modified property of every subinterval thereof. It follows that the sentence

(41) *John put a book into a box until Christmas yesterday.*

cannot mean that John put a book into a box at some time before Christmas. The book rather has to stay in the box at each moment in the interval that starts with the event time (in yesterday) and ends with Christmas. Dowty's derivation of this reading is very complex and cannot be discussed here (vide (Dowty, 1979, p. 368)). (Rathert, (this volume)) claims that the apparently missing existential reading exists. This can be observed, if we embed an overt adverb of quantification under *until* as in the following German example:

(42) *Hans hat bis vier dreimal angerufen.*
Hans has until four three-times called

An E-reading obviously is not compatible with Dowty's universal semantics for *until*, the meaning rather has to be this:

(43) $\llbracket \text{until} \rrbracket = \lambda i \lambda P \lambda D_i \lambda i' \lambda D_i \lambda i'' [i'' \sqsubseteq i' \ \& \ \text{RB}(i, i'') \ \& \ P(i'')]$, where $\text{RB}(i, i'')$ means that i is the right boundary of i .

The LF of (42) must therefore be something like:

(44) $\text{PRES XN-PERF until } 4 \text{ 3-times}_{\square} \text{ AspP (E-Perfect)}$

This analysis is completely parallel to that of *since*. An empirical problem for this theory is to explain why E-readings are impossible in examples such as (41).

(Rathert, (this volume)) claims that the e/u ambiguity arising with *until*-adverbials can be explained by a scope interaction between *until* \square and the covert adverb \square_{\square} : if \square_{\square} has wide scope with respect to *until* \square , we obtain the u reading as a limiting case. If \square_{\square} has narrow scope with respect to *until* \square , we obtain the e reading. It is not so clear how this analysis fits into the general architecture outlined here, which requires $\square_{\square} + \text{IMP}$ under *until* \square for the u reading. But e readings certainly exist and adverbs of quantification can have wide scope with respect to *until*. They can be naturally described within the decomposition analysis outlined here.

(Giannakidou, (this volume)) follows Dowty's strategy and analyzes *until* as a quantifier. The result is that she has to assume several meanings for the preposition. The most important readings are durative *until* and punctual *until*. They occur in positive sentences and may be regarded as $\text{until } \square + \square_{\square} + \text{IMP}$. This meaning is used to exclude sentences such as the following:

- (45) **I Ariadne exi xasi ta klidia tis mexri tora.*
 the Ariadne has lost the keys hers until now
 '*Ariadne has lost her keys until now.'

This sentence is entirely parallel to Dowty's (41). It is turned into an acceptable sentence, if it is negated (Giannakidou's puzzle).

- (46) *I Ariadne dhen exi zisi sto Parisi mexri tora.*
 the Ariadne not has lived in Paris until now
 '?Ariadne has not lived in Paris until now.'

The decomposition framework sketched here would predict this, if we could justify the following LF:

- (47) $\text{PRES}_1 \text{ XN-PERF until now } \square \square_{\square} \text{ PF Ariadne live in Paris}$

until now requires a state, and the negation of an existential quantifier clearly has a state as result. The sentence illustrates the second meaning of *until*, viz. the punctual one. It is said that this meaning is licensed under negation, but the decomposition approach makes it clear that the negation is under *until*.

The general strategy seems clear: one should try to explain different meanings not by lexical ambiguity but by scopal interaction of different

meaning components that are located at particular places in the morphology and syntax.

10. Morpho-syntactic issues

A crucial question for the syntax/semantics interface is whether each of the pieces of semantic information discussed here has a direct reflex in the syntax and ultimately in the morphology. Nearly all papers in this volume are directly or indirectly concerned with this issue.

As an example consider negation in Greek. Greek surface syntax suggests that the negation has wide scope with respect to XN-PERF and not narrow scope as assumed in Giannakidou's analysis (47). This is so because negation is located in front of the finite verb in surface syntax, and the verb is clearly above the perfect. If Giannakidou's LF is correct, it follows that the negation cannot be interpreted in its surface position. It must have its origin at a position between the adverbial *mxri tora* 'until now' and the participle phrase, the carrier of the PF semantics. Clearly we need a theory that somehow relates the semantic negation with its syntactic position. As far as we know such a theory has not yet been formulated.

Another problem is the location of the perfect semantics in syntax/morphology. As to the *have*-perfect, Iatridou et al. (this volume) claim that the Perfect is not located in the participle, which is the carrier of viewpoint aspect. The architecture outlined earlier on suggests this, because perfect level adverbials have narrow scope with respect to the perfect meaning and wide scope with respect to AspP, and they are not contained in the participle phrase. (Musan, (this volume)), on the other hand, claims exactly the opposite, viz. that the anteriority information conveyed by the perfect is located in the participle. The situation is different for attributive participle constructions such as the following:

- (48) *das von Fritz geschriebene Buch*
 the by Fritz written book
 'the book written by Fritz'

Since there is no auxiliary in the attribute phrase, the anteriority information must reside in the participle phrase here. Iatridou et al. (this volume) give a syntactic account, which treats the construction as a reduced relative clause involving auxiliary deletion. A more straightforward solution would be one in terms of the *be*-perfect which provides the correct syntax and semantics for the construction. Interestingly, the German attributive participle construction has a richer syntax than the one exhibited by the Greek and Russian *be*-perfect, as the construction admits for *by*-phrases,

subject oriented adverbs, temporal adverbs and so on.

In the recent literature the properties of (resultative) participles across languages are dealt within theories that decompose the VP domain into (at least) a number of layers containing, e.g. the projection of a category-neutral Root (RootP), a vP, VoiceP and perhaps Aspectual projections (see e.g. Anagnostopoulou's contributions and the references therein).

However, a number of questions concerning the morphology/syntax/semantics interface still remain open. We believe that an answer to these questions should take into consideration the details of the semantic analysis of the constructions, as suggested by the contributions to this volume.

11. The papers of this volume

Anagnostopoulou investigates Greek participles in light of Kratzer's typology. Similarly to German, Greek distinguishes verbal-eventive from adjectival-stative passive constructions. Eventive verbal passives are *synthetic* consisting of the verb stem to which a non-active voice suffix attaches. Stative adjectival passives are *analytic / periphrastic*: they consist of an auxiliary and a participle. She argues that Greek stative participles surface with two different suffixes depending on whether they have event implications or not. This provides morphological evidence for the lexical vs. phrasal dichotomy of adjectival participles. *Anagnostopoulou* furthermore investigates more closely the properties and architecture of phrasal adjectival participles in German and Greek taking as a starting point the target vs. resultant state dichotomy introduced by Kratzer (2000). She demonstrates that Greek phrasal adjectival participles may include an implicit external argument when they denote resultant states (see von Stechow 2001 for relevant semantic discussion) while the external argument is absent from target state participles. German participles never include an implicit agent, whether they introduce target or resultant states.

Arosio analyzes the temporal meanings associated with the Italian verbal forms with particular attention to "perfect" constructions and their interaction with durative adverbials. Starting from the fact that durative adverbials such as "per due ore" (*for two hours*) and "da due ore" (*since two hours*) are found in complementary distribution across different verbal forms, he argues that "temporal homogeneity" plays an important role in tense selection in Italian. He proposes that the Italian tense forms should be the morphological spell-out of different tenses which impose some conditions concerning the temporal homogeneity of their complements. The basic idea is that tense looks at its complement and licenses it if it satisfies a condition of temporal homogeneity: this means that tense itself has some

influence in the aspectual interpretation of a sentence. In the case of “perfect” constructions the homogeneity conditions are localized at different levels since Arosio argues that the perfect is ambiguous between the spell-out of a special tense and the spell-out of a result state construction.

Fassi Fehri investigates the aspectuo-temporal properties of the Perfect/Past/Perfective form in Arabic (within a crosslinguistic perspective), or various other combinations, and the behaviour of collocational temporal adverbs. The data enable us to establish a hierarchically organized grammar, in which Perfect (as a grammatical category) is projected higher than Perfective, and lower than Past. The Perfect form typically receives distinct tense and aspect interpretations, in particular a genuine PAST, a PRESENT PERFECT, and an EXTENDED-NOW reading. Using formal specifications of aspects and tenses, as well as a neo-Reichenbachian model of tenses, he shows how the properties of positional adverbs like *?amsi* “yesterday”, or the ambiguous Perfect level/Modal level particle *qad* contribute to establish the appropriate interpretations. Furthermore, the adverbial *mundu* “since/seit”, with its positional and durational versions, contributes to a precise articulation of the PERFECTIVE within the system.

Giannakidou discusses the interaction between the present perfect and *until*-adverbials in English and Greek. It is shown that when *until* and the present perfect don’t combine well, this is due to a clash between the semantics of durative *until*, which requires that a state extend through all subintervals introduced by it, and the perfect, which contains both an event and a result state and does not satisfy this requirement. When the perfect and *until* do combine well, this is because *until* has a purely temporal meaning and an existential perfect is compatible with this meaning. The aspectual information coming from the participle has been important in trying to account for the differences between Greek and English. In Greek, where the participle is perfective, the perfect always contains an event, even with stative verbs. But in English, where the participle has no overt aspect, purely stative interpretations are also allowed. Unlike Greek, in English, it is the licensing of this reading that blocks durative *until* in the present perfect with statives. The particular differences among the two languages thus follows compositionally from the central difference in the forms the two languages employ for the perfect.

Iatridou proposes that the Perfect can be viewed as a temporal existential, exploring the parallelism between the nominal and the temporal domain. In particular she investigates the syntax and meaning of sentences such as *It has been five years since I saw him*, which she calls the “since-construction”. She pursues the hypothesis that at a certain level ‘since constructions’, which she labels “temporal amount existentials”, are similar to a “nominal amount existential” interpretation. Iatridou further argues that the

Existential Perfect is the counterpart of the individual existential interpretation found in the nominal domain.

Iatridou, Anagnostopoulou & Izvorski establish how certain aspects of the meaning of the Perfect are composed from the elements present in its morpho-syntactic representation. The paper has become one of the classics for motivating the XN-semantics for the Perfect. In investigating the question of in what part of the tree the syntactico/semantic features of the Perfect lie, it is argued that the full range of meanings of the Perfect remain with the participle. This was testable in languages whose Perfect auxiliary is "be". In languages whose Perfect auxiliary is "have" the separation was not possible. The concern is that maybe what is blocking the separation of the participle from "have" is that "have" has semantic Perfect-related content and therefore one could not form a Perfect without "have". In such a scenario, the participles of "have" languages (or "have" verb classes) are less contentful than the participles of "be" languages (and "be" verb classes).

Katz argues that the English perfect is a stative predicate, that is that the temporal semantics of a predicate such as *have left* or *have eaten lunch* is much like that of predicates such as *love coffee* or *be hungry*. This is shown to have wide-ranging empirical consequences, from the interpretation of modal verbs to the restriction on progressives of perfects to the temporal presuppositions associated with interpreting narrative discourse. Although the stativity of the perfect follows directly from its being interpreted as a Priorian relative-past operator, the direct application of standard tests for stativity, such as those of Dowty, is not at all straightforward. Much of the paper is concerned with a careful separation of the various factors that go into determining the aspectual status of the perfect in the context of Dowty-style stativity tests. In this context, the perfect is seen to be both non-agentive and to have the subinterval property. Syntactically, the perfect is taken to head a second aspectual projection, its stativizing effect being much like that associated with sentential negation. Additionally, the relationship between *since*-adverbials, perfects and statives is also addressed. It is claimed that these adverbs do not always modify the perfect predicate.

Moser sets out to determine a "basic" meaning of the Greek perfect in the sense of one that can account for all the other meanings or uses, without necessarily being the most frequent or even the most salient. Her contribution has a strong historical bias, in that it aspires for its findings to also be consistent with the history of the Greek perfect from the *Koine* onwards. Moser emphasizes *anteriority* as the most salient component of the meaning of the Greek Perfect.

Musan investigates German present perfect clauses that contain *seit*-adverbials; these often trigger a close connection between the VP-situation time of the clause and the time of utterance. This may suggest that the se-

mantics of the present perfect connects the VP-situation time to the time of utterance – a view that has been argued for in extended now theories of the present perfect. The paper argues, however, that the present perfect is neutral with regard to the temporal distance between the time of utterance and the VP-situation; the close connection between them is due to the semantics of the German preposition *seit* (‘since’). More specifically, it introduces a time interval whose right edge connects to the tense time of its clause. This, combined with the semantics of the present perfect, causes the secondary effect of the VP-situation time often showing a close connection to the time of utterance in present perfect clauses.

Pancheva proposes a version of the Extended Now view of the perfect. The perfect makes a reference to a time interval – the Perfect Time Span – whose final subinterval is the interval of evaluation, and locates an eventuality in this time interval. How exactly the eventuality is temporally located relative to the PTS is determined by viewpoint aspect embedded in the perfect. Four different viewpoint aspects are identified of relevance for the perfect ambiguities. [UNBOUNDED] presents the interval at which the underlying eventuality holds as a superset of the reference interval. When embedded in the perfect, [UNBOUNDED] determines the Universal reading. [BOUNDED] properly includes the event time in the reference interval; accordingly, its presence under a perfect contributes to the Experiential interpretation. This type of Experiential is such that the underlying eventuality is asserted not to obtain at the reference interval (the utterance time in matrix clauses). Another Experiential reading, where this restriction does not obtain, is the result of the presence of [NEUTRAL] in the composition of the perfect. This viewpoint aspect locates only the beginning part of the eventuality, without making any claims about completion, both when embedded under a perfect and independent of it. Finally, [RESULTATIVE] is a viewpoint aspect that selects for telic events and presents their result state as overlapping with the reference interval and continuing beyond it. She further proposes that the availability of perfect readings cross-linguistically is principled and determined on the basis of the selectional properties of the perfect.

Paslawska & Stechow criticize *Schoorlemmer’s* (1995) claim that in Russian the reference and the event time never overlap if the verb has perfective morphology. They argue that the temporal system of Russian is not very different from that found in English or German. The difference is that the Russian verb exhibits *have*-perfect readings (e.g. pluperfect and future perfect readings) despite the fact that it doesn’t have *have*-perfect morphology. Perfective morphology licenses the perfective viewpoint aspect or the perfect viewpoint aspect. The latter may occur with imperfective morphology as well. Passive past participles are interpreted as *be*-perfects. Russian syntax is similar to that of Modern Greek in so far as it

admits for agents, subjective oriented adverbs and all sorts of temporal adverbs in *be*-perfects. The authors present the outlines of formal T/A/A-system for Russian, which distinguishes telic and atelic verbal roots and builds up aktionsarten compositionally, including the delimitative aktionsart.

Rathert discusses the German Perfect, durative adverbs and Extended-Now-adverbs (*schon oft*, *schon immer*). She argues that Extended-Now-adverbs question the traditional Reichenbachian/ Proirian Perfect-semantics and that Extended-Now-Theory is more apt. She discusses the universal/existential ambiguities connected to durative adverbs; there are actually two different ambiguities. The “simple” one is associated with *lang* and *for*. *John has been in Boston for two weeks* is ambiguous between the two weeks being somewhere in the past (the e-reading) and the two weeks being in the past but abutting speech time (the u-reading). *Rathert* analyzes this in terms of underspecification: somewhere within the Extended-Now-interval denoted by the Perfect, the event takes place. The “complex” u/e-ambiguity is associated with *bis*, *seit*, *until*, and *since*. *Rathert* shows with authentic corpus-data that this ambiguity exists with all durative adverbs and with all tenses, contrary to the literature. She analyzes it as a scope ambiguity of the durative adverb and a possibly covert frequency adverb.

Veloudis takes as a starting point the observation that possessive verbs are in many cases used for the expression of some aspect of the ‘it is the case’; cf. *I had a boring afternoon, taking this for granted, given that this is the case*, etc. This meaning-function relationship may be claimed to have undergone a further, and more interesting, metaphorical extension: construction ‘*have*’ + (nonfinite) complement, typical of the category ‘present perfect’, can be intuitively grasped as the ordinary mechanism for the expression of what is (considered to be) conversationally “possessed” or “given”. He argues in particular that this category has been designed to contribute to the moment of utterance in the following way: it expresses an inference which, being itself a sort of pragmatic premise for the context to follow, is considered to have its pragmatic premise(s), so to speak, in the universe of discourse, or, more generally, in the amount of knowledge the speaker shares (or considers as being shared) with his/her hearer. A number of relevant data, excerpts from Orwell’s *Animal Farm*, are presented and commented on in this connection. An attempt to consider the category ‘present perfect’ as an instance of Langacker’s ‘subjectification’ concludes the whole discussion.

Notes

1. The paper by Iatridou et al. in this volume deserves special mention. The paper consists one of the most comprehensive motivations for an ‘Extended Now’-analysis for the present perfect available at present. The paper is included here with the permission of MIT Press. The articles in this volume by Arosio, Rathert, and Fassi Fehri are more recent contributions.
2. The term *have*-perfect is really appropriate for English only and used for reasons of exposition. The relevant auxiliary is different in different languages. In German we find the auxiliaries ‘have’ and ‘be’, in Bulgarian and Ukrainian we have ‘be’ and so on.
3. This has been observed in Moens and Steedman (1988).
4. * \square * means that the feature \square is subcategorised; + \square means that the head has that feature. The conventions are taken from Sternefeld (2000). “pp” stands for past participle.
5. e is the type of individuals, t is the type of truth-values, i is the type of times, v is the type of events.
6. Following Prior (1967). As to the \square -notation, we are following the conventions introduced in Heim and Kratzer (1998).
7. $\square(e)$ is the running time of e . This is a very crude approximation to the progressive aspect. The correct analysis involves modality; see Dowty (1979).
8. Dowty’s rule S41 is slightly more complicated. It contains an additional quantifier in the scope of the XN. The consequence would be that we need a different rule for the U-perfect.
9. Pancheva uses the term BOUNDED for PF. It is not so clear whether the feature [bounded] used in Iatridou et al. (this volume) has the same meaning. One of the purposes of the feature seems to be to characterize a nonstative aktionsart.
10. Dowty gives not semantics for *build*, but one for *make*, which has the analysis presented.
11. Kratzer doesn’t use the name TARGET but speaks of a stativizer.
12. There is another reading of this adverbial, which means “after \square time”. This reading requires either a stative or an achievement. In Russian, this reading is expressed by the preposition *erez*.
13. Consider the following dialogue: “I lose my glasses every week.” – “Did you lose them since Monday?” – “Yes, I have lost them since Monday.”

References

- Abusch, Dorit
 1997 Sequence of Tense and Temporal de re. *Linguistics and Philosophy* 20(1): 1-50.

- Ballweg, Joachim
1989 Preterite, (Present-)Perfect and Future. In *Tempus-Aspekt-Modus: die Lexikalischen und Grammatischen Formen in den Germanischen Sprachen*, Werner Abraham and Theo Janssen (eds.). Tübingen: Niemeyer.
- Bäuerle, Rainer
1979 *Temporale Deixis – Temporale Frage*. Tübingen: Narr.
- Bennett, Michael, and Barbara Partee
1978 *Toward the Logic of Tense and Aspect in English*. Bloomington, Indiana: Indiana University Linguistics Club.
- Chomsky, Noam
1957 *Syntactic Structures*. Den Haag: Mouton.
- Comrie, Bernard
1995 German Perfect and Präteritum: Speculations on Meaning and Interpretation. In *Grammar and Meaning*, Frank Robert Palmer (ed.), 148-161. Cambridge: Cambridge University Press.
- Dowty, David
1972 *Studies in the Logic of Verb Aspect and Time Reference in English*. Ms., Austin.
1979 *Word Meaning and Montague Grammar*. Dordrecht: Reidel.
1982 Tenses, Time Adverbs, and Compositional Semantic Theory. *Linguistics and Philosophy* 5:23-55.
- Ehrich, Veronika
1992 *Hier und Jetzt - Studien zur lokalen und temporalen Deixis im Deutschen*. Tübingen: Niemeyer.
- Fabricius-Hansen, Cathrine
1986 *Tempus fugit*. Düsseldorf: Schwann.
- Giorgi, Alessandra, and Fabio Pianesi
1997 *Tense and Aspect. From Semantics to Morphosyntax: Oxford studies in comparative syntax*. New York/ Oxford: Oxford University Press.
- Heim, Irene
1994 Comments on Abusch's theory of tense: Manuscript, MIT.
- Heim, Irene, and Angelika Kratzer
1998 *Semantics in Generative Grammar*. Oxford: Blackwell.
- Heny, Frank
1982 Tense, Aspect and Time Adverbials. *Linguistics and Philosophy* 5:109-154.

Herweg, Michael

- 1990 *Zeitaspekte. Die Bedeutung von Tempus, Aspekt und temporalen Konjunktionen*. Wiesbaden: Deutscher Universitätsverlag.

Iatridou, Sabine, Elena Anagnostopoulou, and Roumyana Izvorski

- 2001 Observations about the Form and Meaning of the Perfect. In *Ken Hale: A Life in Language*, Michael Kenstowicz (ed.), 189-238. Cambridge, Massachusetts: MIT Press. (reprinted in this volume)

Kamp, Hans, and Uwe Reyle

- 1993 *From Discourse to Logic*. Dordrecht: Kluwer.

Klein, Wolfgang

- 1992 The Present Perfect Puzzle. *Language* 68: 525 - 551.
1994 *Time in Language*. London, New York: Routledge.
1995 A time-relational analysis of Russian aspect. *Language* 71(4): 969-95.

Kratzer, Angelika

- 1978 *Semantik der Rede. Kontexttheorie - Modalwörter - Konditionalsätze*. Kronberg/Ts.: Scriptor.

- 2000 *Building Statives*: Berkeley Linguistic Society.

Krifka, Manfred

- 1989 *Nominalreferenz und Zeitkonstitution*. München: Fink.

McCawley, James D.

- 1971 Tense and time reference in English. In *Studies in Linguistic Semantics*, Charles J. Fillmore & Donald T. Langendoen (eds.), 97-113. New York: Holt, Rinhart and Winston.

McCoard, Robert W.

- 1978 *The English Perfect: Tense Choice and Pragmatic Inferences*. Amsterdam: North-Holland.

Mittwoch, Anita

- 1988 Aspects of English Aspect: On the Interaction of Perfect, Progressive and Durational Phrases. *Linguistics and Philosophy* 11:203-254.

Moens, Marc, and Mark Steedman

- 1988 Temporal Ontology and Temporal Reference. *Computational Linguistics* 14:15-27.

Montague, Richard

- 1973 The Proper Treatment of Quantification in English. In *Approaches to Natural Language. Proceedings of the 1970 Stanford Workshop on Grammar and Semantics*, J. Hintikka, J. Moravcsik & P. Suppes (eds.), 221-242. Dordrecht: Reidel.

Musan, Renate

- 2002 *The German Perfect. Its Semantic Composition and its Interactions with Temporal Adverbials*. Dordrecht: Kluwer.

Nerbonne, John

- 1984 German Temporal Semantics: Three-dimensional Tense Logic and a

- GPSG Fragment: The Ohio State University.
- Ogihara, Toshiro
1989 Temporal Reference in English and Japanese, University of Texas, Austin: Ph.D. Dissertation.
- Parsons, Terence
1990 *Events in the Semantics of English. A Study in Subatomic Semantics*. Cambridge MA: MIT Press.
- Partee, Barbara
1973 Some Structural Analogies between Tenses and Pronouns in English. *Journal of Philosophy* 70:601-609.
- Prior, A.
1967 *Past, Present, and Future*. Oxford: Oxford University Press.
- Radford, Andrew
1997 *Syntactic theory and the structure of English*. Cambridge: Cambridge University Press.
- Rapp, Irene
1998 Zustand? Passiv? — Überlegungen zum sogenannten "Zustandspassiv". *Zeitschrift für Sprachwissenschaft* 15.2: 231 - 265.
- Rathert, Monika
2003 Textures of Time. The interplay of the perfect, durative adverbs and Extended-Now-adverbs in German and English. PhD-dissertation, University of Tübingen.
- Reichenbach, Hans
1947 *Elements of Symbolic Logic*. London: Collier-MacMillan.
- Richards, Barry
1982 Tense, Aspect and Time Adverbials. *Linguistics and Philosophy* 5:59-107.
- Schoorlemmer, Maaïke
1995 Participial Passive and Aspect in Russian, Onderzoeksinstituut voor Taal en Spraak, Utrecht University: PhD Dissertation.
- Smith, Carlota
1991 *The Parameter of Aspect: Studies in Linguistics and Philosophy*. Dordrecht: Kluwer.
- Stechow, Arnim von
1982 Structured Propositions, Available as download on <http://vivaldi.sfs.nphil.uni-tuebingen.de/~arnim10/>: Arbeitsbericht des SFB 99 der Universität Konstanz.
- 2001 Temporally Opaque Arguments in Verbs of Creation. In *Semantic Interfaces [Reference, Anaphora, Aspect]*, Bruno Cecchetto, Genaro Chierchia, and Maria Teresa Guasti (eds.), 278-319. Stanford: CSLI.
- 2002 German *seit* 'since' and the ambiguity of the German Perfect. In *More than Words: A Festschrift for Dieter Wunderlich*, Barbara

- Stiebels and Ingrid Kaufmann (eds.), 393-432. Berlin: Akademie.
- Sternefeld, Wolfgang
2000 Syntax. Eine merkmalsbasierte generative Analyse des Deutschen.
Unpublished Manuscript.
- Taylor, Barry
1977 Tense and continuity. *Linguistics and Philosophy* 2:199-220.
- Thieroff, Rolf
1994 Perfect and pluperfect in German. In *Tense and Aspect in Discourse*,
Co Vet and Carl Vetters (eds.), 99-113. Berlin/ New York: de
Gruyter.
- Vendler, Zeno
1957 Verbs and Times. *The Philosophical Review* 66:143-160.
- Verkuyl, Henk J.
1972 *On the Compositional Nature of the Aspects*. Dordrecht: Reidel.

A

Abusch, Dorit xi
Aktionsart v, xv
aspect
 neutral xv
 resultative xv
 viewpoint v, xiv
aspect phrase (AspP) vii

B

Ballweg, Joachim xi
Bauerle, Rainer xi, xiii

C

Chomsky, Noam viii
Comrie, Bernard xi

D

Dowty, David xv
durative adverbs
 for xx
 in xx
 seit ('since') xxiii
 since xxi
 until xxiv

E

Ehrich, Veronika xi
existential perfect vi
EXPERIENTIAL PERFECT vi

F

Fabricius-Hansen, Cathrine xi

H

Heim, Irene x
Heny, Frank xi
Herweg, Michael xii

K

Klein, Wolfgang vi, xii
Kratzer, Angelika xi, xviii
Krifka, Manfred xvi

M

Musan, Renate xi

N

negation
 in Greek xxvi
Nerbonne, John ix

P

Partee, Barbara x
Perfect
 Anteriority-Theory xii
 Extended-Now-Theory xii
 interaction with different factors v
Perfect level adverbials xix
perfect phrase (PerfP) vii
pluperfect ix
Present x
Present Perfect Puzzle
 in English vi, ix
Prior, Arthur viii, x
progressive xii, xv

Q

quantized predicates xvi

R

Radford, Andrew viii
Rathert, Monika xxiii
reference time ix, xiv
Reichenbach, Hans ix
result(ant) states xvii
RESULTATIVE PERFECT vi
resultativity vi, xiv
Richards, Barry xi

S

Stechow, Arnim von xxiii

T

target states xvii

tense

 as a variable x

 as an operator x

tense phrase (TP) vii

Thieroff, Rolf xi

U

UNIVERSAL PERFECT vi

universal-existential ambiguities vi

 complex xxv

universal-existential ambiguity

 complex xxiii

V

Verkuyl, Henk xvi

