Universal-existential puzzles

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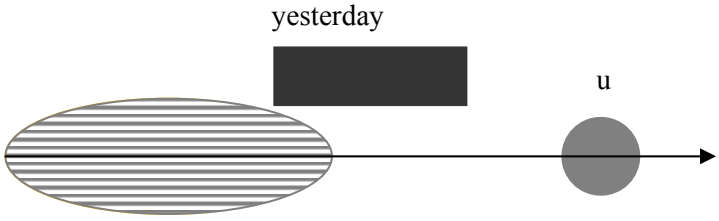
1. The data

German Perfect sentences with durational phrases are (often) ambiguous between a universal (or 'u') and an existential (or 'e') reading. There are two different kinds of this u/e-ambiguity: a complex and a simple one, cf. also the article of Iatridou et al. in this volume.

Let us start with the complex u/e-ambiguity. Cf. the following examples and the corresponding illustrations:

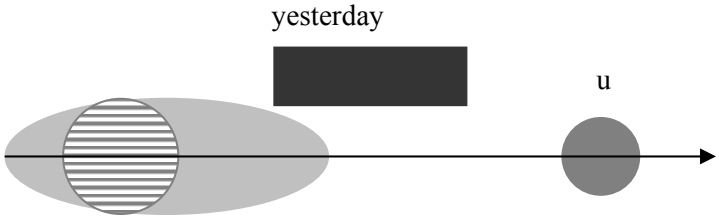
(1) *complex u/e-ambiguity:* bis *('until') and* seit *('since')*
example: *John ist bis/ seit gestern im Garten gewesen.*
John is until/ since yesterday in garden been
'John was in the garden until/?since yesterday.'
u-reading: There is a time that ended/ started in yesterday, and John was in the garden *throughout* that time
e-reading: There is a time that ended/ started in yesterday, and J. was in the garden *at least once* during that time

(2) u-reading of (1):



bis-interval = be-in-garden-interval

(3) e-reading of (1):



bis-interval ⊃ be-in-garden-interval

While everybody gets the u-reading of the complex u/e-ambiguity, the e-reading is often doubted (as a linguistic invention). But cf. these natural data I gathered from COSMAS (http://corpora.ids-mannheim.de/~cosmas):

(4) Die etwa 1,70 Meter große Brillenträgerin sei schlank, habe blonde, dauergewellte Haare und blaue Augen. Sie spreche rheinische Mundart. *Wer Hinweise auf den gegenwärtigen Aufenthaltsort von Ingeborg Wolf geben kann oder sie seit Montag mittag gesehen hat, wird gebeten, sich unter der Telefonnummer 17 40 mit der Kriminalpolizei in Verbindung zu setzen.* [Mannheimer Morgen, 16.09.1989]

Wer [...] Ingeborg seit Montag mittag gesehen hat [...].
who Ingeborg since Monday afternoonseen has
'Anyone who has seen Ingeborg since Monday afternoon [...].'

(5) Überall im Schlachtraum des Dorfgemeinschaftshauses türmen sich die Bestandteile zerlegter Borstentiere. *Zweieinhalb Schweine aus Fauerbach in der Wetterau hat Bach seit Montag fachmännisch zerlegt.* Jetzt kocht eine Menge davon im großen Topf, liegt in Eimern oder steckt bereits in Gläsern, fertig zum Verkauf. [Frankfurter Rundschau, 10.12.1998]

Zweieinhalb Schweine [...] hat Bach seit Montag [...]
two-and-a-half pigs has Bach since Monday

zerlegt.
cut-up

'Since Monday Bach has cut up two and a half pigs.'

(6) *Bei neuen Zusammenstößen in der südserbischen Provinz Kosovo sind seit Montag mindestens 20 Menschen getötet worden.* Das albanische Kosovo-Informationszentrum berichtete aus der Provinzhauptstadt Pristina von "Massakern" und "brennenden Dörfern". [Frankfurter Rundschau, 20.05.1998]

Bei [...] Zusammenstößen sind seit Montag mindestens 20
during fights have since Monday at-least 20

Menschen getötet worden.
people killed been

'At least 20 people have been killed since Monday during fights.'

Let us now continue with the simple u/e-ambiguity. Look at the following example:

(7) *simple u/e-ambiguity:* lang *('for')*
example: *John ist zwei Wochen lang in Boston gewesen.*
John is two weeks for in Boston been
'John has been in Boston for two weeks.'
u-reading: The two weeks of John's stay in Boston are *immediately before speech time (or 'S')*
e-reading: The two weeks of John's stay in Boston are *somewhere in the past of S*

2. Questions to be addressed

There are three questions I want to clarify in this paper.

The universal and existential Perfect-readings raise again the question of the Perfect-semantics itself. The first question I want to clarify is this: *What is the semantics of the Perfect?*

Connected to this is an empirical issue that has consequences for the semantics of the duratives. My second question is this: *Are the u/e-ambiguities really limited to the Perfect?*

Bringing the things found so far together, the most natural question to ask is surely the following one: *How to analyze the u/e-ambiguities?*

3. Previous approaches

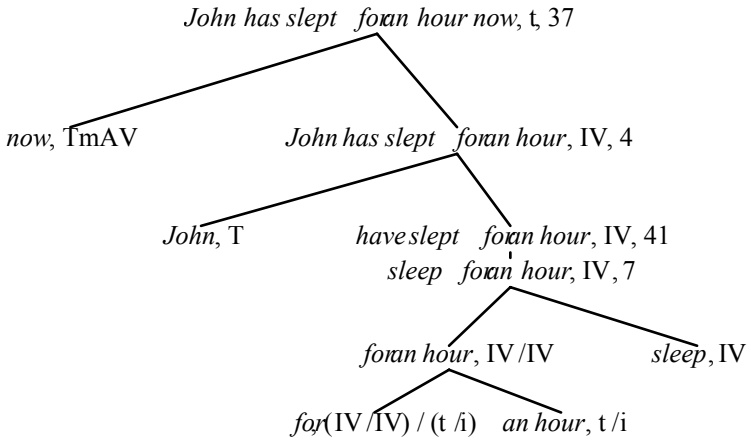
3.1. Simple u/e-ambiguity: Dowty (1979)

Dowty begins his account with this meaning rule:

(8) *for* ($\in P_{(IV/IV)/(t/i)}$) translates into $\lambda P_t \lambda P \lambda x [P_t\{n\} \& \Lambda t[t \subseteq n \rightarrow AT(t, P\{x\})]]$ (Dowty (1979, p.333))

Let us look at an example-derivation of his. The starting point is the following tree:

(9)



These are the syntactic rules you need for the calculation:

(10) *S4, the rule for subject plus predicate.* F (α,β) = α β', where β' is the result of replacing the first verb of β by its 3rd person singular form

(11) *S7, the rule for sentence complement.* F (α,β) = α β, the argument is placed to the right of the functor

(12) *S37, the rule for Present tense plus adverb.* F (α,ϕ) = $\phi\alpha$. The interpretation is: $\alpha'(\hat{}t\ [PRES(t) \& AT\ (t, \phi')])$

(13) *S41, the rule for Perfect without adverb.* F (α) = have α', where α' is the result of changing the first verb in α to a past participle form. The interpretation is: $\lambda x V t_1[XN(t_1) \& V t_2[t_2 \subseteq t_1 \& AT\ (t_2, \alpha'(x))]]$ ("V" is the existential quantifier and "Λ" is the universal one)

The semantic translation of the tree is:

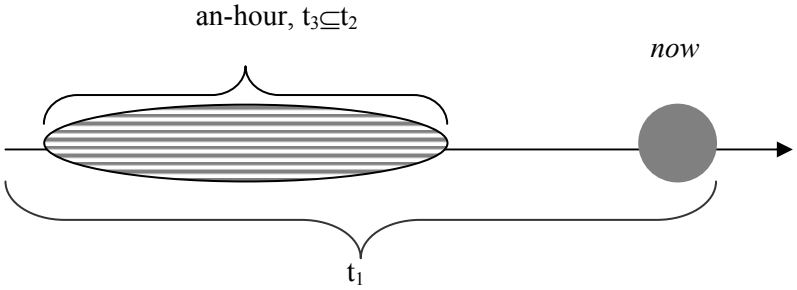
(14) now'($\hat{}t\ [PRES(t) \& AT\ (t, \phi')]$), $\phi' = V t_1[XN(t_1) \& V t_2[t_2 \subseteq t_1 \& AT\ (t_2, \alpha'(j))]]$, $\alpha' = [an\text{-}hour'\ (t_2) \& \Lambda t[t \subseteq t_2 \rightarrow AT(t, sleep'(j))]]$ (n-elimination has already applied, cf. Dowty (1979, p.333)) $\Rightarrow$

[PRES(now') & AT (now', ϕ')], $\phi' = Vt1[XN(t1) \& Vt2[t2 \subseteq t1 \& AT\ (t2, \alpha'(j))]]$, $\alpha' = [an\text{-}hour'\ (t2) \& \Lambda t[t \subseteq t2 \rightarrow AT(t, sleep'(j))]]$ (I inserted now') $\Rightarrow$

[PRES(now') & AT (now', Vt1[XN(t1) & Vt2[t2 ⊆ t1 & AT (t2, α'(j))]])], α' = [an-hour' (t2) & Λt[t⊆t2 → AT(t, sleep'(j))]] (I inserted ϕ') ⇒
[PRES(now') & AT (now', Vt_1[XN(t_1) & Vt_2[$t_2 \subseteq t_1$ & AT (t_2, [an-hour' (t_2) & Λt_3[$t_3 \subseteq t_2$ → AT(t_3, sleep'(j))]])]])], (I inserted α') ⇒
[PRES(now') & AT (now', Vt_1[XN(t_1) & Vt_2[$t_2 \subseteq t_1$ & an-hour' (t_2) & Λt_3[$t_3 \subseteq t_2$ → AT(t_3, sleep'(j))]]])], (I applied AT-elimination, cf. Dowty (1979, p.334))

The illustration below illustrates the outcome:

(15)



This looks immediately OK for the e-reading of the simple u/e-ambiguous sentence *John has slept for an hour now*. Remember the simple u/e-ambiguity:

(16) *John has slept for an hour.*
a) u-reading: the hour of John's sleeping is *immediately before now*
b) e-reading: the hour of John's sleeping is *somewhere in the past of now*

Dowty (1979, p.343 f.) says that he doesn't want to account for the u-reading in terms of underspecification. Underspecification would simply mean that the exact localization of the interval in the illustration is not fixed. If the interval is beside *now*, we get the u-reading. If the interval is separated from *now*, we get the e-reading.

Dowty doesn't want this solution. Instead, he advocates lexical ambiguity - there are two different *for*-adverbs. And, in addition to this: an additional Perfect-rule is needed, because the 'new' *for* is of another syntactic category. Thus, what Dowty needs for the e-reading is the following:

(17) = (8) *for*^{1} ($\in P_{(IV/IV)/(t/i)}$) translates into $\lambda P_t \lambda P \lambda x$ [$P_t\{n\}$ & $\Lambda t[t \subseteq n \rightarrow AT(t, P\{x\})]$] (Dowty (1979, p.333))

(18) = (13) *S41, the rule for Perfect without adverb.* F (α) = have α', where α' is the result of changing the first verb in α to a past participle form. The interpretation is: $\lambda x V t_1[XN(t_1)$ & $V t_2[t_2 \subseteq t_1$ & AT (t_2, $\alpha'(x))]]$

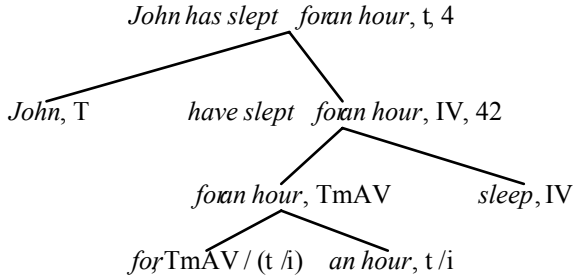
And what he needs for the u-reading is this:

(19) *for*^{2} ($\in B_{TmAV/(t/i)}$) translates into $\lambda P_t \lambda Q_t V t_1[XN(t_1)$ & $P_t\{t_1\}$ & $\Lambda t_2[[t_2 \subseteq t_1$ & $XN(t_2)] \rightarrow Q_t\{t_2\}]]$ (Dowty (1979, p.344))

(20) *S42, another rule for Perfect without adverb.* F (α,β) = have β' α, where β' is the result of changing the first verb in β to a past participle form. The interpretation is: $\lambda x[\alpha'(\hat{}t[XN(t)$ & AT (t, $\beta'(x))])]$ (Dowty (1979, p.344))

We already saw the e-reading, let us have a short look at the u-reading as well:

(21)

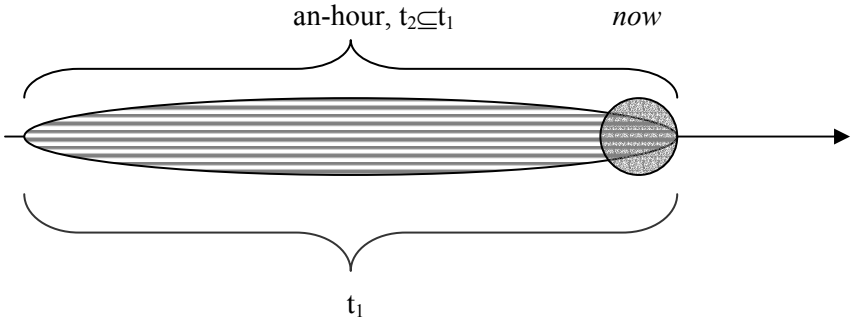


This gets the translation:

(22) $\lambda Q_t V t_1[XN(t_1)$ & an-hour'(t_1) & $\Lambda t_2[[t_2 \subseteq t_1$ & $XN(t_2)] \rightarrow Q_t\{t_2\}]]$,
$Q_t\{t_2\}$ = $[XN(t_2)$ & AT (t_2, sleep'(j))])] (n-elimination, AT-elemination) $\Rightarrow$
$V t_1[XN(t_1)$ & an-hour'(t_1) & $\Lambda t_2[[t_2 \subseteq t_1$ & $XN(t_2)] \rightarrow [XN(t_2)$ & AT (t_2, sleep'(j))]]] (I inserted $Q_t\{t_2\}$)

Cf. the following illustration:

(23)



This indeed is the u-reading. What makes Dowty propose such an ad hoc solution (notice not only the proliferation of rules but also the doubling of the XN in the final formula) is the fact that preposed *for*-adverbs only show the u-reading:

(24) *For four years, John has lived in Boston.*

According to Dowty (1979, p.343) (and many others), this only shows the u-reading. Notice that the 'first' *for*-adverb cannot be proposed as it is of the 'wrong' syntactic category. What we need is TmAV, like *now*.

In sum, my comment on Dowty (1979) is the following. As for the simple u/e-ambiguity associated with *for*, it looks unsatisfactory to stipulate not only two different *for*-adverbs but also two different Perfects. However, one has to keep in mind that Dowty does so because he believes that sentences with preposed *for*-adverbs allow only the u-reading.

3.2. Complex u/e-ambiguity: Mittwoch (1988) & Dowty (1979)

3.2.1. Mittwoch (1988)

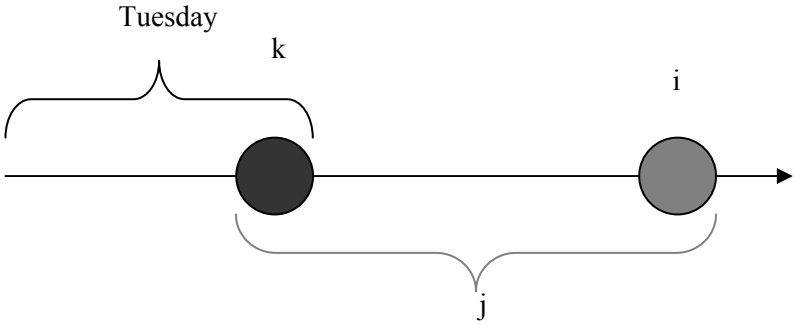
To explain the complex u/e-ambiguity arising with *since,* Mittwoch proposes a lexical ambiguity of both *since* and the Perfect. These are her proposals:

(25) SINCE^{U} Tuesday (Have^{U} (A)) is true in M relative to (w,i) iff i is the final moment of an interval j and there is an interval k such that k is a final subinterval of Tuesday and the initial proper subinterval of j and A is true in M relative to (w,j), where A is interpreted as a state

(26) SINCE^{E} Tuesday (Have^{E} (A)) is true in M relative to (w,i) iff i is the final moment of an interval j and Tuesday is the initial lower boundary interval of j, and for some subinterval k of j A is true in M relative to (w,k)

Note that in both rules, the meanings of the Perfect and the durative are given together, i.e., there is no independent meaning rule for either the Perfect or for the durative. Let us see the applications:

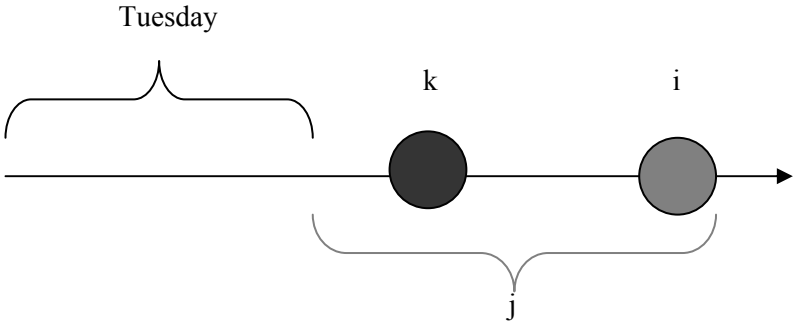
(27) *John has been ill since Tuesday.* (u-reading, rule (25) applies)



This looks OK. The time j of the illness starts in a Tuesday and ends at speech time.

Now let us test the rule for the e-reading:

(28) *John has been to Paris since Tuesday.* (e-reading, rule (26) applies)



This also looks OK. The trip is located in an interval starting after a past Tuesday and ending at speech time.

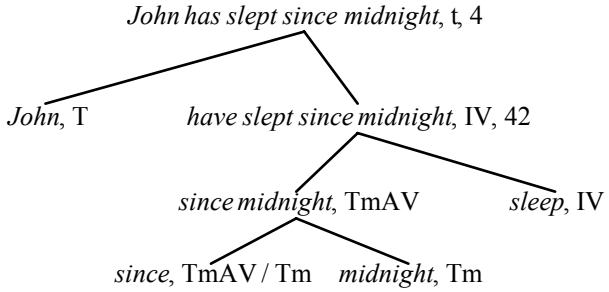
To summarize my comments on Mittwoch (1988): with regard to semantic compositionality, it is certainly a disadvantage of the theory to analyze the complex u/e-ambiguity syncategorematically.

3.2.2. Dowty (1979)

Dowty (1979, p.348) notices the existence of the complex u/e-ambiguity with *since*, but he admits he has no solution. Dowty only has a proposal for the u-reading. Cf. the following meaning rule for *since* and the tree for the u-reading:

(29) *since* ($\in B_{TmAV/Tm}$) translates into $\lambda P_t \lambda P_t P_t\{\hat{}t_1[\Lambda t_2[[t_1 < t_2 \ \& \ XN(t_2)] \rightarrow P_t\{t_2\}]]\}$ (Dowty (1979, p.344))

(30)

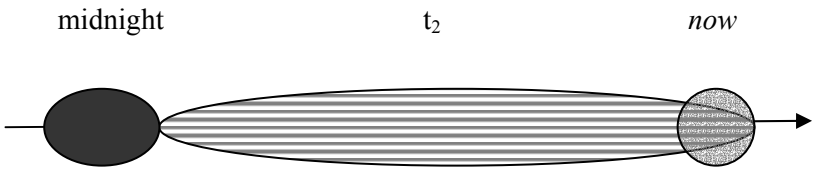


This gets the translation:

(31) $\Lambda t_2[[\text{midnight}' < t_2 \ \& \ XN(t_2)] \rightarrow [XN(t_2) \ \& \ AT(t_2, \text{sleep}'(j))]]$

Cf. the following illustration:

(32)



This indeed is the u-reading of the complex u/e-ambiguity in the case of *since*. John sleeps in the indicated interval.

In sum, my comment on Dowty (1979) is the following. It is a little unsatisfactory that Dowty can only account for the u-reading. But Dowty (1979. p.348) insinuates that an accomodation of the e-reading would be possible if *since*, like *for*, were lexically ambiguous. However, this way out seems "suspicious" to Dowty, and I agree with this judgement. Notice,

finally, that both the u-reading of *for*- and the u-reading of *since*-sentences are strange in that they involve a doubling of XN in the formulas.

4. Towards a proposal (cf. Rathert (2003))

4.0. Framework: the simple extensional language EL

As for the types of EL, I only assume i (times) and t (truth values). The operations allowed are lambda-abstraction and functional application. This is the model for EL:

(33) model for EL: <{0;1}, <T, ⊆, ⊂, =, l-abuts, r-abuts, <, s*>, F>; elements of T: intervals, defined relations: subset-relations "⊆" and "⊂", identity-relation "=", left-abutting-relation "l-abuts", the right-abutting-relation "r-abuts" and "<" (t<t' iff every element of t is before every element of t'); s* is speech time; F is the interpretation-function for constants

4.1. Answering the first question: what is the semantics of the Perfect?

Adverbs like *schon oft* and *schon immer* are the only adverbs in German which are not compatible with the traditional Reichenbach-semantics for the Perfect, namely that in (34):

(34) E<R & S,R

Cf. the following data:

(35) *Ich habe mir schon immer ein Fahrrad gewünscht.*
I have me already always a bike wished
'I always wanted a bike.'

(36) * *Ich wünschte mir schon immer ein Fahrrad.*
I wished me already always a bike
'I always wanted a bike.'

Adverbs like *schon immer* are not compatible with a Reichenbachian Perfect-semantics because this semantics says that E is before R. But *schon immer* demands that E abut R.

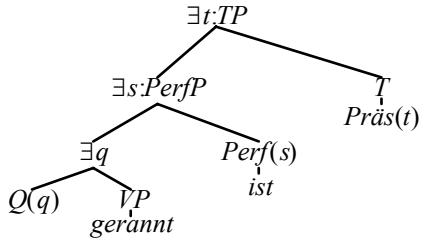
Note that you cannot elegantly solve the problem in a refined Reichenbachian framework like Musan (2000) (cf. also Musan's article in this vol-

ume) in which you have something like E |< R & S,R. E |< R means "E<R or E abut R". This boils down to assuming an ambiguity.

In my system, the Perfect establishes the *Extended Now*, i.e. a left-infinite interval $(-\infty,m)=\{n \mid n \leq m\}$, for points of time m,n. The infinity of the interval is e.g. in accordance with Abusch (1996). But this is just an assumption, there are no empirical nor theoretical arguments in favor or against the infinity of the *Extended Now*.

Now, the facts follow: adverbs like *schon immer* select an *Extended Now*-interval, which is the reason why they cannot occur with the Preterite. When the Perfect is equivalent in meaning to the Preterite, I also assume an Extended Now because I get the Anteriority-readings for free: they come about via a phonological empty quantificational or frequency adverb Q, cf. the following tree for *Er ist gerannt* 'he has run':

(37)



(38) a. F(Pres)(t)(p)=1 iff t=s* & p(t)=1. Type: <i,<<i,t>,t>>
F(Perf)(t)(p)(v)=1 iff t⊃⊂v & p(t)=1. Type: <i,<<i,t>,<i,t>>>
F(Q)(t)(p)(w)=1 iff t⊆w & p(t)=1. Type: <i,<<i,t>,<i,t>>>
F(VP)(x)=1 iff VP is true at time x. Type: <i,t>

b. This yields for the tree: $\exists u \in D_i$. u=s* & $\exists v \in D_i$. v⊃⊂u & $\exists x \in D_i$. x⊆v & VP is true at time x.

4.2. Answering the second question: are the u/e-ambiguities really limited to the Perfect?

I believe that the answer is "YES" in the case of the simple u/e-ambiguity, but I won't go into this here (but see Hitzeman (1997) for a different point of view)

I will show that the answer is "NO" with the complex ambiguity. This is not in accordance with the literature. All previous work I know claims that the complex u/e-ambiguity depends on the Perfect: Stechow (2002), Dowty (1979), Fabricius-Hansen (1986), Mittwoch (1988), Iatridou et al. (2001).

As the u-reading is always clear, it has to be shown that the e-reading exists. To check this, I did some corpus-research for durative adverbs in my

dissertation. Let us look here only at *seit*; it turned out that e-readings exist not only with Perfect and Pluperfect, but with Preterite as well. Here are two examples:

(39) Tornados gab es auch in Nebraska und South Dakota. *Die Schäden, die die Wirbelstürme seit Montag anrichteten, könnten mehrere hundert Millionen Dollar betragen.* In Oklahoma und Kansas waren nach offiziellen Angaben mindestens 43 Menschen umgekommen und etwa 650 verletzt worden. [Mannheimer Morgen, 06.05.1999]

Schäden, die die Wirbelstürme seit Montag anrichteten [...].
damages which the cyclones since Monday caused
'the damages which have been caused by the cyclones since Monday [...].'

(40) In der Region westlich von Grosny sollen den Russen bis zu 1 000 Rebellen Dudajews gegenüberstehen. *Nach russischen Angaben starben seit Montag zwei russische Soldaten, 22 wurden verwundet.* Unabhängige Berichte gab es dazu nicht. [Mannheimer Morgen, 20.03.1996]

Nach russischen Angaben starben seit Montag zwei
after Russian information died since Monday two

russische Soldaten.
Russian soldiers

'according to Russian information, two Russian soldiers have been killed since Monday.'

Stechow (2002), who discusses *seit*-data in detail, says that e-readings with Preterite-sentences containing *seit* can only be instances of "Ersatzpräteritum" (Latzel (1977)), and he mentions some data illustrating this. But notice that the examples above have nothing to do with "Ersatzpräteritum". Thus, I don't agree with von Stechow in this issue.

But I absolutely agree with Stechow (2002) when he says that e-readings with the Present do not occur. Data that at first sight seem to display e-readings turn out to be better described as stative in character (either habitual or progressive), i.e., as universal readings. One example from my corpus my illustrate the point:

(41) *Der Jungmanager steckt den Kopf nicht in den Sand und führt seit Montag Gespräche mit Moderator Ulrich Meyer (unser Bild), der*

auch in Personalunion für den Posten des Chefredakteurs und Anchorman in Frage kommt. [Mannheimer Morgen, 11.10.1994]

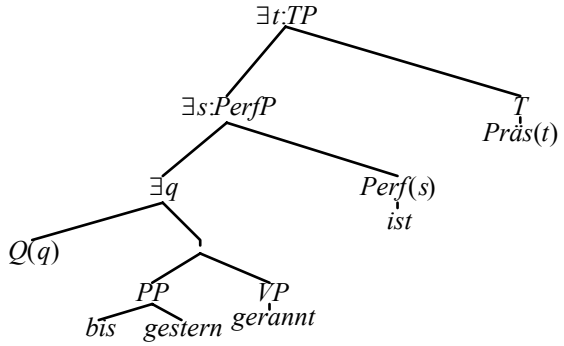
Der *Jungmanager [...]* *führt* *seit* *Montag* *Gepräche.*
the young-manager leads since Monday talks
'the young manager is leading discussions since Monday.'

4.3. Answering the third question: how to analyze the u/e-ambiguities?

4.3.1. Analysis of the complex u/e-ambiguity

This is the tree for the u-reading:

(42)

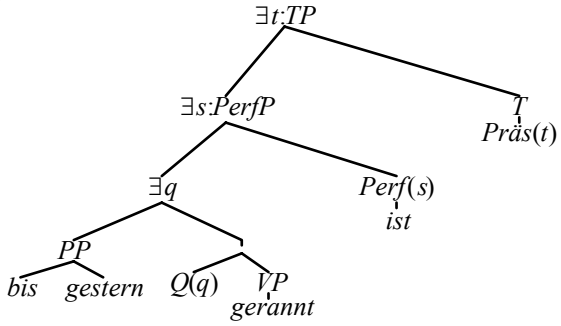


(43) a. F(bis)(x)(p)(w)=1 iff ∃o ∈ D_i . end(o)⊆x & o⊆w & p(o)=1.
Type: <i,<<i,t>,<i,t>>>
F(gestern)=the day before the day including s*. Type: i

b. This yields for the tree: ∃u ∈ D_i. u=s* & ∃v ∈ D_i. v⊃⊂u & ∃x ∈ D_i. x⊆v & ∃o ∈ D_i . end(o)⊆the day before the day including s* & o⊆x & VP is true at time o.

And this is the tree for the e-reading:

(44)



(45) This yields for the tree: $\exists u \in D_i$. u=s* & $\exists v \in D_i$. $v \supset\subset u$ && $\exists o \in D_i$. end(o)$\subseteq$the day before the day including s* & o$\subseteq$v & $\exists q' \in D_i$. q'$\subseteq$o & VP is true at time q'.

Similarly, the ambiguities *seit* is involved in can be analyzed. But notice that this doesn't work for *seit* if combined with the Present as the Present is taken to denote a point: Neither scoping of durative and quantificational adverb is possible. The solution sketched so far is an impasse with regard to *seit* + Present.

The way out of the impasse might be the following. In a lot of data with *seit* + Present I found not *seit* but *schon seit*. At first I threw these data out because I thought they were about another adverb. But then I regarded this as a hint:

(46)

normal *seit*	*seit* as a shortcut for *schon seit*
- combines with Preterite, Perfect, Pluperfect - does not combine with the Present because you cannot locate a *seit*-interval within the point of speech time - interacts with Q(q) and thus gives rise to the complex u/e-ambiguity	- combines with Preterite, Perfect, Pluperfect, and Present - does combine with the Present because it introduces an Extended-Now that includes speech time - doesn't interact with Q(q), thus no complex u/e-ambiguity, but only u-readings

A test for this proposal is to check *seit*-data that show e-readings with *schon seit*. The insertion of *schon* shouldn't be possible according to my assumptions. Indeed, the sentences in question get ungrammatical:

(47)= (40) *Nach russischen Angaben starben **seit Montag** zwei russische Soldaten*

(48) **Nach russischen Angaben starben **schon seit Montag** zwei russische Soldaten*

Another test is to insert into into *seit*+Present a *schon* and see if the meaning changes. It shouldn't change anything, and this is what we find:

(49)=(41) *Der Jungmanager [...] führt **seit Montag** Gepräche*

(50) *Der Jungmanager führt **schon seit Montag** Gepräche*

4.3.2. Analysis of the simple u/e-ambiguity

I think the search for a scope solution for the simple ambiguity is a red herring. Remember Dowty's (and nearly all other researchers') claim that preposed *for*-adverbs only show the u-reading:

(51) *For four years, John has lived in Boston.*

Although very suggestive at first sight, I believe this claim is empirically inadequate. To my knowledge, Abusch and Rooth (1990) were the first to challenge this wide-spread claim. Abusch and Rooth (1990, p.12) suggest that, i.e. in the context of a sleeping experiment, the following sentence may have both an e- and a u-reading:

(52) *For two hours, John has been asleep.*

Abusch & Rooth's claim has, to my knowledge, found not much support in the literature. To check the claim, I examined some natural data from the web. The search, simply done with http://www.google.de, was for sentence-initial *for*-adverbs. And indeed, I found many nice examples of the Abusch-&-Rooth-kind proving that there is no correlation between preposing and u-reading. I found many examples of e-readings with preposed *for*-adverbs. Cf. the following, where the *for*-sentence in question is underlined.

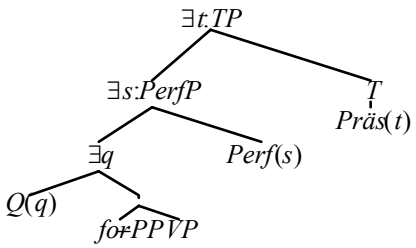
(53) To say I am frustrated with the problem of school lunches is just not going to cut it. I am positively erupting... and ash and lava are everywhere. My son started high school this year. I had heard someone say that this school had some healthy choices. NOT!!! *For two weeks*

> *he has eaten tacos without cheese, chicken nuggets and fries.* His other choices were popcorn shrimp and onion rings and sodas. This not only costs too much ($4) but is death food. A couple of years ago I called the man who oversees the buying and planning of all the school lunches. He claims that fast food is what kids get at home, and if kids are going to buy the school lunches, he needs to supply them with food they know and will buy. He claims that if he served them healthier food that the food service couldn't sustain itself because not enough kids would buy lunch. I suggested he might offer baked potatoes, rice, choices without cheese, and grilled meats and vegetables. And for about a month I saw changes on the menu. Then, back to the worst.
>
> (source: http://www.healthyawareness.com/_Archives/_cdisc1/000022b.htm)

The two weeks of unhealthy food cannot abut speech time because after these weeks the mother contacted "the man who oversees the buying and planning of all the school lunches". And even after this, "for about a month I saw changes on the menu. Then, back to the worst" (these are the last two sentences).

Thus, the following delivers the desired result, where the semantics of *for* may be in the spirit of Dowty (1979), although against Dowty's intentions so to speak:

(54) $\exists u \in D_i.\ u=s^* \ \&\ \exists v \in D_i.\ v \supset\subset u \ \&\ \exists x \in D_i.\ x \subseteq v \ \&\ dur(x)=2weeks \ \&\ \forall x' [x' \subseteq x \rightarrow VP(x')=1]]]$



5. Outlook

The adverbs corresponding to *seit* and *bis* in English are *since* and *until*. It would be too nice if they behaved alike. Everybody knows they don't, but up to now I've been hiding this fact. So, the question is: can the analysis be carried over to English?

An Extended-Now-meaning of the English Perfect is widely accepted. Insofar, the analysis carries over.
Until and *since*: both display the u/e-ambiguity (for *until* this hasn't received much attention, though). But mind the Present Perfect Puzzle. It is also valid for *until*, although it is not true that this adverb cannot combine with the Perfect at all (but see Giannakidou's paper in this volume for a different point of view). It combines with vague or, to speak with Klein, p-indefinite expressions

Thus, the only obstacle is this Puzzle. My considerations about this go along the lines of Klein: If the Perfect is used for an event in the past, only p-indefinite expressions may be used.
The difference to Klein is that I don't ascribe some definiteness to the Perfect itself, so that there are clashes in p-definiteness. This is important in the treatment of *since*, the behavior of which should be a problem for Klein as far as I can see. *Since*, if combined with the Perfect (and this is grammatical) should be predicted as ungrammatical as "*since* NP" makes TSit p-definite, and the Perfect does the same for TT. This is the forbidden case.

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