

# Is aspect time-relational? Commentary on the paper by Jürgen Bohnemeyer

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Published online: 16 May 2014  
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**Abstract** Tense is traditionally assumed to express temporal relations between the time of the event and the moment of speech, whereas aspect expresses various views on one and the same event. In Klein (1994), it was argued that the intuitions which underlie this viewing metaphor can be made precise by a time-relational analysis as well. In his article “Aspect vs. relative tense: the case reopened”, Jürgen Bohnemeyer challenges one important point of this analysis, the equation of aspect and relative tense in the English perfect and in temporal forms of few other languages. In the present comment, it is argued that this is indeed a simplification, which does not speak, however, against a time-relational analysis of aspect in general. The main lines of such an analysis for the English perfect are sketched. It is shown that it naturally accounts for differences between the simple past and the present perfect, as well as for the oddity of constructions such as *Einstein has visited Princeton* or *Ira has left yesterday at five*.

**Keywords** Aspect · Relative tense · Present perfect puzzle · Topic time

## 1 Concerns with the tradition

Fortwährend schiebt sich die Tradition zwischen die Tatsache und den Beobachter.<sup>1</sup>  
Jelinek (1913)

Across languages, the most important device to express time is temporal adverbials: all known languages have a rich repertoire of them, and they allow a precise and differentiated characterisation of properties such as duration, position on the time

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<sup>1</sup> ‘Permanently, the tradition slides between fact and observer.’

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line, order, or repetition. This importance is not mirrored in the long research tradition which, initiated and shaped for two millennia by the Greek grammarians and philosophers, is primarily devoted to two grammatical categories, usually called *tense* and *aspect*, and a lexical category, for which there is no generally accepted term; the most common labels are *Aktionsart* and *lexical aspect*. Like most linguists, I grew up in this tradition, and I took it for granted that the concrete analysis of a particular language along these three categories might raise many empirical problems, but that, minor amendments aside, they are sufficiently clear, well-defined and adequate to do that job; after all, by far most descriptive grammars which we have to date use them. But this is not the case. I was quite surprised when, long ago, I investigated how foreign workers learned a second language only by everyday communication. One salient result was that for a long time, and in many cases forever, they did not care very much for inflectional morphology—something which language teachers consider so important. So, one might wonder whether inflectional morphology is really that decisive for the expressive potential of a language. It is surely not crucial for the expression of time, because some of these foreign learners were excellent storytellers—and stories involve many temporal features. How does the absence of the common grammatical categories, such as tense and aspect, hinder the expression of these features? Ultimately, what do tense and aspect express? The tradition has a standard answer to this last question, and, as a consequence, an indirect one to the first question as well. This answer comes in several variants, but the gist is as follows:

- *Tense* expresses a temporal relation, usually between the time at which the sentence is uttered (the deictic origo) and the time at which the situation described in the sentence obtains. The situation can be an event, an activity, a state; this is where distinctions according to *Aktionsart*/lexical aspect come into play. Tense is thus deictic and time-relational. Sometimes, the temporal anchor is not deictic but anaphoric; in this case, it is common to speak of *relative tense* rather than of *absolute tense* (Comrie 1985).
- *Aspect* encodes various ways to *view* or to *present* one and the same situation: in particular, it can be shown from the outside, in its entirety, as completed (= perfective aspect) or it can be shown from the inside, as ongoing, as non-completed (= imperfective aspect). There are other aspects, but these two are the most important ones. In all of these cases, aspect is neither deictic nor time-relational.

There are three fundamental problems with these received notions, in whichever way they are spelled out in detail. The first of these problems concerns tense: the standard notion leads to false results even in very elementary cases. Suppose someone utters (1a) or (1b):

- (1)    a.    Ira opened the door.  
        b.    The window was open.

Two situations are described, Ira's opening the door and the window's being open. According to the usual definition of the English past, someone who utters (1a) asserts that the time of Ira's opening the door precedes the time of utterance, and in (1b), that the time of the window's being open precedes the time of utterance. But, whereas this is correct in (1a), it is false in (1b): the window may well be open when the sentence

is uttered; that means that the time of the situation may well *include* the time of utterance and extend into the future—something that we would normally assume to hold for the present tense. In some cases, this is even the normal interpretation of a simple past, for example in *The window was small*. Someone who asserts that would surely not want to say that this state is over and the window is now big. What the speaker normally asserts with such an utterance is that some *relevant subinterval* of the time at which the window *was/is/will* be small is in the past. It is this subinterval about which he or she wants to make an assertion; whether the sentence is also true for some earlier or later time, does not matter; those times are not talked about. So, we might call this relevant subinterval the *assertion time*, in the sense of the time to which the assertion is confined. But since not all sentences express an assertion, it might be preferable to call it the time about which something is said, or the *topic time*. Thus, it appears that tense does not express a relation between the time of utterance (henceforth TU) and the time of the situation (henceforth TSIT), but between TU and the topic time (henceforth TT), that is, the time to which, in assertive clauses at least, the assertion is confined. In (1b), TT is a subinterval of TSIT; but there are other possibilities, to be discussed shortly.<sup>2</sup>

The two other serious problems concern the notion of aspect. First, the familiar *viewing* characterisation is just a metaphor. It may capture the impression one has as a speaker or listener, and, in this sense, it is highly valuable, for example, for didactic purposes. But such a metaphor cannot replace a clear definition. Second, the notion of completion vs. non-completion needs an anchor: completed *when*? An event, activity or state that is completed at some time is normally non-completed (or on-going) at some earlier time. Thus, aspect is relative to some time span; it is time-relational, and in that respect, it is just like tense. But unlike tense, the temporal interval to which TSIT is related is not necessarily TU. So, what is the interval that aspect relates to then?

In view of what was said above, there is a conceptually simple answer: it is the topic time (TT). This gives us the following picture. Different tenses encode different temporal relations between TT and TU. In particular, TT may precede TU (*past*), it may include TU (*present*), or it may follow TU (*future*). A particular tense form may also cluster several such relations. (The German present tense form typically has a present reading and a future reading; i.e., the topic time of the present tense may include TU or it may follow TU.) Different aspects encode different temporal relations between TT and TSIT. In particular, TT may, for instance, be properly included in TSIT. In that case, the assertion is confined to some subinterval of the entire situation, as in *Ira was opening the window*. This gives us the impression that at the time talked about the event was going on or it was not completed. When the continuous form is used, we are in the midst of the situation. Also, the TT may include the TSIT; then, the situation reaches its endpoint within the time talked about, and we have the feeling that the situation is *completed* and is shown in its entirety. So, the familiar

<sup>2</sup>Throughout most of this paper, I adopt Comrie's (1985) label *situation* as an overarching term for all sorts of eventualities, and accordingly *time of situation*. Since this might lead to confusion at the end, where intervals with more complex internal temporal structures than usually assumed are introduced, I will switch to "event time", put in quotation marks.

intuitions that tend to go with imperfect aspect and perfect aspect just follow from simple time-relational definitions. Not all languages mark that these differences by grammatical means, and if they mark them, it may well be that they do not do it for all verbs. In English, for example, copula constructions like *The window was open* typically underspecify the relation between TT and TSIT: TT may be included in the time at which the window is open, but it may also include the time at which the window is open. The tense marking in *was* marks that TT is in the past; other than that, its precise position on the time line as well as its precise duration are not specified.

It is also possible that the TT does not overlap with TSIT but follows it.<sup>3</sup> This leads to a very simple account of the English perfect:

(2)	Tense component	Aspect component
The window had been open	TT before TU	TT after TSIT
The window has been open	TT includes TU	TT after TSIT
The window will have been open	TT after TU	TT after TSIT

So, the tense component varies, the aspect component is the same, namely perfect.

Such an analysis in terms of the three temporal intervals TT, TU and TSIT also suggests a simple picture for other tense forms, such as in *Ira was opening the window* vs. *Ira opened the window* vs. *Ira has been opening the window*. If the old maxim of the scholars *Simplicitas sigillum veritatis* were always true, it would speak much for this account of tense and aspect in terms of a few temporal relations between three types of time spans. Alas, such an account also raises problems. (Is the truth ever simple?) These problems can be roughly divided into five types:

- (a) The account is blind to the interaction of tense and aspect with the inherent temporal properties of the verb meaning—or in traditional terms, with lexical aspect/Aktionsart. Why, for example, can TSIT include TU in *Ira was sick*, but not in *Ira opened the window*? In the latter case, TSIT must be over at TU; only the resulting state, the window's being open, may hold at TU, although it need not.
- (b) There are some vexing empirical facts, such as:
  - some tense-aspect forms are incompatible with temporal adverbials; in English, one cannot say *Ira has left yesterday at five*, even if this event happened yesterday at five;
  - it is odd to say *Napoleon has married Josephine*, even if they were indeed married;
  - it is odd to say *Ira opened the window for five minutes*, even if this action indeed lasted for five minutes.<sup>4</sup>
- (c) It does not account for many exceptional usages, all of which have a specific flavour. For instance, in the present of vivid narration (*And then, this guy looks at me and says:...*) as well as in its non-vivid counterpart, the “praesens tabu-

<sup>3</sup>TT may also precede TSIT, a case which is not grammaticised in English (and apparently not in many other languages, either).

<sup>4</sup>This sentence is possible, though, with the reading that the window remained open for five minutes.

lare” (*In 1840, Victoria marries her beloved cousin Albert; he dies in 1861*), the situation is meant to be in the past, but the present tense is used.

- (d) It does not look at the composition of the entire construction. Consider, for example, a pluperfect like *had left*. It has at least five distinguishable ingredients: the lexical verb *leave*; the past participle marking of this lexical verb, resulting in the form *left*; the addition of an auxiliary with the resulting form *have left*; and finally the finiteness marking on the auxiliary, resulting in *had left*. Each of these ingredients makes a contribution to the meaning of the entire pluperfect, and in a proper analysis, one should not just talk about this meaning (or meanings, if the construction is ambiguous), but about how it is brought forth by these ingredients. A linguistic analysis which does not achieve this is somehow unsatisfactory.
- (e) It is not obvious how it fares with other languages. This is not necessarily worrying, because languages may cluster time relations in ways that are different from English. But there are also many perplexing problems even in closely related languages. For instance, the counterparts to *Napoleon has married Josephine* and *Ira has left yesterday at five* are perfectly fine in German, Dutch or French—languages which are structurally very similar to English.

Since this time-relational analysis of temporality was first presented in Klein (1992, 1994), I have tried to cope with several of these problems. The result is a much-refined version, outlined in Klein (2010); see also Klein (2002), where some of these ideas were applied to the German perfect. In what follows, I will use some of these ideas for the discussion of one particular assumption—the one which Jürgen Bohnemeyer critically examines in his paper.<sup>5</sup>

## 2 Bohnemeyer’s challenge

### 2.1 The objections

As an author, one cannot be but grateful for a discussion like Bohnemeyer’s (2013): it is critical, but careful and fair, and visibly written in the spirit that it is not important who is right but what is right. I will try to preserve that spirit. The focus will be on the problems raised in Bohnemeyer’s Sects. 3 and 4, which deal with the English perfect. Any deep treatment of the substance in Sects. 5–7 would require a greater familiarity with the languages addressed there than what I have, and the main issue, namely, the relationship between aspect and relative tense, can equally well be scrutinised for the English perfect.<sup>6</sup>

The claim that I had made in Klein (1994), dubbed “Klein’s conjecture”, is more or less implicit in the sketch of (2) above and is quoted below:

<sup>5</sup>It would be tempting to extend this discussion to many other significant contributions that were made over the years to the analysis of this issue. But that would be far beyond the commentary that this paper is intended to be.

<sup>6</sup>I should add, however, that my reaction, when I first read Bohnemeyer’s 1998 dissertation on Yukatec (see Bohnemeyer 2002), can best be described by Moore’s paradox: *It is surely true, but I do not believe it.*

“I think that relative tenses are a combination of tense and aspect. (...) The notion of relative tense is not necessary to account for the Pluperfect nor for the Future Perfect. We could surely use the label ‘relative tense’ instead of ‘aspect’ here. But then, we would also be forced to call the contrast between imperfective and perfective a difference in relative tense, and this does not seem to be a particularly fortunate choice of terms.” (Klein 1994:131)

Actually, I did not want to say there that the notion of relative tense *in general* can or should be replaced by the notion of aspect. The claim was rather that the English pluperfect does not require the notion of relative tense; constructions such as *Ira had opened the window* or *Ira had left at six* are just combinations of a tense relation and an aspect relation, as illustrated in (2). But for the sake of the following discussion, I will examine the claim in the broader interpretation, which includes three components:

- aspect is a temporal relation,
- relative tense is a temporal relation, and
- these relations are the same.

Bohnenmeyer (Sect. 3, two footnotes omitted) raises four objections against that idea:

- (5) a. “True perfect aspects (i.e., expressions of perfect viewpoint aspect) are semantically stative and therefore do not combine with event time adverbials.”
- b. “True perfect aspects describe resultant states caused by the eventuality described by the verb. While the properties of the resultant state are subject to contextual inference (cf. Nishiyama and Koenig 2010), the fact that the state holds at topic time is not.”
- c. “True anterior tenses do not express perfect viewpoint aspect. They may combine with expressions of different viewpoint aspects and are interpreted perfectly by default (in the sense of Bohnemeyer and Swift 2004) in the absence of such overt combinations, at least with eventuality descriptions of the appropriate kind.”
- d. “When interpreted perfectly, true anterior tenses have all the relevant semantic properties that distinguish perfective aspects from perfects, including referential shift.”

In what follows, I will primarily deal with (5a) and (5b), that is, with the properties of the perfect, and only have a brief look at the consequences for (5c) and (5d). A systematic examination would also require an in-depth analysis of perfectivity, which is, in itself, a difficult issue that would lead away from the main concern of these comments.

## 2.2 Stativity and time adverbials

I am not convinced that (5a) can be sustained. First, it is not clear why stativity as such should exclude the combination with a temporal adverbial. Such a combination is clearly possible when the adverbial specifies the duration of the state, rather than its position on the timeline:

- (6) a. Ira was here for two hours.  
 b. Ira has lived in France for three years (and thus can apply for citizenship).  
 c. Ira opened the window for five minutes.

In (6c), the adverbial cannot specify the duration of the “event proper” but the combination is possible if the duration of the resultant state is meant—i.e., the time during which the window was then open. This means that in principle, the resultant state of an event is accessible to adverbial modification. It does not necessarily mean, however, that a resultant state, or any state, can be targeted by a temporal adverbial of position, like *at five*, *last spring*, or *at noon* (this is what I assume Bohnemeyer has in mind). In that regard, the facts are mixed:

- (7) a. Ira was here at five.  
 b. Ira has been opening the window at five.  
 c. \*Ira has lived in France last spring.

In (7a), the state of Ira’s being here is modified by *at five*. But clearly, the adverbial *at five* need not specify the entire time of Ira’s being here (that would be a short visit, indeed); *at five* only characterises some subinterval of Ira’s being here. With an adverbial of longer duration, such as *last spring*, it may also be that the time of his being here is shorter than indicated by the adverbial: (7a) can also be true, when Ira was here only part of last spring. So, it is not the whole TSIT whose position on the time line is specified by the adverbial, but some interval overlapping with TSIT. In (7a), this mysterious interval is apparently the time to which the assertion is confined—the topic time. The speaker simply does not say anything about what is the case at four, at six or at TU. The case of (7b) is more complicated: opening a window is surely an event (an “accomplishment” in Vendler’s terms); but actually, what is temporally specified is not the entire event but again a subinterval—the time at which Ira did something to open the window, for example, turning the handle; it could well be that the resultant state, in which the window is open, was only reached at six, or not at all.

Consider now (7c); it illustrates the *present perfect puzzle*: even if it is true that Ira was in France last spring, it is not possible to say that in combination with a present perfect, whereas it is easily possible with the simple past: *Ira was in France last spring*. So, there must be a difference between the present perfect and the simple past beyond the fact that the event is in the past—a difference which renders it impossible to be a bit more precise with the exact time; I will come back to that in Sect. 2.5.

Second, it may be that Bohnemeyer’s claim (5a) only relates to stativity in perfect constructions. Now, it is easily possible to specify the event time in a perfect construction, if this construction is not finite:

- (8) a. Ira seems to/is said to/must have been there at five.  
 b. Ira seems to/is said to/must have left at five.  
 c. Having left at five, he cannot have committed the murder, because that happened exactly at five.

So, the impossibility to specify TSIT by a temporal adverbial crucially hinges on the finiteness marking of the construction. But like in (7a), *at five* in (8a) does not specify

the position of the full event, that is, the entire interval of Ira's being there. The adverbial *at five* seems rather to be the time to which the modalised assertion is confined—i.e., the topic time. But then, we are faced with the problem that *seem/must/is said* have a topic time on their own, which does not precede TU but includes it. This shows that a pure three-parameter approach with TU, TT, TSIT is not satisfactory. Note, furthermore, an interesting asymmetry between the non-finite perfect in (8b) and (8c): in (8b), *at five* is regularly interpreted as the time of Ira's (alleged) leaving; in (8c), *at five* can have that reading, too; but the sentence can also mean that he was no longer there at five, i.e., that his leaving was, say, at four, and *at five* relates to the time after his leaving—that is, to the resultant state.

It appears that there are three net conclusions:

- (9) a. The fact that sometimes true perfect aspects (i.e., expressions of perfect viewpoint aspect) [. . .] do not combine with event time adverbials is not due to their inherent stativity, but to the impact of finiteness.
- b. The present perfect puzzle cannot be explained by the role of stativity, as Bohnemeyer (Sect. 4) argues.
- c. The asymmetrical behaviour between present perfect and simple past with respect to past adverbials is not due to a different relation between—in traditional terminology—event time and speech time.

In one important point, however, I agree with Bohnemeyer's idea in (5a): the three time spans TU, TT and TSIT do not suffice to explain the behaviour of English verb constructions towards adverbials. The picture must be more complex.

### 2.3 The properties of the resultant state

Let us turn now to Bohnemeyer's (5b), according to which (a) true perfects describe resultant states of whatever is described by the verb, and (b) the topic time falls into such a resultant state—irrespective of what its precise properties are. This, of course, can only be correct if the construction includes a topic time. In non-finite constructions, this is not the case, since the assertion is immediately linked to finiteness marking. Let us therefore separate finiteness marking and perfect marking. Consider (10):

- (10) a. Ira seems to be ill.
- b. Ira seems to have been ill.
- c. Opening the windows was not easy.
- d. ??/\*Having opened the windows was not easy.

As the difference between (10a) and (10b) or between (10c) and (10d) shows, the effect of the perfect marking is indeed to introduce some post-time of the situation described by the predicates *to be ill* and *to open*. In (10a), we infer from observing what may happen to Ira; in (10b), we infer from the result that Ira has been ill. It might be difficult to open the windows (10c), but there is no action at the post-state that could be difficult to do, and therefore, (10d) is odd.

But what exactly are the properties of the resultant states—the *have-been-ill* and *have-opened* properties, as it were—in contrast to those of the situation itself—the *be ill* and *be open* properties? Here, it is important to distinguish between the purely



time-relational fact that the post-time is AFTER the situation time, on the one hand, and the properties which obtain at that post-time, on the other. Terms like “post-state” or “resultant state” often merge these two factors. Consider the following simple present perfect sentences:

- (11) a. Ira has been in jail.  
 b. Ira has left.  
 c. Ira has died.  
 d. Ira has killed his father.

In (11a), an interval with descriptive properties “be in jail” is assigned to Ira; I will note this interval as [BE IN JAIL]; nothing is made explicit about the duration or the position of this interval, it is neither definite with respect to its position nor definite with respect to its duration. Is there a time after that time, the post-time of [BE IN JAIL]? What is the case at that post-time? Is Ira depressed? Is he free? Is he still in jail? The information provided by (11) does not say anything about that—all we know is that at some time earlier than TU, Ira was in jail. But we may, of course, use other information to draw inferences about Ira at the post-time. So, it may be that in some country, people who have been in jail lose the right to vote. With that additional information, we may say that Ira now has the property NOT ALLOWED TO VOTE, relevant for example for an argument like *Ira does not care about the election. He has been in jail.* In other words—whichever properties are assigned to Ira at the post-time, they are not part of the lexical meaning of *be in jail*.

This is different in (11b). The situation time must contain two distinct subintervals, roughly [[BE HERE] then [BE NOT HERE]].<sup>7</sup> The post-time of *have been here* is the time after such an interval with two distinct sub-phases. Note that the post-time does not begin after the first phase [BE HERE]. Otherwise, there would be no difference between *have been here* and *have left*. The crucial difference between the post-times of *Ira has been here* and *Ira has left* is thus, that in the first case, it is not lexically specified which properties the post-time has, whereas it is specified in *Ira has left*: he must be not here. This does not mean, however, that he must be absent forever, i.e., that this property extends over the whole post-time. At some later subinterval of the post-time, he could return, and leave again, and be back again, and so on. In other words, whereas the post-time of a situation, as defined by the perfect form, lasts forever—it is just the time after—this is not the case for the descriptive properties which the argument has during the post-time. The post-time of “two-phase verbs such as *to leave* must have an initial subinterval with the properties of the second phase. In one-phase verbal expressions such as *to be in jail*, *to be here*, *to sleep*, the properties of the post-time are not specified at all. Some properties are, of course, such that—under common assumptions—they do not end: if one has them, one has them forever. This is the case in (11b) with the situation interval [[BE ALIVE] then [BE NOT ALIVE]]; as a consequence, the post-time not only begins with an interval [BE NOT ALIVE], but these properties extend over the whole post-time. For those

<sup>7</sup>I do not mean, of course, that this is an exhaustive description of what English *to leave* means. The crucial point is that there must be two subintervals with mutually exclusive properties, in this case, local properties.

who believe in resurrection, it is, of course, possible, that at some later subinterval of the post-time, Ira has the properties BE ALIVE again. We note in passing, that this is not only true for *to die* but also for *to be dead*. But whereas it is perfectly normal to say *Ira has died*, it sounds distinctly odd to say *Ira has been dead*. We will come back to this observation in Sect. 2.5 below.

Properties like TO BE IN JAIL, TO BE HERE, TO BE NOT HERE, TO BE DEAD, TO BE ALIVE are assigned to arguments at specific intervals. In (11a)–(11c), there is only one argument. The situation becomes more complex in cases like (11d) with the two arguments *Ira* and *his father*. In *to kill*, the two properties BE ALIVE, BE NOT ALIVE apply to the object. About the subject, it is only said that it did something—swing an ax, apply poison, talk too much, whatever—that causes the second phase of the object. So, we get a cluster of three partly overlapping subintervals. (Since one cannot kill a dead person, the phase of Ira’s being active must overlap with the first phase of the father, i.e., the one at which he is alive.) The event time of *to kill* can be considered the smallest interval which contains all three subintervals with those lexical properties. What about the *have-killed* time? Nothing is said about Ira (he could still swing his ax; that would be redundant, but not falsify that he is in the *have-killed* time); the father must have the property BE DEAD, and resurrection aside, he has this property during the whole post-time. So, this yields a more complex picture than the simple TSIT, as used in (2) above; the core idea, however, is the same. The perfect defines the time after such a more or less complex situation time, and what is said about this post-time depends on the properties of the lexical verb (or copula construction).

What does this mean for Bohnemeyer’s point (5b), repeated here for convenience?

- (5) b. True perfect aspects describe resultant states caused by the eventuality described by the verb. While the properties of the resultant state are subject to contextual inference (cf. Nishiyama and Koenig 2010), the fact that the state holds at topic time is not.

I agree with the first sentence with two potential divergences. First, as said above, it is crucial to separate between “post-time” and “post-time properties” strictly; the latter need not be constant over the post-time, it is not “stative” in the sense that nothing could change. Second, the resultant state need not be “caused by the eventuality”. At the time of *have been in jail*, Ira could be free, but he could also still be in jail; therefore, it would be odd to say that both are caused by the eventuality *be in jail*. As to the *while*-clause in (5b), I believe that the properties of the resultant state can also be lexically specified, at least for the initial part of the post-time. The last clause of (5b) will now be examined for the English pluperfect. Consider (12):

- (12) Ira had opened the window.

The pluperfect consists of various components:

- (a) the lexical verb *open*, which assigns various properties at different subintervals to its two arguments, here denoted by *Ira* and *the window*;  
 (b) a past participle marking on the lexical verb, turning it into *opened*;  
 (c) the addition of an auxiliary, yielding the post-time construction *have opened*;

- (d) a finiteness marking on the auxiliary, which turns it into *had* and indicates that the topic time is in the past.

As we have seen in the preceding discussion, there is no uniform time of the situation that would correspond to *to open*; it is rather a structure which consists of three interrelated subintervals with different properties for the two arguments, roughly [BE ACTIVE] for the first argument, and [[BE NOT OPEN], then [BE OPEN]] for the second argument.<sup>8</sup> As said above, we may define the event time as the minimal interval which includes all three subintervals.<sup>9</sup> Since this is not directly relevant for the present discussion, the effect of the participle marking is skipped here.<sup>10</sup> Step (c) adds a time after the event time; the properties of the various arguments at this post-time vary. In this case, it is only required that at the beginning of the post-time, the window must be open. Everything else is based on inferences: Ira will probably no longer try to turn a handle, or whatever he did to bring about the result; it may be cold in the room; there may now be smoke in the room, because there was smoke outside; Bill may be angry because he hates open windows, whatever. All of these properties of the post-time, be they lexically specified or inferred, need not extend over the whole post-time; in fact, this is unlikely in this example.

The bare post-time, as introduced by *have opened*, does not specify an interval to which the assertion is confined. This is only done by finiteness marking, which has two temporal effects: (a) it places the topic time into the post-time, and (b) it indicates that the topic time, and thus part of the post-time, is in the past. The refinements just discussed aside, this is much like the analysis of the pluperfect in (2): the event time precedes the topic time, and the topic time precedes the utterance time. The decisive question regarding Bohnemeyer's claim now is: does the topic time always fall into the part of the post-time that has lexically defined properties? Or more specifically: Is *Ira had opened the window* only true if the window is open at the time of *had*, about which so far we only know that it is in the past? Context or some adverbial may give us more information. At this point, things get very tricky. It seems clear to me that (12) can be truthfully uttered when the window is closed at the topic time: there is no problem in saying: *When we came in, the window was closed. Ira had opened it, but Bella had closed it five minutes later*. So, Bohnemeyer's claim that the state must hold at topic time is not correct with respect to the lexically specified properties of that state—unless the post-time properties are of the sort that last forever (like being dead). How about the inferred properties of the post-time? Consider again the post-time properties of being in jail. Suppose legal rules preclude the right to vote for people who have been in jail; then it is true that at any subinterval and thus at any possible topic time within the post-time, the person in question does not have

<sup>8</sup>As an aside: this is to my mind the reason why it is odd to specify the compound interval by a duration adverbial like *for five minutes*. That is possible only if the adverbial can be applied to a subinterval; in English, this seems only possible for the time at which the window is open.

<sup>9</sup>As of now, I avoid the label TSIT in order to avoid confusion with its earlier and simpler usage; but there is no real contradiction to that usage—it is just a refinement by looking at the internal structure of different verb types.

<sup>10</sup>A more systematic analysis that also includes the temporal properties of participle formation is found in Klein (2010).

the right to vote. But it could also be that this right is just suspended for three years. Then, the topic time in a given case may fall into the first years of the post-time, and for that time, Bohmeyer's claim holds; but it may also fall into the fourth year, and then, it does not hold. So, the result seems to be that the claim crucially depends on the particular type of post-time properties. It is not generally true.

## 2.4 The ambiguity of English pluperfect

In (12), neither exact position nor duration of topic time or event time is precisely specified; it is only said that the topic time is before TU, and the event time is before the topic time. As for the bare temporal relations, the simplest analysis is surely that there is no ambiguity in pluperfects. But is not excluded that the relation the *had*-time and the *opening*-time has two readings, one which is bare anteriority, and one which has the characteristics of a perfect with respect to post-time properties. This is parallel to the difference between simple past and present perfect, as in *Ira left* vs. *Ira has left* or *Ira was here* vs. *Ira has been here*. Does the English pluperfect preserve these two readings, and is it, thus, ambiguous between a past-in-the-past reading and a perfect-in-the-past reading? In Bohmeyer's words:

“Traditionally, the English Pluperfect is considered polysemous between an aspect-like ‘Perfect-in-the-Past’ reading and a tense-like ‘Past-in-the-Past’ reading (Jespersen 1924; Comrie 1976; [. . .]). In (1)–(2), the difference can be pinpointed with respect to the time adverbial. Under the aspectual reading of the Pluperfect in (1), the adverbial denotes a time at which Bill is presented as being in the result state of the arriving event, whereas under the anterior-tense reading in (2), the adverbial denotes the time at which Bill arrived.”

In principle, such an adverbial can specify the *had*-time or the *opening*-time. (Example (1) in the quote corresponds to (13a) below; example (2) corresponds to (13b).)

- (13) a. At five, Ira had opened the window.  
b. Ira had opened the window at five.

In initial position, *at five* is normally understood to relate to the topic time (the *had*-time), and that means that at five, the event as such was over; it may have occurred at four, for example. In final position, *at five* typically specifies the event time, and the topic time is later than that. On closer inspection, the facts turn out to be more complicated: *at five* in final position can also target the topic time, if there is a final fall in *opened*, thus rendering *at five* de-stressed.<sup>11</sup> This is, however, no necessity. In a sequence such as *Ira had not CLOSED the window at five; he had OPENED the window at five*, the adverbial clearly specifies the event time, rather than a subinterval of its post-time. For the following discussion, I will ignore these—in fact, very interesting—complications and assume (as in Klein 1992) that an initial adverbial

<sup>11</sup>Speakers do not seem to have very clear intuitions about whether an initial adverbial is in a similar way dependent on intonation; it seems however, that the topic time reading is strongly preferred independent of the intonational pattern.

specifies the topic time, and a final adverbial specifies the event time. Nothing hinges on that for the simplification.

Since the event time is relatively complex in (13b), let us first consider the somewhat simpler case of *arrive*, as in Comrie's and Bohnemeyer's original example. Is it really necessary that the post-time properties of *arrive* must obtain *at five* in *At five, Ira had arrived*, but not in *Ira had arrived at five*? Let us assume that the time of an arriving event has the structure [[BE NOT HERE] then [BE HERE]]. Its post-time, the *have-arrived* time, must begin with a [BE HERE]-interval; but it is possible, in fact even likely, that this subinterval is followed by a [BE NOT HERE]-interval. Suppose now that Ira and Bella were expected to arrive no later than five, and furthermore that Ira arrived at four and left after half an hour. In this context, it would be perfectly correct to say *At five, Ira had arrived*, although he is no longer here at the topic time. In (13a) and (13b), we must distinguish between the post-time properties of the first argument and the post-time properties of the second argument. About the former, nothing is explicitly said; most likely, his activity is over at that time, but he may not have noticed that the window is already open and still turn a handle, push a button or say, *Open, sesame*.<sup>12</sup> As regards the other argument, the window must be open at the beginning of the post-time; otherwise, one could not say that Ira had opened it. But this need not last forever; at a later interval of the post-time, the window can be closed again, as was discussed above. Can (13a) be true, even if the window is closed again at five? I believe that this is indeed possible, for example if Ira has the task of opening the window as fast as possible, and if he does it no later than at five, he is paid 10 dollars. Then, he may have managed to open it at four, and someone else may have closed it again for the next test candidate.

Summing up, I do not believe that Bohnemeyer's dictum (5b) is correct; the resultant state can indeed be over at the topic time.

## 2.5 The present perfect puzzle revisited

Let me now briefly turn to pure anterior tenses (cf. Bohnemeyer's points (5c) and (5d)), as in *Ira was in jail* or *Ira opened the window*. Like in the corresponding present perfect sentences *Ira has been in jail* and *in Ira has opened the window*, the event time is in the past. In the simple past, however, the event time does not precede the topic time, but overlaps with it; the past-ness effect is due to this overlap and to the fact that the topic time is in the past. Does this have consequences for what is the case with the two arguments at the utterance time? I doubt it. Neither *Ira was in jail* nor *Ira has been in jail* precludes that he is in jail at TU. And neither *Ira opened the window* nor *Ira has opened the window* say what is the case with Ira or with the window at TU.<sup>13</sup> In other words, simple past (pure anteriority) and present perfect

<sup>12</sup>Imagine a psi-experiment in which Ira is supposed to open a window by telekinesis. Then, he might still try when the eyewitnesses already have shouted that he did it.

<sup>13</sup>The title of Irwin Shaw's story *God was here, but he left early* strongly evokes the idea that God is absent at the utterance time. But the assertion made by the sentence is not incompatible with the idea that he has returned in the meantime. In that regard, the pure anterior tense is in no way different from the perfect *God has left early*.

behave exactly alike with respect to the properties of the argument(s) after the event time.

On the other hand, there are two clear differences between the present perfect and the simple past. First, the present perfect seems to say something about the present time, whereas the simple past seems to say something about the past. Both place the event time in the past—but whereas the simple past talks about the event, the present perfect talks about its consequences.<sup>14</sup> These differences are intuitive impressions—but they are quite manifest. I believe that they are naturally captured by the role of the topic time, that is, the time about which the assertion is made: in the present perfect, this is a time which includes the right now, whereas in the simple past, it is an interval in the past. Second, there are constructions which are odd with the present perfect but normal with the simple past. The two best-known cases were already noted by Otto Jespersen (1931):

- (14) a. It is odd to use the present perfect, if the subject does not exist at the utterance time, as in *Einstein has visited Princeton* or *Aristotle has been the teacher of Alexander*.
- b. It is odd to combine the present perfect with a temporal adverbial such as *at five*: neither *Ira has left at five* nor *At five, Ira has left* are felicitous.<sup>15</sup>

Let us look at these in turn. To begin with, it will be useful to sum up some observations:

- (15) a. The event time need not be a simple interval (let alone a point, as Reichenbach's E). Depending on the particular verb (or copula construction), it can include several subintervals, at which descriptive properties are assigned to the various argument variables.
- b. The perfect marking (past participle and auxiliary *have*) adds a post-time to the event time.
- c. The descriptive properties of the argument(s) at the post-time can be lexically specified or they result from contextual inferences. They may but need not be constant over the post-time.
- d. Finiteness marking on the auxiliary *have* places a topic time in the post-time; depending on the marking, the topic time precedes (past), includes (present) or follows (future) the utterance time.
- e. Finiteness marking also makes it possible to fill the subject position. Non-finite constructions may have an explicit object in English (*(to) close the window, (to) have closed the window*), but no explicit subject.

<sup>14</sup>This is also reflected in the traditional idea of a special current relevance that goes with the present perfect but not with the simple past. I do not think, incidentally, that distinctions like the one between “universal perfect” and “existential perfect” are specific to the perfect; they can be made with the same right for the simple past.

<sup>15</sup>A correlate is the fact that it is also odd to ask for the event time with a present perfect sentence, such as *When has Ira left?* or *When has Ira been in jail?*

It is this last fact that suggests a solution to the Einstein-problem. Consider a non-finite perfect like *have visited Princeton*. It contains two verbal elements, the auxiliary *have* and the lexical verb *visit*, each of which is associated with a time span (post-time and event time, respectively) and each of which provides a slot for the argument in subject position. In a finite construction, only one of those two positions can be filled by an appropriate noun phrase. We have no sentences like *Einstein has Einstein visited Princeton*. This is not as trivial as it may sound at first. After all, different properties may be assigned to the same argument at different times; in these cases, the argument is only named once. We may state this as a general restriction on the construction of clauses:

- (16) If a verbal complex provides different slots for the same argument at different times, this argument is made explicit only once.

At which level is the slot filled in *has visited Princeton*—at the level of the lexical verb or at the level of the auxiliary? Informally speaking, we may paraphrase the two readings as follows:

- Right now, Einstein (the topic entity) has the post-time properties of visiting Princeton.
- Right now, the world is in the post-time of the event *Einstein visits Princeton*.

Under the first reading, Einstein should exist right now. Under the second reading, this is not necessary.

Languages have a choice here. English fills it at the level of the auxiliary, which means that the subject gets assigned its properties at the topic time.<sup>16</sup> That does not make sense if the subject does not exist at the topic time, and since Einstein and Aristotle do not exist right now, the sentences in (14a) are odd. German and Dutch need not choose this option (and in fact, seem to prefer the other one), which means that the corresponding sentences—which are exactly parallel in structure—are fine.

Let us turn now to the second peculiarity of the English present perfect, the vexing fact that it does not go with an adverbial that specifies the event time, although this event clearly happened in the past.<sup>17</sup> If the departure of the train was yesterday at five, then the assertion *The train has departed yesterday at five* as well as *Yesterday at five, the train has departed* are odd. If the adverbial is in initial position, this effect may be due to the fact that such an adverbial can only specify the time of the auxiliary (thus the topic time); this would lead to a clash between a past-time adverbial and a present-time auxiliary. But this does not apply when the adverbial is in final position and specifies the event time. In that case, the sentence is true but odd. So, one might look for other sentences which are true but odd. Here are a few examples:

<sup>16</sup>Note that the subject position in English typically has topic status; that means that topic entity and topic time go hand in hand; they are two components of the entire topic situation.

<sup>17</sup>Under an extended-now analysis of the present perfect, as advocated by a number of scholars, it is sometimes argued that the thus “extended now” clashes with the past time adverbial. That may be true, but it does not change the fact that the event is in the past, and the mere existence of an interval that ranges from the utterance time back into the past does not change this fact.



- (17) a. Right now, 19 is a prime number.  
 b. Ira has been dead. (Under the assumption that he died yesterday.)  
 c. At six, Ira had left at five. (Under the assumption that he left at five.)

If a number is a prime number, then it is a prime number forever. Restricting the assertion to a particular time, here right now, is therefore odd, although the assertion is correct.<sup>18</sup>

If Ira had the property of being dead at some fixed time in the past, then he has this property forever after that time. The present perfect marking in (16c) explicitly restricts the assertion to some time around the utterance time, which is odd.

If Ira left at five, then it is true for any time afterwards that he is in the post-time of leaving at five. As long as no such topic time is fixed, there is no problem, since the assertion is not explicitly restricted to a particular time. Past tense marking of the auxiliary, as in *Ira had left*, does not do this, because the topic time of *had* can be ANY time which precedes the utterance time and falls into the post-time of his leaving: it is not, as one might say, position-definite.<sup>19</sup> But as soon as this is done, for example by an initial adverbial, as in (17c), the whole assertion is correct but odd, due to this artificial restriction of the claim.

Rather than by an initial adverbial, the topic time can also be restricted to some interval that must include TU, and thus has a definite position. Therefore, *Ira has left at five* should be odd. And so it is.

### 3 Conclusion

Bohnenmeyer starts his article with the sentence: “The question examined in this article is whether viewpoint aspects and relative tenses are distinct semantic categories.” I agree that these two notions cannot be reduced to one. As outlined above, I do not concur with all of Bohnemeyer’s arguments, but I agree that the analysis proposed in Klein (1992, 1994) is too simple. A much more refined picture of various types of temporal intervals and temporal relations between them is necessary; the notion of a perspective time may well be a case in question, although this would need further examination. What I do believe, however, is that the way in which natural languages encode temporality can be adequately analysed by an account based on three core notions. These are:

- temporal intervals (time spans), that can be long or short;
- temporal relations between these intervals such as “a before b”, “a includes b”, “a overlaps b”, “a properly contains b”, and so on;
- qualitative characterisations of the intervals, such as the time at which the utterance is made, the time specified by a *verbum dicendi*, the time to which the assertion is confined, the time at which something is the case, the time at which something

<sup>18</sup>It is possible to make assertions like *At the time of Fibonacci, I was a prime number*—meaning: in those days, it was considered to be a prime number, whereas nowadays, we do not consider it to be a prime number. But in that sense, it is indeed not a permanent property of 1 to be a prime number.

<sup>19</sup>Nor is it duration-definite, i.e., the marking *had* simply leaves open how long the topic time is.



could be the case, the time at which the truth of something turns out to be true, and others. As usual, these characterisations can stem from contextual information, they can be made explicit by some simple or compound expression, or they can be due to a combination thereof.

In that sense, traditional categories such as tense, aspect and Aktionsart can all be given a time-relational analysis. Languages differ in the way in which they operate with these notions, and they also vary in their choice of grammatical and lexical devices that they prefer. The range of these devices goes far beyond of what is traditionally labelled as tense or aspect. In principle, these three core notions should suffice to analyse all of these devices and to explain how time is encoded in language.

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