

A “Temporal Topic Interval” Analysis of the English Perfect

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1: Introduction

In this paper, we give an analysis of the English perfect which uses the notion of *temporal topic interval* (TTI) to explain the various readings of the perfect, its incompatibility in the present tense with certain temporal adverbials, and the unacceptability of various examples of its use. The TTI has McCoard’s (1978) “Extended Now” analysis of the perfect as one of its founding intuitions, but goes beyond it to employ a notion of topic, based in part on that used in Portner’s (2003) analysis of the perfect. However, our notion of topic differs from Portner’s by being temporal in nature. We show that combining an extended-now analysis with temporal topics extends the range of data that either Portner’s or McCoard’s analysis can handle.

Briefly, our idea is that every sentence in the perfect predicates something of a temporal interval, the TTI. The TTI spans both event time and reference time (using the standard notions of Reichenbach 1947). We show how the TTI can then be further constrained by individuals/entities explicitly referred to in the sentence, known as “constituent entities”. A constituent entity may constrain the TTI irrespective of whether it has topical (or, for that matter, grammatical subject) status in the sentence.

2: Incompatibility of the present perfect with past time adverbials

It is well known that the English perfect is not acceptable with a past time adverbial such as ‘yesterday’.

1. *John has arrived yesterday.
2. John has arrived today.

The fact that ‘yesterday’ is unacceptable is restricted to the present perfect, as pointed out by McCawley (1971). The following examples, with the tenseless, past and future perfect respectively, are all fine:

3. Having arrived yesterday, John knows his way around.
4. John had arrived the day before.
5. John will have arrived shortly.

We must therefore explain why this restriction is limited to the present perfect. In addition, we must explain the observation reported in (Katz 2003) that the past perfect with a time adverbial ceases to be acceptable if we add a second time adverbial specifying reference time (RT). Thus the examples under comparison are:

6. *John has arrived at 3pm.
7. John had arrived at 3pm.
8. *At 4pm, John had arrived at 3pm.

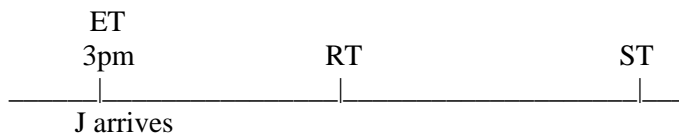
Using the familiar Reichenbach (1947) model allows us to represent (6)-(8) as follows. Note that in each case we take 'at 3pm' to specify the time of John's arrival. There is, of course, also a reading of (7) where 'at 3pm' specifies reference time (RT), which we will ignore for the time being.

(6)



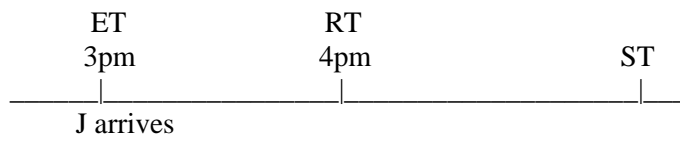
**John has arrived at 3pm*

(7)



John had arrived at 3pm

(8)



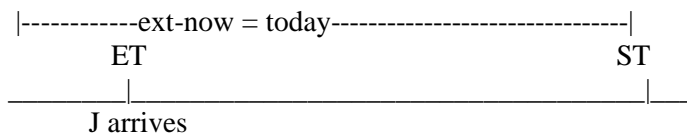
**At 4pm, John had arrived at 3pm*

So far, this gives us no clue as to why (6) and (8) are unacceptable – there is nothing in Reichenbach’s formulation to rule them out. Let us now turn to the extended-now theory of (McCoard 1978). The idea here is that use of the perfect places the described event within an interval of time, known as the “Extended Now”, which begins in the past and ends at speech time. In the words of Portner (2003):

“...we typically count a longer stretch of time than the momentary “now” as the present for conversational purposes. Its exact duration is contextually determined, since what we count as “the present” in this sense may vary depending on the conversational topic.” (Portner 2003, p.474)

To see how this works, consider firstly the acceptable (2):

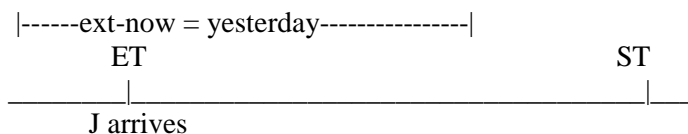
(2)



John has arrived today

Suppose we say that ‘today’ specifies the extended-now, and that this interval must include both ET and ST. Then we see that (2) is indeed possible, provided that the event of John’s arrival was included in the time interval ‘today’. Now compare (1):

(1)

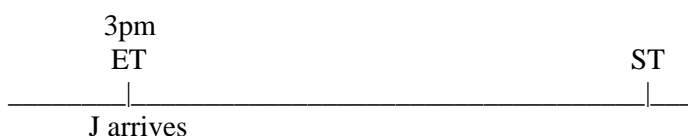


**John has arrived yesterday*

If we take ‘yesterday’ to specify the extended-now, then once again ET is included in this interval. But of course ST cannot be included in ‘yesterday’, so the requirement that the extended-now interval includes ST is violated, and (1) is therefore unacceptable.

Let us see how this might work for (6).

(6)



**John has arrived at 3pm.*

Here, we take ‘at 3pm’ to specify what we have up to now been calling the extended-now. However, it seems inappropriate to refer to ‘3pm’, which may be regarded as an “instant” by the term ‘extended-now’. At this point, therefore, we will take a leap ahead and begin to refer to the extended-now (whether an instant or an interval) as the temporal topic interval (TTI) mentioned earlier. Of course, we have given no justification so far for referring to it in this way. The reader is asked to bear with us and accept the term as a convenient label for the time being. We will shortly offer our evidence for giving it this name.

Looking at the above diagram, we see at once why sentence (6) is not acceptable. We require the TTI to span both ET and ST for the present perfect (as explained above). But since the TTI here is ‘3pm’, it cannot possibly extend forward as far as ST, except in the circumstance where ST and ET coincide, i.e. when (6) is actually uttered at 3pm. But note that in these circumstances, (6) does become

acceptable – this is the famous ‘sports-reporter’ reading of the perfect, where a commentator says, concurrently with the event’s occurrence, something like ‘and Jones has reached the finishing line at exactly 3pm!’

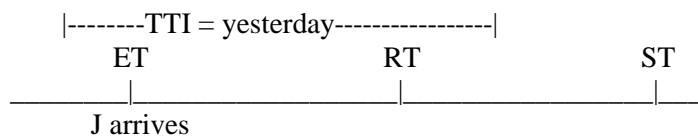
Thus a slight modification of the extended-now account (allowing extended-now, renamed TTI, to be an instant as well as an interval) has allowed us to rule out (6), as well as allowing (2) and disallowing (1).

Now how does this work with the past perfect, as in (9)?

9. John had arrived yesterday.

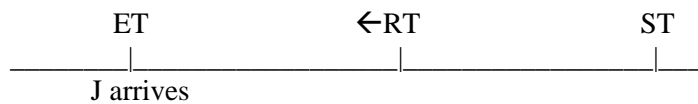
In the case of the past perfect, we simply restate the requirement to say that the TTI must span both ET and RT (of course this restatement applies to the present perfect, too, since $ST=RT$ in that case). For (9), this gives us:

(9)



John had arrived yesterday.

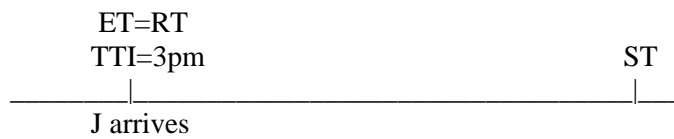
We see that (9) is acceptable because the TTI ‘yesterday’ is able to span both ET and RT. We can explain (7) in the same way:



John had arrived at 3pm.

Once again, we require the TTI, 3pm, to span both ET and RT. We can make this happen if we move RT in the above diagram to coincide with ET, giving:

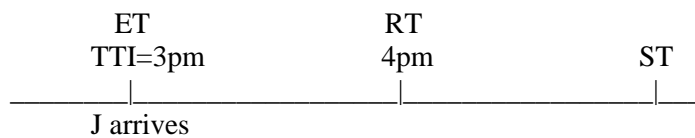
(7) – first reading:



John had arrived at 3pm

Thus we see why (7) is acceptable. Now, what happens if we treat (8) in this way?

(8)



**At 4pm, John had arrived at 3pm*

Here, 'at 4pm' specifies RT. Notice that we cannot, therefore, move RT to coincide with ET as we did for (7). There is thus no way that the TTI, 3pm, can span both ET and RT, and so we see why (8) is unacceptable.

So we can use the TTI to rule out examples like (8), where RT is specified. Notice that (Portner 2003), which associates extended-now with the present tense rather than the perfect, rules out (6) and allows (7), as required, but cannot deal with (8). Our account, by saying that a temporal adverbial in a perfect sentence specifies the TTI, where the TTI must span both ET and RT, allows us to explain all the data so far. (Space does not allow us to show how this works for the tenseless perfect as in (3) and the future perfect as in (5). The principle is the same as for the past perfect, and we leave these as an exercise for the reader.)

For completeness, we should note again that a temporal adverbial in a perfect sentence can alternatively specify RT, as in the following interpretation of (7):

(10) is unacceptable if uttered, for example, in 2005. The accepted intuition is that it would be acceptable only if Einstein were still alive at the time of speech. Since he died in 1955, this is not the case. Chomsky (1970) noted what he regarded as the contrast with (11):

11. Princeton has been visited by Einstein.

(11) is generally taken to be acceptable if uttered, say, in 2005 – and various explanations have been offered for this. Notice, however, that the so-called acceptability of (11) is highly context-dependent. Suppose (11) is uttered in reply to a general question about Princeton, such as (12):

12. Tell me what you know about Princeton.

According to our intuitions, (11) sounds rather odd if not actually unacceptable in this context – conveying a strong suggestion that Einstein is still alive at speech time. A reply using the simple past, as in (13), sounds much more natural:

13. Princeton/It was visited by Einstein.

Now let us change the discourse context slightly. Suppose the question asked is (14):

14. Which Nobel Laureates has Princeton been visited by?

Suppose the answer given to (14) is (15):

15. (Let's see...) Princeton/it has been visited by Einstein, Friedman... and probably some others.
(Adapted from an example in Inoue 1979.)

Notice that (15), in the context of (14), sounds fine uttered in 2005, with no suggestion that Einstein must still be alive.

The so-called acceptability of (11) has been explained in terms of a “lifetime effect” associated with the grammatical subject of the sentence (Smith 1991/1997). The idea is that the English present perfect expresses some kind of result state (an idea that has proved very difficult to make precise) associated with the sentential subject. It only makes sense, it is said, to predicate such a result state of the subject if the subject is still alive at ST^2 . This rules out (10) and allows (11).

But, even if we follow the party line and regard (11) as acceptable, things are clearly not so simple. Inoue's (1979) original example (slightly adapted below) was an active rather than a passive sentence pair (16, 17):

² Quite why this should be the case is not, in our opinion, made clear by such accounts.

16. Which Nobel Laureates have visited Princeton?

17. Let's see... Einstein has, Friedman has...

The (16, 17) sequence is fine when uttered in 2005, yet Einstein is a grammatical subject of (17). At this point, an appeal to the notion of "topic" is made. It is said (see Portner 2003) that it is the topic, rather than the subject, of which the result state is predicated, and that the topic must therefore still be alive or in existence at speech time. We then have the task of defining what we mean by topic. Portner (2003) does this by appealing to the notion of questions raised by the previous discourse, which may be implicit or explicit. On our understanding of Portner, (18) below sets up "Princeton" as the discourse topic of (19) in the sequence (18, 19), and of (20) in the sequence (18, 20):

18. Tell me what you know about Princeton.

19. ?Let's see ... it has been visited by Einstein...

20. ?Let's see ... Einstein has visited it...

The single '?' indicates that, on our judgment, both (19) and (20) sound odd when they follow (18). The intuitions are admittedly subtle, but to us the equivalent simple past versions of (19) and (20) sound much better. Yet on Portner's account, Princeton is the discourse topic and thus only the lifetime of Princeton is "relevant" – the fact that Einstein is dead at speech time should make no difference.

If we are to use a notion of topic to explain the data, then it seems that we cannot use Portner's notion. The lifetimes of both topical and non-topical entities (individuals, institutions, etc.) seem to act as a constraint on the acceptability of the present perfect. How can we explain this, while bearing in mind that (16/17) is fine?

We will offer an explanation shortly. First we will consider the equally well-known "Gutenberg" example of (McCoard 1978), which has proved a stumbling block for many accounts of the perfect.

21. ??Gutenberg has discovered the art of printing.

The unacceptability of (21) when uttered in, say, 2005 poses severe problems for topic-lifetime accounts of the perfect – as discussed in detail in (Portner 2003). As Portner points out, it is quite easy to set up a context where Gutenberg is not the discourse topic. E.g., consider (22, 23):

22. What important discoveries have been made in the last 1000 years?

23. ??Well, Gutenberg has discovered the art of printing...

Since Gutenberg is not the discourse topic of (22, 23), then there is no reason why his lifetime should constrain the acceptability of (23). Thus (22, 23) should be fine when uttered in 2005, several hundred years after Gutenberg's death. Yet it is not. Portner admits this, and appeals instead to his version of McCoard's (1978) extended-now account in order to rule out (22, 23). Portner maintains that Gutenberg's discovery of the printing press (in the 1450s) is simply 'too long ago' to be included in the extended-now interval. But consider the following examples:

24. Humankind has made many important discoveries.

25. Religious leaders down the ages have taught us to be loving and merciful.

(24) and (25) are both fine – yet it could equally be argued that the report events “too long ago” to be included in the extended-now. Notice that (25) remains acceptable even if we make it explicit that no religious leaders after 1710 are included (the Sikh leader Guru Gobind Singh died in 1708):

26. Religious leaders down the ages, from Moses, through Jesus and Mohammed, to Guru Gobind Singh, have taught us to be loving and merciful.³

There seems to be no clear reason why Gutenberg's discovery, in the 1450s should be 'too long ago' to count as extended-now, while Guru Gobind Singh's teachings are not.

A second objection to Portner's account is that he relies on two completely different mechanisms to explain the Einstein examples and the Gutenberg one. He uses his extended-now explanation (which he associates with the present tense rather than with the perfect) to rule out (23), and his topic-based modal pragmatics of the present perfect to explain the Einstein examples. While this does not rule out his account *per se*, we argue that it makes it unnecessarily complicated.

We propose a simpler explanation based on the idea that associated with the English perfect in all its tenses is the temporal topic interval (TTI) – the time interval that the perfect sentence is “about”. The TTI may be explicit or implicit. For example, in (25) the TTI is 'down the ages' (explicit) and in (24) it is something identical or very similar, but in this case implicit. Note that this is not sufficient in itself to rule out (23) or to explain the Einstein examples – we will return to these shortly.

³ I trust that no-one will be offended in any way by this example or by any omissions from it. It is presented simply as a linguistic example, and is in no way meant to be a comprehensive list of religious leaders or any kind of comment on them.

To see how the TTI works in more detail, let us look at (27), which is based on an example in (Portner 2003):

27. Has Mary read *Middlemarch*?

Notice that (27) has at least two “readings”. The first can be paraphrased ‘Has Mary *ever* read *Middlemarch*?’ and the second ‘Has Mary read *Middlemarch* *in the last three weeks* [or some other contextually salient time interval]?’ The first is sometimes called the ‘existential’ reading of the perfect, and the second the ‘current relevance’ reading. But note that what is really at issue is the time interval that it is being implicitly assumed in the question (27). Any inferences regarding, for example, the current relevance of the reading event, or its result state, may be seen as being in some sense built on top of this. It is the implicit “time in question” (which of course may be made explicit in some cases) that is the real issue here. Of course, not every perfect sentence is uttered in reply to an explicit question. We propose, however, that the use of the perfect always assumes some implicit time interval (which as we saw earlier may be an “instant”) – the TTI.

Note that the answer to (27) may differ depending on the TTI provided by the context. E.g., suppose that three weeks ago Mary was set an assignment by her course tutor to read *Middlemarch*. If (27) refers to this TTI (i.e., the 3 week period spanning the assignment of the task and ST), and she has not read it in that period, the correct answer is ‘no’. Note that this may still be the case even if Mary read *Middlemarch* years ago when she was at school. If the TTI were ‘ever’⁴, then the correct answer to (27) in these circumstances would, of course, be ‘yes’.

In many cases the TTI is made explicit, as in the following examples:

28. Has Mary ever read *Middlemarch*?

29. Has it snowed today?

30. Has the earth ever been hit by a giant meteorite?

The explicit TTI ‘ever’ is interesting in that it does not, except in a few cases, mean “in the whole history of time”. It is constrained in (30) by the time interval in which the earth has existed, and in (28) by Mary’s lifetime or, perhaps, by Mary’s “reading lifetime”. Only in examples like (31) does ‘ever’ really mean ever:

31. Has the universe ever undergone a period of contraction?

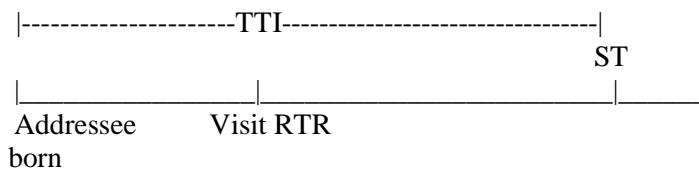
Here, the TTI is interpreted as the whole history of the universe – which it is at least possible, depending on one’s cosmology, to identify with the whole history of time.

Let us consider now the “Russian Tea Rooms” examples of (Katz 2003).

32. Have you visited the Russian Tea Rooms?

The Russian Tea Rooms (RTR) is an establishment in New York that we will consider still exists at speech time. Notice that in this case (32) is fine, with a TTI of ‘ever’, presumably constrained by the lifetime (at least roughly speaking) of the addressee. Recall that the TTI must include RT (= ST for the present perfect), so we can represent (32), or rather its associated proposition, as follows:

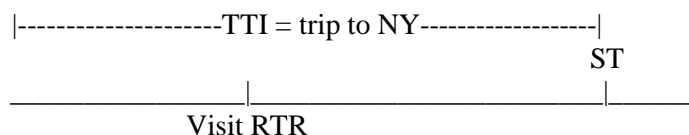
(32) – first reading:



Have you visited the Russian Tea Rooms?

Now suppose, instead, that the speaker, in asking (32), is referring to an implicit TTI such as ‘the temporal extent of your current trip to New York’. Notice that (32) is no good on this “reading” if the addressee has already returned home from that trip at ST. This is explained by our requirement that the TTI includes RT (= ST for the present perfect) – i.e. the “trip” must include ST.

(32) – second reading:



Have you visited the Russian Tea Rooms?

⁴ See below for a refinement of the notion of ‘ever’.

Katz points out that (32) is no good if the RTR has permanently closed down at ST. We see from this that the TTI is constrained, also, by the “lifetime” of the RTR. And since it is also constrained by the lifetime of the visitor, then (47) is no good if either the visitor or the RTR is no longer alive, or in existence, at ST.

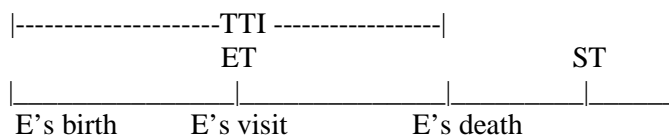
So we see that there is an interesting bundle of constraints on the TTI. The TTI is determined by discourse context, but over and above this it appears to be further constrained by the “lifetimes” of all the entities mentioned in the sentence. Let us call these entities, for want of a better term, the ‘constituent entities’. Note that these constituent entities are *not* confined either to grammatical subjects or discourse topics.

Let us now see how this applies to the Einstein and Gutenberg examples. We begin with (10), repeated here as (33):

33. ??Einstein has visited Princeton.

As we saw earlier, this is unacceptable when uttered in 2005. The TTI is here is ‘ever’ – constrained by the lifetimes of both Einstein and Princeton (note that (33) would be unacceptable if Einstein were alive at ST but Princeton had ceased to exist). Thus for (33) we have:

(33)



??Einstein has visited Princeton.

Since the TTI is constrained by Einstein’s lifetime, it cannot extend as required to ST, and (32) is thereby ruled out. This explanation similarly rules out the passive version, (11), repeated here as (34), which according to our intuitions only works in a particular context (see below).

34. ??Princeton has been visited by Einstein.

But how can we explain the acceptability of (16, 17), repeated here as (35, 36)?

35. Which Nobel Laureates have visited Princeton?

36. Let's see... Einstein has, Friedman has...

Here, it appears that (35) establishes a TTI which is constrained by the lifetime of “the set of Nobel Laureates”. If we view this TTI as being carried over into (36), which seems reasonable, then we can explain the acceptability of (36). Because the lifetime of the set of Nobel Laureates extends up to ST (i.e. the set still exists at ST), then it does not matter that the individual, Einstein, is no longer alive at ST. So we see that it is the establishment in the preceding discourse of some kind of conjoined topic which places constraints on the TTI here, and makes (35, 36) acceptable. The following example is similar:

37. Has your father met any famous scientists?

38. Yes, several – he has met Einstein, Bohr and Hawking.

(37, 38) is acceptable uttered in 2005, provided that the addressee's father is still alive. Yet Einstein and Bohr are no longer alive at ST. Once again, the TTI constraints from (37) are carried over into (38) – i.e. it is the lifetime of the set of “famous scientists” which constrains the TTI, and clearly this set is still in existence at ST. Compare this with (39):

39. Has your father met Einstein?

(39) is no good uttered in 2005, even if the addressee's father is still alive at ST.

Finally, we return to the Gutenberg example, (21), repeated here as (40):

40. ??Gutenberg has discovered the art of printing.

We can now rule out (40) by saying that the TTI “the last 1000 years” is constrained by the lifetime of the constituent entity ‘Gutenberg’.

Clearly, more work is needed on the precise characterisation of constituent entities and the way that they may be combined to produce sets or conjoined entities with their own lifetimes. The idea of the TTI being constrained by constituent entities seems to be a fairly intuitive one – but the question of why the TTI should be constrained in this way has not really been addressed. This should be the subject of further detailed study. However, we have at least established a framework in which such questions can be asked.

Before we close, a brief note on the “hot news” perfect, as in (41) and (42):

41. England have won the Ashes!

42. Einstein has died! (ST = very soon after his death).

(41) presumably has a TTI of “the very recent past” – hence the sense of “hot news”. (42) is more difficult – the TTI is similar, but notice that it is not constrained in this case by Einstein’s lifetime – for some reason the TTI is allowed to go “just beyond” the end of his life in this case. We currently have no explanation of why this should be so.

4: Conclusion

We have shown that a single notion, that of temporal topic interval (TTI), can explain:

- (a) The restrictions on temporal adverbials with the English perfect and the variation of these effects with tense;
- (b) The range of readings of the English perfect, including existential, current relevance, hot news, etc.⁵

Using the TTI, together with our notion of constituent entity, we have also made some inroads into investigating the lifetime effect associated with the perfect. However, further work is clearly needed here.

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⁵ Note that we have not discussed the continuative perfect, as in examples like ‘John has been living in London for three years’. We believe that this can be adequately explained as in (Portner 2003), on the basis of aspectual class

and the temporal sequencing principle (TSP). As far as we can see, Portner's explanation would combine with our account without any difficulty.

