# Event Time Properties

Gerhard Brugger
*UCLA*

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## 1.     Introduction

The English present perfect (PrP) has an intermediate status between the past tense and the present tense as it relates events that occurred or began in the past to the present moment. The underlying assumption of a popular family of analyses is that the PrP is a combination of present and past tense, the latter being embedded under the former. *Embedded Past Theories* of the PrP have been proposed in variety of formulations (e.g., Reichenbach (1947), McCawley (1971), Hornstein (1990), Giorgi & Pianesi (1991,1996), Klein (1991), Smith (1991), Stowell (1993), a.o.). One of the most influential ones is Reichenbach's (1947) legendary formula E_R,S: the PrP expresses a non-past relation (",") between Speech Time (S) and Reference Time (R) and a past relation ("_") between Reference Time and Event Time (E).

(1)     a.    E_R,S          present perfect
         b.    E,R_S          past tense
         c.    E,R,S          present tense

(2)     a.    $[...[_{TP}$ S $[\text{-P}]_T$ R $[_{T/ASP}$PP $[+\text{P}]_{T/ASP}$ E ...VP $]]$        (1a)
         b.    $[...[_{TP}$ S $[\text{-/+P}]_T$ R,E ...VP $]]$        (1b,c)

The PrP is distinguished from the past tense in the location of R and from the present tense in the location of the E. For technical reasons we represent these relations structurally as in (2): T relates R with S and T/ASP (i.e., Giorgi & Pianesi's T2) relates E with R.

Adopting Stowell (1993) we assume that Reichenbach's time points are represented in the syntax. For the sake of simplicity we ignore the structural representation of the non-past relation between E and R in the case of the present and the past tense.

Corresponding to the difference in the location of R there are *Reference Time Properties* that differentiate the PrP from the past tense and assimilate it to the present tense (we will discuss them briefly at the end of this section). Analogously, we would expect there to be *Event Time Properties* that distinguish the PrP from the present tense and assimilate it to the past tense. However, this issue is more intricate. Only in certain usages are the Event Time Properties of the PrP comparable to the ones of the past tense. In other usages they have an intermediate status between past and present, which goes against the Embedded Past analysis. The aim of this investigation is to identify the Event Time Properties of different PrP types. The properties we will consider are the location of the event in relation to Speech Time (section 2), the licensing of Sequence of Tense (section 3) and the ability of the PrP to express different aspectual functions (section 4). We will conclude that the PrP varies with respect to these properties due to an ambivalence of the participle between a temporal and an aspectual function.

Since the paper focuses on the Event Time Properties, we conclude this section with a brief presentation of the Reference Time Properties in order to make clear which PrP-properties this paper is *not* about. First, there is a difference in standpoint between the PrP and the past tense: in PrP sentences "past events are not seen from a point also in the past, but from a point of reference which coincides with the point of speech" Reichenbach (1947:289); the past tense takes the standpoint of the past. For instance, while with the past tense sentence (3b) the speaker's inquiry concerns only a limited period of time prior to Speech Time, the PrP in (3a) inquires about calls within a period up to S.

(3)    a. Has he ever called you?
       b. Did he ever call you?
(4)       Last week Cadu *has made/$^{ok}$made Caipirinha
(5)       Einstein #has taught/$^{ok}$taught in Princeton

Second, the PrP is incompatible with definite past time denoting adverbs, such as *yesterday*, *three years ago*, *on September 7th*

*1944*, etc. (the so-called *Past Adverb Constraint*).[1] Third, PrP sentences ascribe to their topic a property that results from their participation in the prior situation: *Chomsky has taught at Princeton* attributes to Chomsky the property of having done this action (Smith's (1991) *Participant Property*, Inoue (1979)). There is a pragmatic felicity requirement on the use of the perfect: that the topic of the PrP sentence be in a position to be attributed this property. Some well-known examples, such as (5), turn on the fact that the subjects are not alive at Reference Time.

## 2.      The Vagueness Approach

A challenge for the Embedded Past Theories is that the event does not always strictly precede speech time. As is well-known, the PrP is often compatible with an interpretation where the event prevailed throughout some interval stretching from the past into the present (the *continuative interpretation*). For instance, the sentences in (6) can mean that John still lives in London and that he is still sick.

(6)      a.   John has lived in London for three years
         b.   John has been sick since Christmas

The sentences can also have an *existential interpretation*. (6a): there has been a three year interval at some time in the past at which John lived in London; (6b): there has been a time in the past between Christmas and now during which John was sick.[2]

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[1]We ignore here that the Past Adverb Constraint is not an issue of Reference Time only but also of Event Time: sentence final past time adverbs can modify the Event Time in e.g., past perfect sentences. Strictly speaking, contrasts like (4) can be related to Reference Time only when they involve sentence initial time adverbs. Due to space limitations we will not explore this interesting topic in this paper.

[2]Notice that the adverbials in (6) are necessary for the continuative interpretation to arise. Without them there is no ambiguity. *John has lived in London* is existential and means that John's living in London took place at some time in the past, but that he no longer lives there. In other words, the continuative interpretation requires a temporal specification: the starting point (with: *since Christmas*), duration (with: *for three years*, *long*) or endpoint of the event (with: *so far*, *up to now*) has to be specified. Notice also that certain adverbs, such as *once, twice, several/several times*, are only compatible with the existential interpretation: *John has been sick twice/several times (since*

In an Embedded Past Theory the second interpretation is the basic one and the continuative interpretation has to be derived from that in some way. Many proponents of the Embedded Past Theory do not address this issue. Others relate the continuative interpretation to a vagueness of the actual duration of the event. That is, although the event time precedes speech time the event itself need not have come to an end before speech time. As Klein (1991:539f) states "the fact that *Chris has been in Pontefract* does not exclude that *Chris is in Pontefract* is due solely to the fact that a hidden parameter – the duration of the [event] – is ignored. [...] For *Chris has been in Pontefract* to be true, all that is required is that SOME time span, one at which Chris was in Pontefract, precedes [speech time]" (Klein (1991:539f)). That is, the Event Time is in the past in any case, but its location is "indefinite", which leaves open whether the event still goes on or not. We will refer to this proposal as to the *Vagueness Approach.*

The Vagueness Approach seems appealing as it attempts to reduce the meanings of the PrP to one basic meaning. In fact, most researchers that have addressed this question have concluded that the different meanings are due to contextual elements and the communicative context, and not to distinct underlying semantic representations. Nevertheless, this approach will be rejected in the course of the argumentation as being too simplistic to account for the full range of differences between the PrP interpretations. For instance, it is unclear how an approach where the continuative interpretation is an issue of vagueness can account for sentences such as *Mario has been living in Padova* which can only have the continuative interpretation. A related problem is that in some languages, such as Portuguese, the PrP can only have the continuative interpretation (see section 2). In the following section we will concentrate on a problem that concerns the temporal interpretation of clauses that are embedded under PrP sentences.

## 3.      Sequence of Tense

In English, a past tense complement of a past tense sentence can be interpreted in two ways: as past shifted or as simultaneous with respect to the superordinated past tense. (7a), for instance, can either mean that Mary was sick at a time that is prior to the time of John's claiming (past shifted), or that Mary was sick at the time of John's

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*Christmas).*

claiming (simultaneous). The same ambiguity arises when the superordinate tense is a PrP (7b). Past shifted: Mary's sickness precedes John's claimings; simultaneous: Mary was sick at the times of John's claimings.

(7)     a.    John claimed that Mary was sick
        b.    Since Christmas, John has claimed (several times) that
              Mary was sick

Sequence of Tense has two components. First, the Event Time of the superordinate clause binds the Speech Time of the subordinate clause as indicated by the co-indexation in (8).

(8)     a.    ...S $[+P]_T$ R,$\mathbf{E_i}$...V $[_{S'}...\mathbf{S_i}$ $[+/-\mathbf{P}]_T$ R,E...V+ed $]$
              (7a)
        b.    ...S $[-P]_T$ R $[+P]_{T/ASP}$ $\mathbf{E_i}$....V $[_{S'}...\mathbf{S_i}$ $[+/-\mathbf{P}]_T$ R,E...V+ed$]$
              (7b)

The observed ambiguity is due to different values of the embedded T. When the value of the embedded T is positive the Reference Time of the embedded clause is shifted further into the past. The simultaneous interpretation arises when the value of the embedded T is negative: the embedded Reference Time is not shifted into the past but co-temporaneous with the embedded Speech Time. This mirrors the common assumption that in the simultaneous construal the embedded past tense is a non-past rather than a past tense, semantically: Mary "is" sick at the time of John's claiming.

        The second component licenses the non-past interpretation of the subordinate past tense, i.e., the [-P] in T. In general, an embedded past tense can have the simultaneous interpretation when there is a superordinate tense that expresses a past relation. Stowell (1993) derives this generalization by assuming that the past tense morpheme *-ed* is a *Past Polarity Item* in English:

(9)     Stowell 1993:
        *-ed* is a [+P] polarity item

This is to say that a verb can have past tense morphology even if within its own clause no past relation is expressed – it is sufficient that a superordinate clause expresses a past relation. The value of the embedded T in (8) can be negative because there is a superordinate T with a positive value that can license the past

morpheme of the embedded verb.

It is important to note that only the existential but not the continuative PrP can license the simultaneous interpretation of an embedded past tense. (10) with the continuative interpretation of the PrP (i.e., John is still claiming) strongly implies John refers to a time in the past at which Mary was sick.

(10)  Since Christmas John has claimed/been claiming that Mary
        was sick

This observation is not at all surprising when we keep in mind that the continuative PrP is like the present tense in that the event obtains through Speech Time. Neither one licenses the simultaneous interpretation: with respect to Sequence of Tense the continuative PrP behaves like the present tense sentence *John is claiming that Mary was sick*. This is especially clear in Portuguese whose PrP form (auxiliary *ter* plus past participle) has only the continuative interpretation (cf. e.g., Comrie 1985:85). In addition, certain verbs, such as verbs of volition (*querer* "want", *desejar* "wish, desire"), verbs of fear (*temer*, *recear* "to be afraid of, to fear"), verbs of influence and permission (*recomendar* "recommend", *exegir* "require", *ordenar* "order"), trigger *strong* tense agreement on their sentential complements. As illustrated in (11), the complement must have the same tense as the superordinated clause: when the superordinated clause is in the present tense, the complement is in the present tense; when the former is in the past, the latter is in the past (cf.: Raposo (1985, p.78f)). Crucially, when these verbs appear in the PrP, the complement must be in the present tense and cannot be in the past tense (12).

(11)  a.  Eu desejo que a Maria ganhe/*ganhasse o prêmio
            I wish that Maria wins/won(subj) the prize
        b.  Eu desejava/desejei que a Maria *ganhe/ganhasse a corrida
            I wished that Maria wins/won(subj) the race
(12)        O João tem querido que a Maria faça/*fizesse café forte
            João has wanted that Maria makes/made(subj) strong coffee

(12) means that João has been and still is (continuative) in a state of wanting that Maria makes strong coffee. The contrast indicates that the Sequence of Tense properties of the continuative PrP are that of a present tense.

These observations indicate that a uniform analysis of the

existential and the continuative PrP is not tenable. In particular, if both types expressed a past relation, as assumed by the Embedded Past Theories, both types should license the simultaneous interpretation of an embedded past tense. Klein's assumption that the difference is due to a "hidden" parameter does not help very much either – unless one reformulates the Sequence of Tense Rule in some way in order to incorporate this "hidden" parameter. If we want to keep the Sequence of Tense rule as formulated in this section we have to differentiate the two PrP types structurally. More specifically, the data in (7b), (10) and (12) imply that the existential, but not the continuative type, hosts a [+P] that is accessible for an embedded past tense.

In many grammars the PrP is said to express the present effects or results of a past action. (13a), for instance, indicates persistence of the result of John's arriving, i.e., that he is still here; (13b) implies that Bill is now in America, or is on the way there, this being the present result of his past action of going to (setting out for) America (Comrie (1976, p.56ff)). The corresponding past sentences *John arrived* and *John went to America* do not have this implication (of course, they does not exclude that John is still here or in America, respectively). We refer to this usage as the *resultative* PrP.

(13)    a.    John has arrived
        b.    Bill has gone to America
(14)    a.    John has gone to America several times/twice/before
              …
        b.    Have you ever gone to America?

This type has to be distinguished from the types we introduced in the preceding section: the continuative PrP, where the action itself is still going at the moment of speaking, and the existential PrP, which indicates that a given situation held at least once in the past without focussing on the present result of the action. We must notice, however, that the sentences in (13) can have the existential interpretation. This is especially the case when they are modified by certain adverbs (cf. (14)). In absence of such adverbs, the resultative interpretation seems to be the prevalent one.

Again, the Embedded Past Theories analyze these two types as being essentially the same. In both cases the Event Time is in the past before Reference Time and Speech Time, and e.g., "contextual information tells us [whether] the consequences are still

to be felt ('resultative perfect')" or not (Klein (1991:539)). Again, the interpretation of embedded tenses tells us that this is not that simple. Notice that the present result expressed by *John has convinced the coach* is that the coach is convinced now.

(15) a.    John convinced his coach that he was too weak to play the game
    b.    John has convinced his coach that he was too weak to play the game
    c.    John has convinced his coach many times that he was too weak to play the game

Intuitively, (15a) and (15b) differ in the following way: while the first sentence is compatible with a situation where John convinced the coach right before or during the game of his weakness, the second one strongly suggests that John convinced the coach after the game. In other words, what we notice is a difference in the licensing of the simultaneous interpretation of the embedded past tense: John's being weak can overlap with his convincing the coach in (15a) but not in (15b) with the resultative interpretation of the PrP. The resultative PrP behaves like a present tense: with respect to Sequence of Tense (15b) is not unlike *The coach is convinced that John was to weak too play the game.*

    We observe that when the PrP is used to indicate the present result of an action that occurred in the past, an embedded past tense cannot be interpreted as simultaneous with respect to that action. Conversely, when the PrP is of the existential type, i.e., when it does not focus on present results, the simultaneous interpretation is perfectly acceptable (cf. (15c)).

    This contrast is analogous to the one between the continuative and the existential PrP which we discussed in the preceding section. Only the existential type behaves as predicted by the Embedded Past Theories. If it were only "hidden" parameters or "contextual information" that distinguished the PrP types, the simultaneous interpretation should be licensed in all cases. Since this is not the case, we have to differentiate the PrP types structurally.

## 4.    Aspect and tense

The difference between the resultative and the continuative type is aspectual. The notion of *telicity* (Garey (1957)) is relevant: telic

situations give rise to the resultative interpretation, a-telic situations give rise to the continuative interpretation. Examples for each situation type are given in (16).

(16)    telic situations          atelic situations
        a.  go to America        d.  be sick
        b.  arrive               e.  live in London
        c.  build a house        f.  claim (activity)

In (17a) we define telic situations as comprising two parts: an event e and the *Resultant State* RS of the event. A telic situation is an event that "necessarily includes a goal, aim or conclusion" (cf. e.g., Brinton (1988:26)). When the goal, aim, or conclusion is reached, the action exhausts itself and passes into a state that is the result of the action. The bracket "]" in (17a) indicates the terminal point of the action and the starting point of the Resultant State. For (16c) *build a house*, for instance, the event is 'the building of a house'; the Resultant State is 'the house being built'. For (16a) *go to America* the event is 'the setting out for America'; the Resultant State is 'be in (or on the way to) America'.[3]

(17)  a. telic     [--e--]-----RS-----
      b. a-telic   [--------e---------]

A-telic situations are less complex (cf: (17b)). We assume that they only comprise the event – e.g., 'the event of being sick' in the case of (16f) – but no Resultant State.

        By structuring situations as in (17) we can account for the meaning of the resultative and the continuative PrP without recurring to temporal past relations. We assume that the participle of PrP sentences can have the aspectual value TERM (short for "terminal"): it views the terminal stage of the situation (cf: (18)). In the case of telic situations it views the Resultant State; in the case of a-telic situations the terminal stage is the final part of the event. The viewpoint is indicated by "__" in (18).

(18)    a.  TERM views the terminal stage of the situation
        b.  telic [--e--]-----RS-____
        c.  a-telic        [--------e-----___]

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[3]Notice that in the latter case the Resultant State is more complex as it includes a process (be on the way to America) and a state (be in America).

(19)     ... [-P]$_T$ ... TERM$_{T/ASP}$ ...V   continuative and resultative

We assume furthermore that the PrP can have (19) as the underlying representation in English. Since no past relation is expressed, the viewpoint of the participle and Speech Time are co-temporal. That is, when the situation type is telic, as is the case in *Bill has gone to America*, the Resultant State of that situation holds at Speech Time. In other words, TERM gives rise to the interpretation that *now* Bill is in (or on his way to) America. It is important to note that in our conception Resultant States can cease to hold. For instance, when Bill leaves America, the Resultant State of the event 'Bill go to America' ends. This situation is not compatible with the resultative reading of the PrP sentence.[4]

When the situation is a-telic, as in *John has been sick since Christmas* the final part of the event is co-temporal with Speech Time. Of course, by saying this we do not intend to imply that the event actually ends at or immediately after Speech Time. In fact, the sentence does not exclude the possibility that John continues to stay sick. What TERM views is the final part of the event as it has been experienced so far which does not imply the event's termination. Crucially, TERM implies that part of the event precedes Speech Time. In fact, the continuative PrP is not used for describing *momentary states*. For instance, in order to follow the zig-zag-course of a fast moving object (e.g., a bug), one would not use the PrP (#*Now it has been here*) but the present tense (e.g., *Now it is here – and now it is there – and now it is here again –* etc.) which does not imply that the event extends into the past.

The assumptions in (18) and (19) also account for the Sequence of Tense facts observed in the preceding sections. The continuative (cf: (10a)) and the resultative PrP (cf: (15b)) do not license the simultaneous interpretation of an embedded past tense because they do not express a past relation. Since there is no [+P] in

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[4]Resultant States as part of telic situations have been proposed by many researchers. However, it is often assumed that Resultant States, once initiated, never cease to hold (e.g., Parsons 1994). In this view, Bill would be in the state of having gone to America forever, independently of whether he is still there or not. Furthermore, Parsons, among others, defines Resultant States also for a-telic predicates. For instance, as soon as John starts living in London he is in the resultant state of having lived in London - independently of whether he still lives there or has already moved to another place. As these assumptions nullify the distinctions between the PrP types we reject them.

the PrP, the [+P] that licenses the past morpheme in the embedded clause must be in the embedded clause itself (cf. (20)).

(20)      a.   …S $[-P]_T$ R $TERM_{T/ASP}$ $\textbf{E}_i$...V$[_{S'}$...$\textbf{S}_i$ $[+/^*-\textbf{P}]_T$ R,E...V+ed  ]

The existential PrP is different. First, the entire situation (including the event's Resultant State) can precede Speech Time. Second, the situation type does not matter: PrPs of telic and of a-telic situations can have the existential interpretation. Third, a subordinate past tense can have the simultaneous interpretation. These three properties were discussed in the preceding sections and follow from the Embedded Past analysis (21): the [+P] in T/ASP shifts the time of the event into the past (22a), irrespectively of the situation type (22b), and can license a subordinate past tense morpheme (22c).

(21)   ...  $[-P]_T$ ... $[+P]_{T/ASP}$ ... V        existential
(22)   Event Time Properties of the existential PrP
       a. E_S
       b. With all situation types
       c. Licenses simultaneous interpretation of a subordinate past tense
       d. Momentary states
       e. Internal stages
       f. Inchoative aspect

It is important to notice that the existential PrP, unlike the continuative and the resultative PrP, does not specify any aspectual value. This accounts for the possibility of a variety of aspectual interpretations that are not available with the other PrP types whose aspectual value is already fixed by TERM. First, the existential PrP, in contrast to the continuative PrP, can be used for momentary states (22d). That is, the existential PrP does not imply that the denoted event extends into the past. For example, in order to report the past locations of a fast, zig-zag moving object (the bug, see above) one can say use the existential PrP. *It has been here* with the existential interpretation does not imply that the object has stayed here location for longer than a single moment.

Second, the existential PrP allows focusing on the internal stages of the situation (22e). In a sentence like *When I visited John he was sick/cooking* the background event 'John be sick/cooking' holds over an interval that includes the visiting-event expressed by

the when-clause. This temporal relation is preserved when the whole sentence is shifted into the PrP:

(23)     Often when I have visited him he has been sick/cooking

One might object that the superordinate PrP in (23) could be an instance of a continuative PrP where the final-stage viewpoint of TERM is relativized to the Event Times of the when clause with the visiting times being co-temporaneous with the final stages of John's cooking/being sick. A possible paraphrase of this reading: at the time of my visits John has already been sick/cooking for a while. However, this view would not account for two observations. First, the superordinate clause can be in the past tense without changing the meaning: *Often when I have visited him he was sick/cooking* and (23) have the same meaning. Second, the continuative PrP cannot be combined with *still*: \**John has still been sick (since Christmas)*, whereas existential PrPs like (23) can:

(24)   a. Often when I have arrived at the boarding gate (hoping to get on the plane immediately) they have still been working on the final formalities
       b. Often when we have arrived at the wedding party to take all the photographs the bride and the groom have still been getting ready

Third, the existential PrP can even have inchoative aspect (22f):

(25)     Often when I have read just half of a detective story I have immediately known what the outcome would be

(25) expresses that there were many times that I *started to know* the outcome when I was halfway through the story. In other words, the superordinate PrP focuses on the coming about of a state. This interpretation is in contrast to the meaning expressed by TERM as it views the initial stage of the situation.

        The existential PrP shares these properties with the past tense. Also the past tense can refer to momentary states, express inchoative aspect (e.g., *Suddenly he knew the answer*) and focus on the internal stages of the situation. As for the latter, the progressive form is required for both past tense and existential PrP when the predicate is non-stative. The parallel behavior is follows from the parallel underlying structure: both express a past relation (in T or in

T/ASP) that shifts the Event Time into the past with respect to Speech Time. They only differ with respect to the location of the mediating time point R; in other words, they only differ in their Reference Time Properties.

In contrast, the opposite Event Time Properties of the continuative and the resultative PrP are due to the absence of a past relation and the fact that the aspectual value is specified with TERM.

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UCLA
Department of Linguistics
405 Hilgard Ave
Los Angeles, CA 900024

*brugger@humnet.ucla.edu*