

**The Perfect Time Span and the ‘Present Perfect Puzzle’:  
Pancheva & von Stechow (2004) and Rothstein (2008)**

**1. Another Advantage of ‘Perfect Time Span’ Semantics: The ‘Present Perfect Puzzle’**

**(1) The Present Perfect Puzzle (Pancheva & von Stechow 2004)**

- In English (and some other languages), the present perfect is not compatible with ‘specific’ past time adverbs (e.g. *yesterday*).
- However, pluperfects and non-finite perfects are.
  - a. \* Dave **has** left yesterday.
  - b. Dave **had** left yesterday.
  - c. It’s possible for Dave to **have** left yesterday.
  - d. Dave must **have** left yesterday.

**(2) Perfect Time Span Semantics for [PERF]**

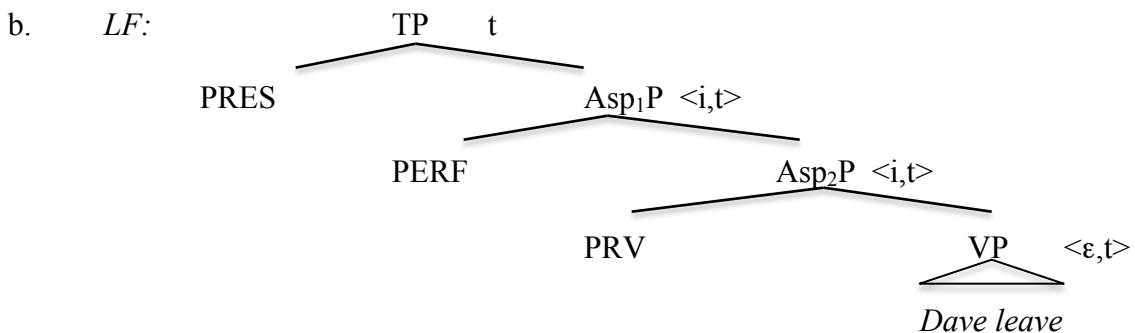
- a.  $PTS(t', t) = t$  is a final subinterval for  $t'$
- b.  $[[ \text{PERF} ]]^{w,t,g,c} = [ \lambda P_{\langle i,t \rangle} : [ \lambda t' : \exists t'' . PTS(t'', t') \ \& \ P(t') ] ]$

**(3) Semantics for *Yesterday***

$[[ \text{yesterday} ]]^{w,t,g,c} = [ \lambda t' : t' \subseteq \text{the day preceding } c(\text{time}) ]$

**(4) Structure and Interpretation for a Present Perfect**

a. *Sentence:* Dave has left



c. *Truth-Conditions:*  
 $\exists t' . PTS(t', c(\text{time})) \ \& \ \exists e . \text{leave}(e,w) \ \& \ \text{Ag}(e,w) = \text{Dave} \ \& \ T(e) \subseteq t'$

**(5) Key Observation:**

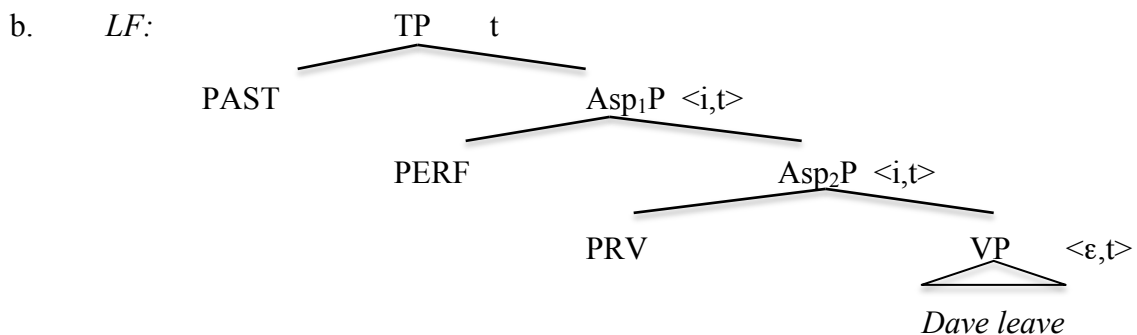
Given the semantics in (2)-(3), there’s nowhere in (4b) that *yesterday* could be added consistently!

(6) **Semantic Consequences of Modification by *Yesterday***

- a. *Yesterday* Modifies Asp<sub>1</sub>P  
 $\exists t' . \text{PTS}(t', c(\text{time})) \ \& \ \exists e. \text{leave}(e,w) \ \& \ \text{Ag}(e,w) = \text{Dave} \ \& \ T(e) \subseteq t'$   
**&  $c(\text{time}) \subseteq \text{the day preceding } c(\text{time})$**
- Contribution of *yesterday* is an internal contradiction
- b. *Yesterday* Modifies Asp<sub>2</sub>P  
 $\exists t' . \text{PTS}(t', c(\text{time})) \ \& \ \exists e. \text{leave}(e,w) \ \& \ \text{Ag}(e,w) = \text{Dave} \ \& \ T(e) \subseteq t'$   
**&  $t' \subseteq \text{the day preceding } c(\text{time})$**
- Contribution of *yesterday* contradicts the statement that  $\text{PTS}(t', c(\text{time}))$

(7) **Structure and Interpretation for a Past Perfect**

a. *Sentence:* Dave had left



c. *Truth-Conditions:*  
 $\exists t' . t' < c(\text{time}) \ \& \ \exists t'' . \text{PTS}(t'', t') \ \& \ \exists e. \text{leave}(e,w) \ \& \ \text{Ag}(e,w) = \text{Dave} \ \& \ T(e) \subseteq t''$

(8) **Key Observation:**

Given the semantics in (2)-(3), there's **two** places in (7b) that *yesterday* could be added consistently!

(9) **Semantic Consequences of Modification by *Yesterday***

- a. *Yesterday* Modifies Asp<sub>1</sub>P  
 $\exists t' . t' < c(\text{time}) \ \& \ \exists t'' . \text{PTS}(t'', t') \ \& \ \exists e. \text{leave}(e,w)$   
**&  $\text{Ag}(e,w) = \text{Dave} \ \& \ T(e) \subseteq t'' \ \& \ t' \subseteq \text{the day preceding } c(\text{time})$**
- b. *Yesterday* Modifies Asp<sub>2</sub>P  
 $\exists t' . t' < c(\text{time}) \ \& \ \exists t'' . \text{PTS}(t'', t') \ \& \ \exists e. \text{leave}(e,w)$   
**&  $\text{Ag}(e,w) = \text{Dave} \ \& \ T(e) \subseteq t'' \ \& \ t'' \subseteq \text{the day preceding } c(\text{time})$**

(10) **Summary**

- We correctly predict that sentence (1b) is ambiguous:
  - *Yesterday* can be understood to either identify the topic time ( $t'$ ) or the PTS ( $t''$ ), and thus the event time
- This explanation can also be extended to the sentences in (1c) and (1d)
  - What's key about these cases is that there's no PRES, and so modification by *yesterday* doesn't induce a contradiction!

**2. The Challenge: Variation in 'Present Perfect Puzzle' Across Languages**

(11) **No Present Perfect Puzzle in German!**

Sigurd ist gestern angekommen.  
 Sigurd is yesterday come  
*Sigurd came yesterday*  
 (Lit., 'Sigurd has come yesterday')

(12) **Variation in Semantics of PERF (Pancheva & von Stechow 2004; Rothstein 2008)**

a.  $t' \leq t$  = interval  $t'$  either strictly precedes  $t$  or has  $t$  as a final subinterval

b. Semantics of PERF in German:  $[ \lambda P_{\langle i, t \rangle} : [ \lambda t' : \exists t'' . t'' \leq t' \ \& \ P(t'') ] ]$

c. Predicted Semantics for Present Perfect in German:

$\exists t' . t' \leq t \ \& \ \exists e . \text{leave}(e, w) \ \& \ \text{Ag}(e, w) = \text{Dave} \ \& \ T(e) \subseteq t'$

(13) **Semantic Consequences of Modification by *Yesterday***

a. *Yesterday* Modifies  $\text{Asp}_1\text{P}$

$\exists t' . t' \leq t \ \& \ \exists e . \text{come}(e, w)$   
 $\ \& \ \text{Ag}(e, w) = \text{Dave} \ \& \ T(e) \subseteq t'' \ \& \ t \subseteq \text{the day preceding } c(\text{time})$

- Contribution of *yesterday* is an internal contradiction (since  $t = c(\text{time})$ , in matrix clauses)

b. *Yesterday* Modifies  $\text{Asp}_2\text{P}$

$\exists t' . t' \leq t \ \& \ \exists e . \text{come}(e, w)$   
 $\ \& \ \text{Ag}(e, w) = \text{Dave} \ \& \ T(e) \subseteq t'' \ \& \ t' \subseteq \text{the day preceding } c(\text{time})$

- Contribution of *yesterday* is consistent; it locates the PTS (and so the ET) within the day preceding  $c(\text{time})$

### 3. Further Prediction: Interactions with *Always*

#### (14) Present Perfect and *Always*, in English and in German

- a. I always **lived** in Amherst, until I moved to New Jersey.
- b. \* I **have** always **lived** in Amherst, until I moved to New Jersey.
- c. Ich **habe** immer in Berlin gewohnt, bis ich  
I **have** always in Berlin lived until I  
  
nach Tübingen gezogen bin.  
to Tübingen moved am

*I always lived in Berlin, until I moved to Tübingen.*

*(Lit, 'I have always lived in Berlin, until I moved to Tübingen')*

#### (15) Analysis of the English Facts

- a. Semantics of *I always lived in Amherst*  
 $\exists t' . t' < c(\text{time}) \ \& \ \forall t'' . t'' \in t' \rightarrow \exists e. \text{I-live-in-Amherst}(e,w) \ \& \ T(e) \subseteq t'$
- 'There's an interval  $t'$  **which completely precedes  $c(\text{time})$** , every subpart of which contains an eventuality of my living in Amherst.'
- b. Semantics of *I have always lived in Amherst*  
 $\exists t' . \text{PTS}(t', c(\text{time})) \ \& \ \forall t'' . t'' \in t' \rightarrow$   
 $\exists e. \text{I-live-in-Amherst}(e,w) \ \& \ T(e) \subseteq t''$
- 'There's an interval  $t'$  **which contains  $c(\text{time})$** , every subpart of which contains an eventuality of my living in Amherst.'
- c. Summary:
- Thus, (14a) does not entail that the speaker lives in Amherst now.
  - But, (14b) *does* entail that the speaker lives in Amherst now.

#### (16) Analysis of the German Facts

- a. Semantics of (14c)  
 $\exists t' . t' \leq t \ \& \ \forall t'' . t'' \in t' \rightarrow \exists e. \text{I-live-in-Berlin}(e,w) \ \& \ T(e) \subseteq t'$
- There's an interval  $t'$  **which could completely precede  $t (= c(\text{time}))$** , every subpart of which contains an eventuality of my living in Berlin.
- b. Key Consequence: (14c) does not entail that the speaker lives in Berlin now

#### 4. Relationship Between Present Perfect and Past Perfective in German

##### (17) Some Interesting Observations

In German, the meaning of Present Perfect is very similar to that of a Past Perfective

- a. German Present Perfect  
 $\exists t' . t' \leq t \ \& \ \exists e. \text{come}(e,w) \ \& \ \text{Ag}(e,w) = \text{Dave} \ \& \ T(e) \subseteq t'$
- b. Past Perfective (in German and English)  
 $\exists t' . t' < t \ \& \ \exists e. \text{come}(e,w) \ \& \ \text{Ag}(e,w) = \text{Dave} \ \& \ T(e) \subseteq t'$

This similarity may accord with an intuition many have voiced that in German there's very little identifiable difference in meaning between the (matrix) clauses in (17c)

- c. Present Perfect and Past Perfective in German  
 Many German linguists have proposed that (i) has at least *one* reading where it means simply the same thing as (ii) (Rothstein 2008)

- (i) *Present Perfect:*      Sigurd **ist**      gestern      **angekommen.**  
    Sigurd is      yesterday      come  
    *Sigurd came yesterday.*  
    (*Lit., 'Sigurd has come yesterday'.*)
- (ii) *Past Perfective:*      Sigurd **kam**      gestern      **an**  
    Sigurd came      yesterday      PARTICLE  
    *Sigurd came yesterday.*

- (18) a. **Question**  
*Could* there be a reading of PRES PERF in German where it simply has the meaning of PST PRV? If so, **that alone would explain the possibility of (11)!**
- b. **Answer (von Stechow 1999; Rothstein 2008)**  
 No. There are environments – such as embedded clauses – where we can see that the forms in (17c) *are* semantically distinct.

##### (19) Simultaneous Readings in German

- a. Fritz dachte,      das es 8 uhr **war.**  
 Fritz thought      that it eight hour was  
*Fritz thought that it was eight o'clock.*      (Simultaneous reading possible)
- b. Fritz dachte,      das es 8 uhr **gewesen ist.**  
 Fritz thought      that it eight hour been is  
*Fritz thought that it has been eight o'clock.*      (Simultaneous reading impossible)

(20) **Predictions of the Two Theories**

- a. If there were a reading of PRES PERF where it meant exactly the same thing as PAST PRV, we'd expect that (19b) should – like (19a) – allow a simultaneous reading...
- b. Under our proposed semantics, we predict the contrast in (19), however:
- In (19a), we could get a simultaneous reading via a *de re* PAST tense
  - In (19b) – whether or not embedded PRES undergoes *res*-movement – the embedded PERF will place the PTS  $t'$  *prior to* the evaluation time  $t$ ...
    - Therefore, we won't get the state of being eight o'clock to properly overlap the evaluation time (i.e., the doxastic alternative)

Semantics of Embedded Clause in (19b):

[  $\lambda w' : [ \lambda t' : \exists t'' . t'' \leq t' \ \& \ \exists e. \text{it-is-8:00}(e, w') \ \& \ T(e) \subseteq t'' ] ]$  ]

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**5. Explaining the Variation?**

(21) **Big Question**      *Why* is there this difference between English and German PERF?  
*Could* it be reduced to some other, independent difference?

(22) **Pancheva & von Stechow (2004)**

a. Proposal:

- Ultimately, the difference is due to differences between English and German *present* tense...
- German present tense allows a 'future' reading (23bi), English doesn't (23bii).
- They spell out a pragmatic story whereby this ultimately leads to a difference in the interpretation of PRES + PERF in these languages...

b. (Pure) Future Readings of PRES

(i) *German:*      Fritz ist      in      10      Tagen krank.  
                     Fritz is      in      10      days sick  
                     *Fritz will be sick in ten days.*  
                     (Lit., 'Fritz is sick in ten days')

(ii) *English:*      \* Fritz is sick in 10 days

(23) **Key Problem (Rothstein 2008, et alia)**

Swedish, like German, allows a ‘future’ reading of Present (23a). However, its present perfect patterns with English, and not with German (23b).

- a. I morgon **aker** jag.  
Tomorrow **leave** I  
*I will leave tomorrow (Lit., ‘I leave tomorrow’)*

[NOTE: This *could* be a ‘scheduled future’ reading, which exists in English. But, there are other, better data that couldn’t be analyzed that way]

- b. (i) \* Jag **har varit** pa bio **igar.**  
I **have been** to.the movies **yesterday**  
*\* I have been to the movies yesterday.*
- (ii) \* Jag **har alltid** **bott** i Berlin, tills jag har  
I **have always** **lived** in Berlin until I have  
flyttat till Tubingen.  
moved to Tubingen  
*\* I have always lived in Berlin, until I moved to Tubingen.*