

These slides are from the Tense and Aspect part of 24.900. They were covered in 24.902 because the students need to be familiar with the meaning of the basic elements that appear above and around the verb.

The Past, the Present and the Future walked into a bar.

It was tense.

So far we have investigated the contribution to the meaning of everything in the sentences below

1. Cottonball ate
2. Every puppy ate

except the past tense on 'eat+'.

We will use 'V+' to refer to a verb without any 'inflectional morphemes' on it. Here, basically without the morpheme spelling out the Past tense.

The actual overt realization of the Past tense can differ:

talk+ + Past = talked

eat+ + Past = ate

put+ + Past = put

What we care about is that there is a “formal feature” whose contribution is what we call “Past tense”.

We do not, at this point, care about how it is pronounced.

That is, we do not care at this point about the “phonetic exponent’ of this formal feature.

Let's introduce certain elements:

- 'Speech Time' or 'Utterance Time' or 'UT'

= the smallest time interval (that you can imagine) in which a sentence is uttered.

A lot of the time you can think of UT as *now*.

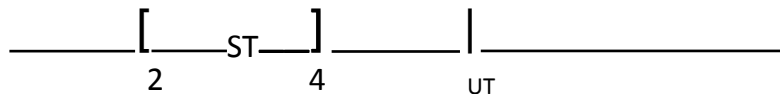
However, this isn't quite right because *now* can be used more broadly as well:

3. Women have the vote now.

- 'Situation Time' or 'Event Time' or 'ST'

= the time interval in the actual world throughout which the predicate holds.

For example, if Cottonball started sleeping yesterday at 2pm and woke up at 4pm, ST is 2-4 pm.



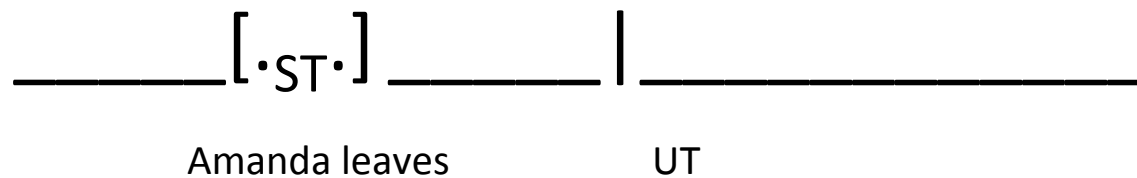
Like all intervals, ST has a Left Boundary (LB) and a Right Boundary (RB), indicated here with '[' and ']' respectively.

Or you can say that it has a 'beginning subinterval' and a 'final subinterval'.

For UT, this does not come up really, as it is alright to think of UT as a point in time.

So what is the meaning of Past Tense?

3. Amanda left



Hypothesis 1= Past tense: $ST < UT$

This seems to work for (3).

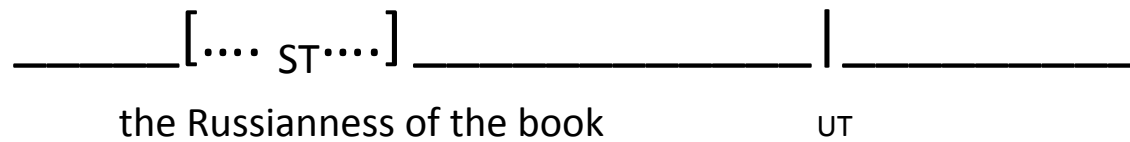
What about (4):

- 4a. I saw a book on the table.
b. It was in Russian.

For (4a), H1 would predict the following, which seems ok:



And (4b) would be represented as follows:



According to H1, the LB and RB of the Russianness of the book precede UT.

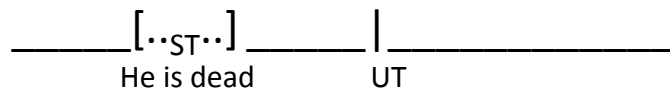
Does this seem correct?

- And what about (5b)?

5a. I walked into the room and saw Peter lying on the floor.

b. He was dead.

For (5b), H1 predicts:



Does this make sense?

Compare (5) to (6):

6a. I walked into the room and saw Peter lying on the floor.

b. He was drunk

In (5), we know that the state of Peter being dead holds still at UT (and will always hold beyond that).

What about the state of Peter being drunk in (6)?

Does it hold at UT?

It can, but certainly does not have to:

6a. I walked into the room and saw Peter lying on the floor.

b. He was drunk.

c. I made him some coffee and he sobered up

6a. I walked into the room and saw Peter lying on the floor.

b. He was drunk

c'. It proved impossible to sober him up. He is still lying there drunk.

So what is the difference between (5) and (6)?

World knowledge.

- You know that if somebody is dead at some point in time, they will remain so forever after. But if somebody is drunk, nothing follows about later points in time.
- What does this mean?
- It means that Hypothesis 1 is wrong.
- Why does it mean that?
- The Past tense does NOT grammatically encode that ST precedes UT.
- As far as we know, this holds for the Past tense in all languages.
- So then what *does* Past Tense contribute?

The 3rd interval

- Temporal morphology on the verb does not encode the relationship of two time intervals (ST and UT) but of three.
- So far we have UT, ST.
- Enter the 3rd interval: “Topic Time” or “TT”.
- TT is the interval that the sentence is “about” in some sense.
- In (5b) and (6b), TT is set by the previous sentence. What is it?

5/6a. I saw Pater lying on the floor

b. He was dead / drunk

TT of (5b,6b) is the time interval in which I walked into the room and saw him on the floor.

- What is the TT in the following sentences:

7. At 5pm, he was drunk

8. When I saw him, he was drunk

9. I saw John

So what is the meaning of Past Tense? Hypothesis 2= Past tense: TT < UT

Let's go back to (5): you know that Peter is still dead at UT, because of world knowledge, not because it is linguistically encoded somewhere in the sentence.

5a. I walked into the room and saw Peter lying on the floor.

b. He was dead.

Let's go back to (6):

6a. I walked into the room and saw Peter lying on the floor.

b. He was drunk.

It is possible to hear (6) and take (7) to hold. What is the relationship between (6-7)?

7. Peter is not drunk anymore

(i.e. not drunk at UT)

(7) Is an implicature of (6), as evidenced by the fact that it is cancellable.

- Past Tense: $TT < UT$
- But isn't this strange?
- Here is (6) again.

6a. I walked into the room and saw Peter lying on the floor.

b. He was drunk

TT in (6b) is an interval that was inherited from (6a), in which I walked into the room and saw Peter lying on the floor.

UT refers to the interval in which the sentence is uttered.

Where does the drunkenness come in?!

No reference is made to the predicate!!!!

Isn't that strange?

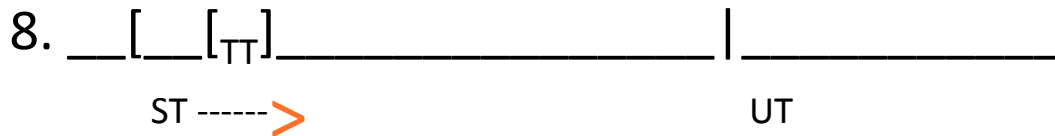
- What we call “Tense” (past, present, future) is the relationship between TT and UT.
- $TT < UT$ Past tense
- $UT < TT$ Future tense
- $UT \subseteq TT$ Present tense

Languages also encode the relationship between TT and ST. This is called “Aspect”:

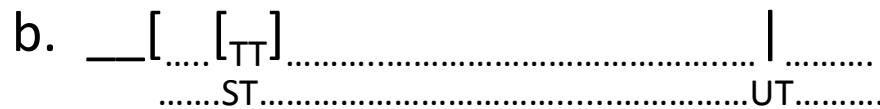
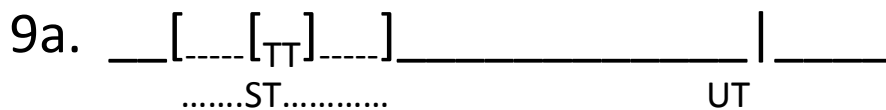
- $ST \subseteq TT$ Perfective aspect
- $TT \subseteq ST$ Imperfective aspect
(aka “the progressive”)

- It is the **combination** of Tense and Aspect that conveys the temporal parameters of a sentence.
 - Let's look at (6b) once again:
- 6a. I walked into the room and saw Peter lying on the floor.
 b. He was drunk

What (6b) asserts is $TT < UT$ (Past) and $TT \subseteq ST$ (Imperfective):



But the relationship between ST and UT is not specified, and so the sentence is compatible with either (9a) or (9b):



Forms of the Imperfective

- Most of the time, you can tell from the form of the verb whether it is Past, Present or Future.
- How can you tell by looking whether a verb is perfective or imperfective?
- In many languages it is completely clear because there is a morpheme on the verb that marks the Perfective or the Imperfective beyond a shadow of a doubt.
- In English, the story is a bit more complicated, as we will now see.

Verb Classes

- Verbs can be divided into statives and non-statives (aka “eventive verbs”).
- There are quite precise formal definitions (and further subclassifications) of this distinction but intuitively here is a distinction:
- If the verb describes a state, it is a stative.
- If the verb describes an action/activity, it is non-stative.

Non-statives: throw, build, read, eat, develop, talk

Statives: love, know, be+adjective (be asleep, be sick, be afraid, be tall)

Some more examples of each class?

In English:

Statives: imperfective (or maybe perfective as well?)

Non-statives:

-imperfective: be +Ving (=the progressive)

Ving = the progressive participle

e.g. be throwing, be talking, be eating etc

-perfective: “simple past” forms

e.g. threw, talked, ate

Non-statives/eventives:

- | | |
|---------------------------|--------------------|
| 10. He ate a donut | Past Perfective |
| 11. He was eating a donut | Past Imperfective |
| 12. He will eat a donut | Future Perfective |
| 13. He will be eating it | Fut. Imperfective |
| 14. He is eating a donut | Pres. Imperfective |

What T/A combination is missing? Present Perfective.

Many languages simply do not have this form. (Why?)

English is again a bit of an outlier.

What would the Present Perfective look like?

15. He eats a donut

What does (15) mean? How does it differ from (14)?

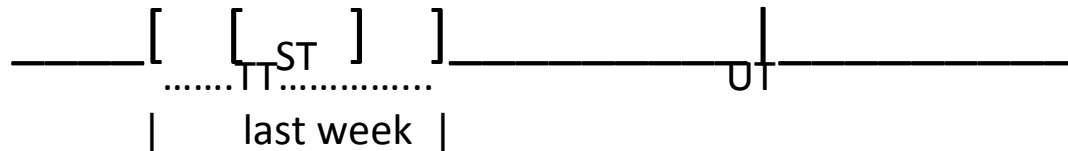
And what about (16)?

16. He eats donuts

Let's practice a bit.

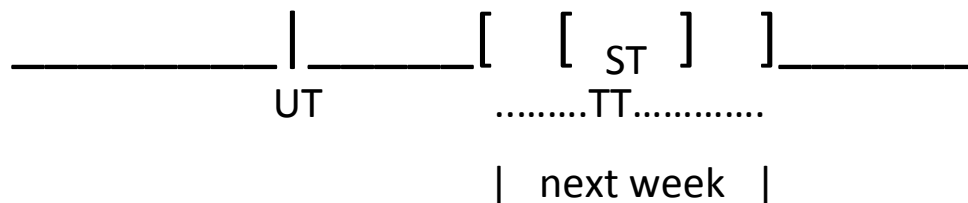
17. Last week I read Anna Karenina

Past Perfective: $TT < UT, ST \subseteq TT$



18. Next week I will read Anna Karenina

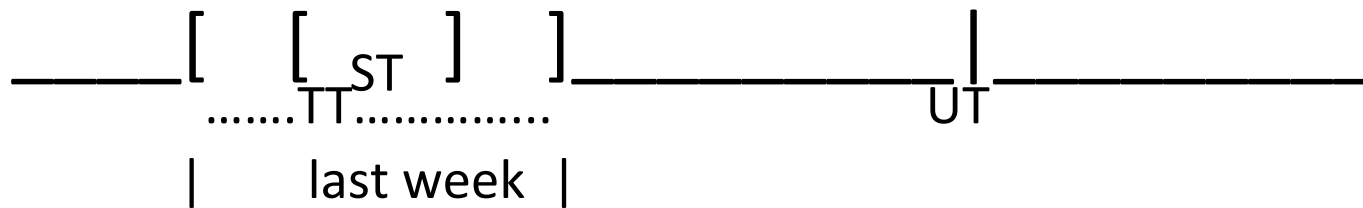
Future Perfective: $UT < TT, ST \subseteq TT$



Here is (17) again:

Past Perfective: $TT < UT, ST \subseteq TT$

17. Last week I read Anna Karenina



What would the Past Imperfective look like?

$TT < UT, TT \subseteq ST$

18. Last week I was reading Anna Karenina



The Perfect ≠ the Perfective

(it's very unfortunate that in English those two terms sound so alike)

- | | |
|--------------------------|-----------------|
| 19. I ate a donut | Past Perfective |
| 20. I have eaten a donut | Perfect |

-the verb *have* in the Perfect is called “auxiliary *have*”, as opposed to “main verb *have*”, as in *I have a book*.

-we will represent verbs like *eaten* as ‘V+en’. (Perfect participle). Again it does not matter that the phonetic exponent is not always *en*: *I have talked*, *I have sung*.

The Perfect can combine with the 3 tenses:

- | | |
|-------------------------------|-----------------|
| 21. I have eaten a donut | Present Perfect |
| 22. I had eaten a donut | Past Perfect |
| 23. I will have eaten a donut | Future Perfect |

- In fact, it combines with the 3 tenses and the 2 aspects!

- have +Tense V+en
had *eaten* → Past Perfect

- be V+ing
be *eating* → Imperfective/progressive

- Have+ Past Be+en V+ing Past Perfect Progressive

24. I have been eating a donut Pres. Perfect Progressive

25. I had been eating a donut Past Perfect Progressive

26. I will have been eating a donut Fut. Perfect Progressive

21. I have eaten a donut Pres. Perfect Perfective

22. I had eaten a donut Past Perfect Perfective

23. I will have eaten a donut Fut. Perfect Perfective

- But what is the difference between (27) and (28)?:

27. I ate a donut

28. I have eaten a donut

In both cases, the event of eating the relevant donut is before UT.

And what is the difference between (28) and (29):

29. I had eaten a donut

So what is in your head about the Perfect?

The Perfect Time Span (PTS)

(based on Iatridou, Anagnostopoulou and Izvorski 2002)

- The Perfect sets up a time interval. Let's call it the "PTS". Like all intervals, the PTS has a Left Boundary (LB) and a Right Boundary (RB).
- LB can be set by a number of things, e.g. an adverbial e.g. "*since....*", "*for....*", or contextually.
- RB is set by Tense
- The event(s) described take(s) place in PTS

30a. Since 1990, I have visited Cape Cod 3 times

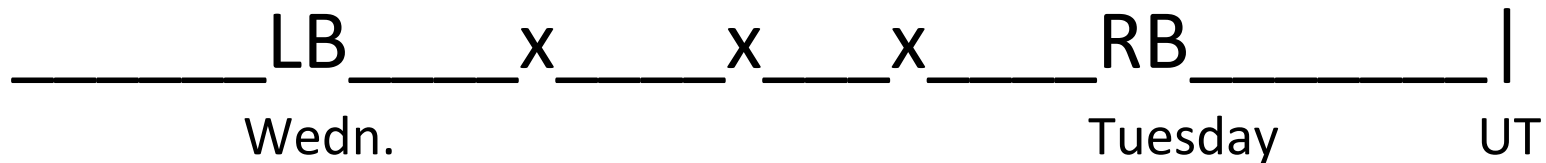
LB _____ X _____ X _____ X _____ RB
1990 UT

b. I have been to the Cape 3 times

RB=? LB=?

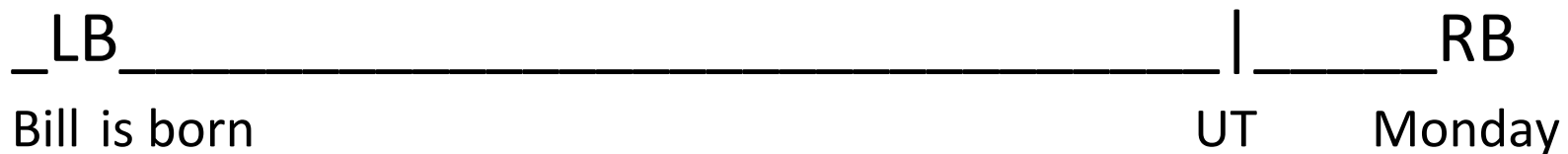
31a. I visited him last Tuesday

b. He had been to the Cape 3 times since the previous Wednesday



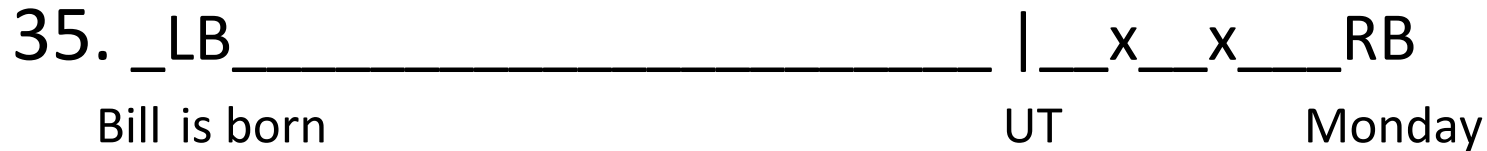
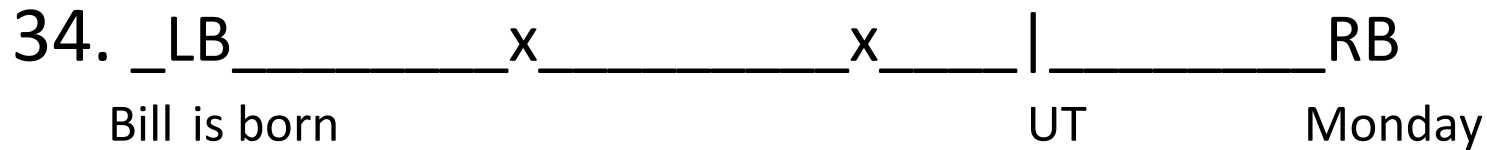
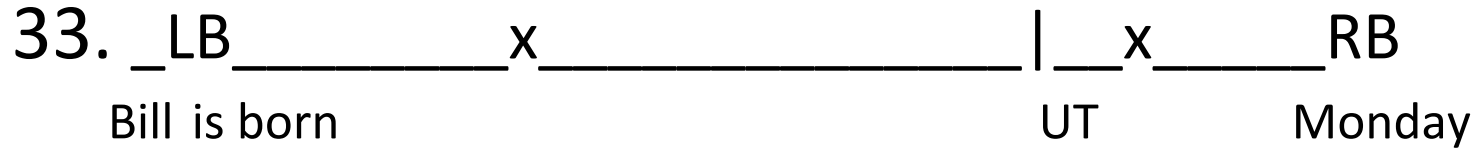
32. By next Monday, Bill will have visited the Cape 2 times

What is LB? What is RB? Here is the timeline:



Where are the events of visiting the Cape?

32. By next Monday, Bill will have visited the Cape 2 times



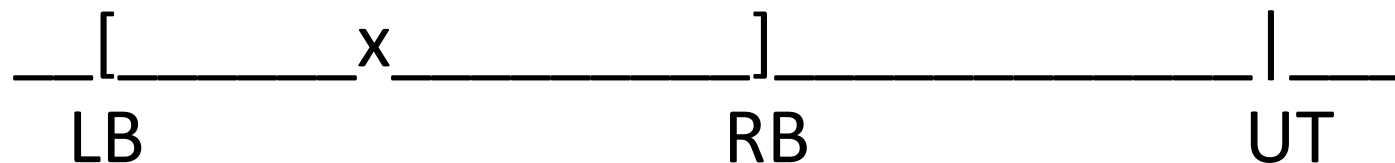
All of these are truth-conditions for (32)! All the Perfect does is place the event(s) inside the PTS. It does not place the event(s) on the timeline wrt UT.

This is why you can say things like this:

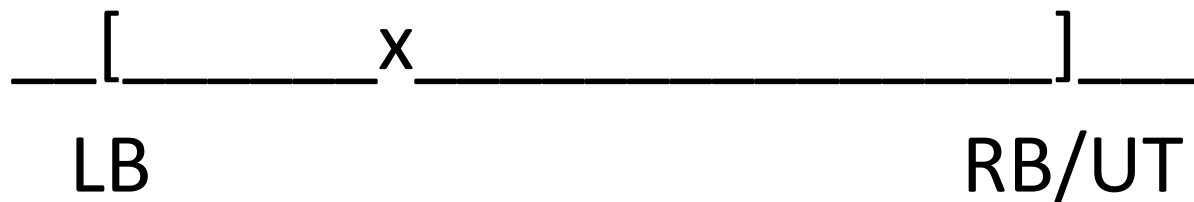
36. She is a very good student. She will have written her essay by next Monday for sure.

For all I know, she has written it already.

- Do you remember that Past/Future does not place ST on the timeline wrt UT?
- The same is true for the Perfect. The event is inside the PTS. The PTS is placed wrt UT, as Tense manipulates its RB.
- So in the Past Perfect, the event/ST is before UT because RB is before UT, and ST is before RB, since ST is in PTS:



- In the Present Perfect, the event/ST is before UT because RB is at UT, and ST is before RB, since ST is in PTS:



This is why even though it is a *Present Perfect*, the event is still in the past:

30. Since 1990, I have visited Cape Cod 3 times

- We have already seen that in the Future Perfect, the event/ST is not specified wrt UT.

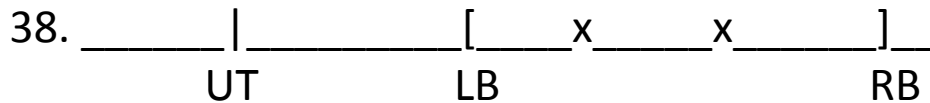
32. By next Monday, Bill will have visited the Cape 2 times

But even the placement of UT itself is not specified.

- As long as the event/ST is between LB and RB of PTS, UT can fall inside PTS, as we already saw in (33-35):



Or UT can be outside the PTS:



39. He is coming to Boston on Tuesday. By the following Saturday, he will have visited the Cape 2 times.

Why is it that both (37) and (38) are compatible with the Future Perfect?

Because all the Future component of the Future Perfect does is place RB after UT.

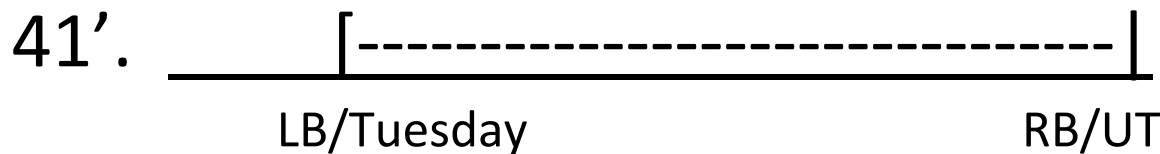
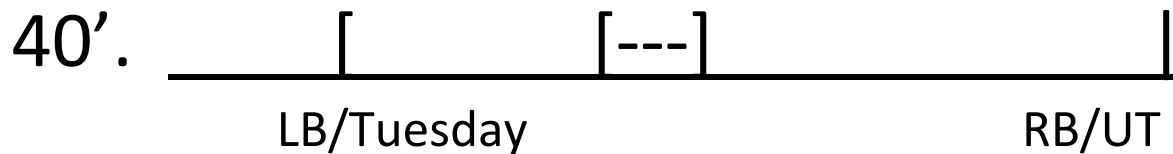
Where UT is with respect to LB is not specified.

Existential vs Universal Perfect

What is the difference between (40) and (41)?

40. Since Tuesday he has read a great book

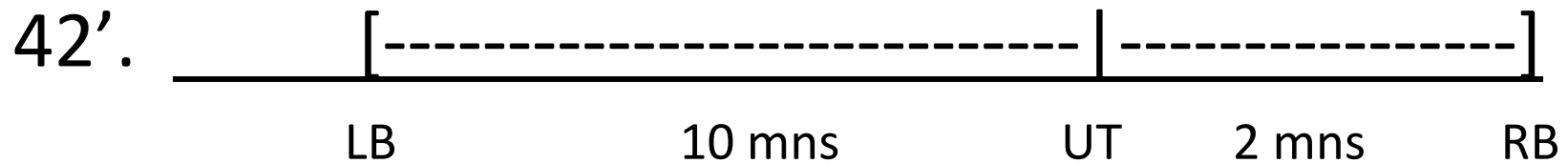
41. Since Tuesday he has been reading a great book



In the U-Perfect, the predicate holds for all points in the PTS
(and possibly outside it as well)

42. In two months he will have been reading Anna Karenina for a year

Future Perfect, Universal Perfect



How is (43) ambiguous?

43. He has been sick since 1990

(intonation disambiguates it)

Let's combine certain things that we have learned.

What does (44) mean?

44. I haven't seen Bill in 5 years.

Are (44) and (45) equivalent?

45. It has been 5 years since I saw Bill

No. (45) presupposes that I saw Bill. (Do you remember how we can tell?)

The negated Perfect in (44) merely conversationally implicates it.

The inference of the existence of the event is cancellable in the negated perfect

46. A: Has the patient ever had a seizure?

B: He hasn't had one in the five years that I have been working here. I don't know about earlier.

47. He hasn't had a seizure in the last five years. In fact, he has never had one.

Why is the existence of the event only a conversational implicature in the negated perfect?

48. She hasn't visited Cape Cod since 1990/in 3 years

- There is a time span (the Perfect Time Span/PTS)

- the RB is the time of utterance

- the LB is (some time in) 1990 /three years before the RB

- It is not the case that in the PTS there is a subinterval at which she visits the Cape

=there is no event of her visiting the Cape in the PTS

In other words, in the Perfect, the existence of the event is part of the assertion.

When the Perfect is negated, the assertion is that there is no relevant event in the PTS.

But why is there a conversational implicature that there is an event? How does that implicature arise?

If there is a temporal adverbial like *since 1990/in 3 years*, the cooperative hearer will infer that while there is no relevant event in the PTS, there may be one outside the PTS.

Otherwise, why would the speaker bother to point out the non-existence of the event in a specific time span?

- 49a. She hasn't visited the Cape since 1990
- b. She hasn't visited the Cape in 3 years

Here is a topological analogue:

50. In her living room, she doesn't have a Vermeer

(50) brings up the inference that she has, or might have, a Vermeer somewhere else.

Why is (50) a topological analogue of (49)?

The inference that there is an event of her going to the Cape outside of the PTS, just as the inference that there is a Vermeer somewhere other than the living-room is a conversational implicature. The hearer assumes that if the speaker knew that there wasn't an event of her visiting the Cape, or that there wasn't a Vermeer at all among her possessions, the speaker would have made that stronger assertion, rather than merely asserting the lack of existence of these in a particular (temporal) space.

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24.902 / 24.932 Language and its Structure II: Syntax
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