

The Past Tense in the Perfect

Hiromi Sato

While the English present perfect is marked by certain properties that are absent in the preterit, these properties are not always displayed in the present perfect in many other languages, or in the past perfect or the infinitival perfect in English. The problem concerns the long-standing query about how the preterit and the perfect should be structurally distinguished. The paper explores the relation between Tense and the perfect, and defends the view that the perfect is subsumed under Tense and involves the time-ordering predicate [+past]. The temporal construal in different types of infinitives provides support for the tense-based analysis of the perfect, and the Sequence of Tense effects observed in the perfect are given a coherent account based on the proposed analysis.

Key words: Tense, time-ordering predicate, past, perfect, infinitival perfect

1. Introduction

Reichenbach (1947) treats the preterit and the present perfect as realizations of distinct temporal schemata. In the framework he advocates, the present perfect is analyzed into a ‘reference time’ that coincides with the ‘speech time,’ while the preterit is broken down into a ‘reference time’ that precedes the speech time. In a different approach, Comrie (1985) argues that the present perfect does not differ from the preterit in terms of time location: both locate the time of situation prior to the time of utterance. The difference between the two

is claimed to be one concerning the ‘present relevance’: while the present perfect implies the ‘present relevance’, the preterit does not.

If the relevance to the present in the present perfect can be accounted for on independent grounds and there is no other difference between the two, the preterit and the perfect need not be distinguished as belonging to different categories such as Tense and Aspect. Assuming the theory of tense as a time-ordering predicate as advocated in Zagona (1990) and Stowell (1995), in this paper I will propose that the perfect is categorically Tense, rather than Aspect, and the perfect, just like the preterit, involves the predicate [+past] that locates the time of situation prior to another temporal argument of the predicate.

I will start with a brief summary of the Reichenbachian analysis of tense in Section 2. Section 3 discusses the structural representations of the past tense and the perfect, and proposes an analysis that unifies the two. In Section 4 I will show how the proposed analysis can account for some distinct properties of the English present perfect. Sections 5 and 6 deal with the analyses of the infinitival perfect and the Sequence of Tense effects in terms of the proposed analysis.

2. Reichenbachian theories of tense

Reichenbach (1947) proposes a theory of tenses based on three temporal primitive entities, S, E, and R. S is an indexical point referring to the utterance time. E denotes the time of the event expressed by the predicate of the clause. R is called the reference time, which was introduced to account for the semantics of the perfect. In Reichenbach’s system, different tenses are represented by distinct relations held among S, E and R. In the representations given in (1), the comma represents temporal overlapping and the underscore means that the temporal entity to its left precedes the one to its right.

- | | | |
|-----|-------------------|--------------------------|
| (1) | present : S, R, E | present perfect : E_S, R |
| | past : E, R_S | past perfect : E_R_S |
| | future : S_R, E | future perfect : S_E_R |

Comrie (1985) and Hornstein (1990), among others, propose that the relation among the three entities be split into two distinct relations, one between R and S, and the other between E and R.

(2)	S_R	future	E_R	perfect
	R_S	past	R_E	prospective
	S, R	present	E, R	neutral

Klein (1994) proposes a theory of tense and aspect that is also based on three temporal entities. Klein (*ibid.*) introduces the following three temporal entities: the Time of Utterance (TU), the Time of Situation (TSit), and the Topic Time (TT). TU corresponds to S in the Reichenbachian model. TSit, which corresponds to Reichenbach's E, denotes the time in which the situation described by the nonfinite predicate phrase of the clause obtains. TT is similar to R, but is more precisely defined than the latter. TT is defined as the time for which a particular utterance makes an assertion. Although the situation described by the lexical content of an utterance extends over a certain interval in time, i.e., TSit, it is not TSit that is directly linked to TU. It is assumed that TT mediates between TU and TSit.

Klein claims that both tense and aspect can be defined in terms of temporal relations, such as *before*, *after*, *simultaneous*; they only differ in what is related to what as summarized in (3).

- (3) a. Tense concerns the relation between TT and TU.
- b. Aspect concerns the relation between TT and TSit—the way, or sometimes ways, in which some situation is hooked up to some TT.

Klein's distinction between tense and aspect in terms of the relations among the temporal entities essentially correspond to the compositional representation of temporal relations i.e., the relation between R and S, and the one between R and E as suggested by Comrie

and Hornstein. According to the representations in (2) above, in the simple tenses, i.e., the present, past, and future tenses, E and R coincide and the relation between S and R suffices to make each simple tense to be distinct from the others. The relation between E and R becomes relevant only for perfect and prospective. In the following discussion I will adopt Klein's terminology and use TU for the perspective time ('now' in the matrix clause), TSit for the time of situation/eventuality, and TT for the reference time, which mediates between TU and TSit.

3. The preterit and the perfect

3.1 The function of the perfect

This section explores the possibility of subsuming the perfect under the category of tense. Let us first consider the 'anteriority' expressed both in the preterit and the perfect.

- (4) a. Monica ate the cake.
 b. Monica has eaten the cake.
 c. Alex had published his first book when I started writing mine.

In both (4.a) and (4.b) the eventuality of Monica's eating the cake is in the past of the time of utterance of each sentence. In (4.c) two past eventualities are expressed: the eventuality of Alex's publishing his first book, which is followed in time by the eventuality expressed by the adverbial clause. Thus, an eventuality that preceded another eventuality in the past is expressed by using the past perfect.

In nonfinite contexts the perfect expresses an eventuality that happens prior to another time expressed in the sentence.

- (5) a. Alex may have visited the Vatican when he went to Rome last year.
 b. The security officer believes the thief to have escaped when he got there.

In (5.a) the perfect is in the untensed form being embedded under the modal *may*. The sentence expresses that it is possible that Alex visited the Vatican when he was in Rome last year. In this sentence the perfect locates TSit, the time of Alex’s visiting the Vatican, in the past of the time of utterance. In (5.b) the infinitival perfect expresses the eventuality that occurs before the time of the matrix eventuality, which is simultaneous with the time of utterance. As shown by these examples, the function of the perfect is to locate the time of an eventuality in the past of another time expressed in the sentence. In (4.c) above, for example, both of the two eventualities depicted occurred in the past of the time of utterance, and the one expressed by the past perfect preceded in time the other one expressed in the past tense as illustrated in (6).

- (6) Alex published his first book (E₁) > I started to write my first book (E₂) > TU

What is of a particular interest here is that there does not seem to be any significant difference between the temporal relation between E₁ and E₂ ordered by the perfect on the one hand, and the one between E₂ and TU ordered by the preterit on the other. These relations seem equivalent in that in either relation one time interval is located in the past of the other. Thus, it seems fairly straightforward that the preterit and the perfect are the same in terms of their time ordering function.

In Klein’s system, the present tense, the past tense and the present perfect are represented as shown in (7).

- (7)

	Tense	Aspect
Present	TU, TT	TSit, TT
Past	TT_TU	TSit, TT
Present perfect	TU, TT	TSit_TT

As observed in (7), the past tense and the present perfect each minimally differ from the present tense. They both differ from the present tense in relating two of the three intervals of time by the ‘anteriority’ relation: one is located prior to another. If the ‘anteriority’ relations observed in the past tense and the present perfect only differ from each other in terms of what two times are involved and there is no significant difference in the nature of ‘anteriority’, then there seems no reasonable ground to distinguish the past and the perfect, categorizing the former as Tense and the latter as Aspect. In the analysis proposed in the following section, the past and the perfect both belong to the syntactic category Tense and involve the feature [+past] as the time ordering predicate.

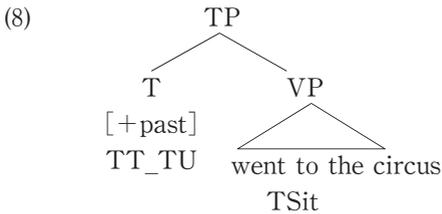
3.2 A uniform analysis of the preterit and the perfect

In this section I will propose that the relation between TU and TT, and the one between TT and TSit are both determined by the time-ordering predicate Tense. Following Zagona (1990) and Stowell (1995), I assume that TU, TT and TSit are time-denoting arguments of the time-ordering predicate.

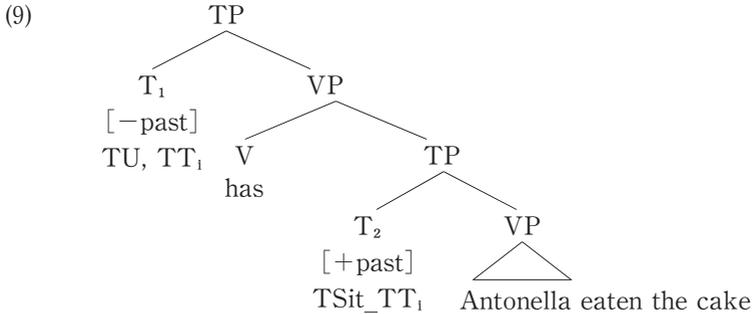
Since the present perfect, for example, involves both the present ‘tense’ and the ‘perfect’, two time-ordering predicates must be assumed: two instances of Tense, one that determines the simultaneity of TU and TT, and the other that orders TSit in the past of TT. I will refer to the former instance of Tense as T_1 and the latter as T_2 . By assuming that the perfect morphology and its interpretation are subsumed under Tense, the proposed analysis can account for some important facts about the syntax of Tense in infinitives and some cross-linguistic differences in tense system.

Let us first consider how the proposed dual Tense system can be implemented and account for the properties of the perfect. In the predicative approach to Tense, Tense determines the order of its two temporal arguments. For the matrix T, one of the arguments is TU, which is identified with the time of the utterance of the sentence, and

the other is TT. I assume that the syntactic representation of the relation between TT and TSit differs depending on whether the clause is in a simple tense or the perfect. Since in clauses in a simple tense there is no other tense morpheme than the one that orders TU and TT, there is no independent evidence for the presence of T that determines the order between the time of eventuality expressed by VP, i.e., TSit, and the reference time, TT. Since only two time-denoting arguments can reasonably be isolated in clauses in a simple tense, it seems natural to assume that by default TSit is identical with TT in simple-tense clauses. (8) shows the structural relation between T and VP in the past tense clause and the relation between TT and TU defined by the Tense feature.

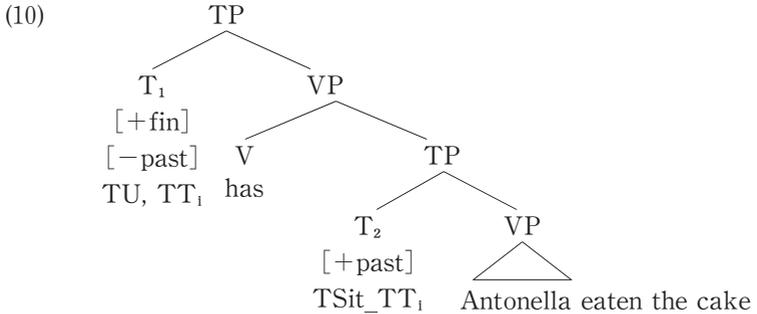


The structure of a clause in the perfect is more complex than that given in (8). The past participial morphology in clauses in the perfect is assumed to be the morphological reflex of a Tense feature. The morphological feature of past participles is licensed by [+past] feature of T. By this feature TSit is located in the past of TT. Another instance of T is needed to relate the latter with TU. Thus, the perfect involves the dual tense system comprised of T_1 and T_2 . In the perfect the auxiliary *have* is present as the morphological reflex of the features of T_1 . T_1 determines the temporal relation between TT and TU, and T_2 determines the relation between TT and TSit as shown in (9).



Giorgi and Pianesi (1997) proposes a morphosyntactic system of tenses in which the tense of a clause can be represented by a composition of T_1 and T_2 and they are lexical categories realized by different morphemes. Giorgi and Pianesi (ibid.) claims that there are no zero lexical heads—that is, lexical heads devoid of lexical content, and consequently no zero T_1 or T_2 heads. In their proposal, since no present tense morpheme is present in Italian, for example, T_1 is missing in clauses interpreted as in the present tense in the language. The temporal properties of the present tense in Italian-type languages are specified only at LF.

In contrast, differing from Giorgi and Pianesi’s proposal, the present proposal assumes that even when no overt tense morpheme can be isolated, T_1 is always present with abstract tense feature. In order for TT to be ordered with respect to TU, the feature concerning the finiteness of the clause must be included among the features of T_1 . Therefore, clauses, finite or nonfinite, has T_1 even when tense morpheme is not morphologically overt. By contrast, T_2 is present only when TSit denotes a distinct time from TT as in the perfect. With the finiteness feature in T_1 , the structure in (9) is revised as shown in (10).



In (10) the feature [+past] in T₂ orders TT after TSit. The feature [+past] without [+fin] specification is morphologically realized as a past participle. The participial verb in the lower VP and the auxiliary *have* are thus in agreement relation mediated by T₂.

4. The present perfect in English

4.1 The present relevance

One salient property of the present perfect in languages including English is that it implies the ‘present relevance’. In English and Italian, for example, the present perfect is compatible with *now/addressso*, the adverbs that refer to the present moment.

- (11) a. Now I have eaten enough.
 b. Adesso ho mangiato abbastanza.
 now have_{1.sg.} eaten enough

The same adverbs are not compatible with the past tense as shown in (12).

- (12) a. *Now I ate enough.
 b. *Adesso mangiai abbastanza.
 now eat_{past,1.sg} enough

If the tense in present perfect clauses is marked by the dual tense system, i.e., T_1 with $[-\text{past}]$ and T_2 with $[\text{+past}]$ as proposed above, the property of the ‘present relevance’ should immediately follow. In the present perfect, $[\text{+past}]$ in T_2 places TSit in the past of TT, which is taken to be concurrent with TU by $[-\text{past}]$ in T_1 . Thus, in the present perfect, in addition to TSit in the past, the present time is also referred to due to the presence of $[-\text{past}]$ in T_1 .

Other differences of the present perfect from the past tense are apparently related to its property of the ‘present relevance’. The English perfect has been classified into several types according to the semantic differences. I will follow Comrie’s (1976) classification and assume the four types in the English perfect as described below.

- (13) 1. Perfect of result : a present state is referred to as being the result of some past situation.
The guard has closed the gate by now.
2. Experiential perfect : indicating that a given situation has held at least once during some time in the past leading up to the present.
Harry has been in jail twice.
3. Perfect of persistent situation : describing a situation that started in the past but persists into the present.
Antonella has lived in Florence for ten years.
4. Perfect of recent past : the present relevance of the past situation referred to characterizes the temporal closeness.
Bill has just arrived at the ceremony.

Unlike in the past tense, the present time is referred to in all these four types of the perfect, which can be attributed to $[-\text{past}]$ in T_1 . If the ‘perfectness’ is attributed to $[\text{+past}]$ in T_2 as proposed above, a question arises as to how the differences among the perfect are derived.

To answer this question, let us first consider the fact that not all these four types of the perfect are available for any one particular verb.

The perfect of result reading is confined to accomplishment and achievement predicates, both of which denote an event involving a change of state. This reading arises when the change of state resulted from an activity or an event still holds at the temporal reference point. The experiential perfect reading obtains when the verb denotes a state or a process. The perfect of persistent situation is possible only with stative and process predicates, and requires an adverb specifying duration, for instance, *always*, *since 2001*, or *for seven years*. As for the perfect of the recent past, there have been a couple of proposals for reducing this reading to one of the other readings, and therefore it is not an independent reading. McCawley (1981), for example, claims that it is a variant of the experiential perfect. On the other hand, Michaelis (1994) and Kiparsky (2002) claim that the recent past reading is a special case of the perfect of result. For the purpose of this paper, it should suffice to say that the perfect of the recent past can be reduced to one of the other types of the perfect, and does not require an independent explanation.

These observations suggest that the different interpretations of the perfect are not due to the temporal property of the perfect, but are rather due to the lexical aspect (Aktionstart) of each verb and the presence of a certain type of adverbials. Despite these differences, in all types of the perfect, the time of (the initiation of) situation is located in the past of the reference point, i.e., TT, which is taken to be simultaneous with TU by [-past] in T_1 in the present perfect.

If the differences shown in (13) are due to the difference in the lexical aspect of verbs, similar differences should be observed in the past tense as well. In (14) the past tense replaces the present perfect in the examples in (13) above except the one describing the perfect of the recent past, which is likely to be subsumed under one of the other types of the perfect.

- (14) a. The guard closed the gate.
 b. Harry was in jail twice.

- c. Antonella lived in Florence for ten years.

As suggested above, these sentences in the past tense denote the same aspectual type of eventualities as their present perfect counterparts. The former differ from the latter in the absence of ‘the present reference’. In (14.a) the state resulted from the act of closing the gate, i.e., the closed gate, is implied. What is different from the present perfect counterpart is that the past tense sentence does not imply that the state holds at the present time. (14.b) denotes that two instances of Harry being in jail hold in the past just like its experiential perfect counterpart, but it does not refer to the present time. (14.c) describes the state of living in Florence as a situation held in the past, not the one holding up to the present. Thus, the sentences in the past tense in (14) show the aspectual properties parallel to those observed in the sentences in the present perfect in (13), suggesting that the differences among the perfect given in (13) should be attributed to the lexical properties of each predicate, not to the properties of the perfect.

4.2 The present perfect paradox

One characteristic feature of the English present perfect that distinguishes it from the past tense concerns the modification by definite past time adverbials. The examples below show that adverbials that refer to a definite past time, i.e. punctual adverbials, can be used with the preterit but not with the present perfect. This is widely known as the ‘present perfect paradox’.

- (15) a. John left at four.
 b. John has left.
 c. *John has left at four.

This restriction on the co-occurrence with definite past time adverbials is not universal as the sentences equivalent to (15) are all grammatical, for example, in Italian.

- (16) a. Gianni partì alle quattro.
 leave_{past,3,sg} at-the four
 b. Gianni è partito.
 be_{pres,3,sg} leave_{pp}
 c. Gianni è partito alle quattro.
 be_{pres,3,sg} leave_{pp} at-the four

Example (16.c) shows that in Italian the perfect behaves like the past tense in not restricting the occurrence with definite past time adverbials. Some Germanic languages including German, Dutch, and Icelandic do not exhibit the ‘present perfect paradox’ either. An example from German is given in (17).

- (17) Ich bin um vier abgefahren.
 ‘I have left at four.’

Klein (1994) notes that the development of the perfect into the past tense is quite often observed in languages, citing German as an example of such languages. Greek seems to qualify as another example. In this language definite past time adverbials are severely restricted to occur with the present perfect.

- (18) O Aris exi ksekinisi *stis deka/apo tis deka. (Moser 2003 ;
 241 (8))
 the Aris has left at-the ten/since the ten
 ‘Aris has left *at ten/since ten o’clock.’

However, Moser (2003) observes that in recent years this restriction seems to be getting relaxed with the perfect appearing in conjunction with definite time adverbials in informal speech and also, though more rarely, in written text.

- (19) Edo ke epta xronia peripu exi nosilefti se psixiatriki

kliniki.

Seven years ago about has-he been treated at psychiatric clinic

‘About seven years ago he was treated at a psychiatric clinic.’

(Moser 2003 ; 241 (9))

In the examples in which definite past time adverbials occur with the present perfect, these adverbs are interpreted as specifying TSit, which is located in the past of TT. In Italian this is shown by the position of these adverbs in a sentence. Sentence (20) is ungrammatical when it is pronounced with flat intonation, i.e., when *adesso* (‘now’) is not right dislocated, while (11.b) above, a sentence minimally different from it with *adesso* at the initial position, is grammatical.

- (20) *Ho mangiato abbastanza adesso.
have_{1,sg.} eaten enough now

Girogi and Pianesi (1997) claims that a temporal adverbs right-adjoined to VP are for the temporal specification of TSit, not that of TT. Sentence (20) is ungrammatical because the adverb *adesso* is not compatible with TSit that is located in the past of TT.

In languages like Greek where the restriction against using definite past tense adverbials in conjunction with the present perfect is getting relaxed, the change can be viewed as a change in what can be modified by these adverbs in the present perfect. The fact that English exhibits the ‘present perfect paradox’ can be stated in terms of the absence of this change in this language. The question that needs to be answered is why definite past time adverbials cannot modify TSit in the English present perfect.

It should be noted that in English definite past time adverbials can occur with the past perfect and with the perfect in nonfinite contexts.

- (21) a. The convict had escaped at 3.
 b. Chris may have been in Shanghai when the war broke out.
 c. John claims to have escaped yesterday.
 d. The police believe Chris to have been in Shanghai when the war broke out.
 e. Having been in Shanghai before the revolution, Mary is surprised at the many changes.

These data seem to suggest that the restriction on the occurrence of definite past time adverbials is not due to some properties of the perfect in general, but rather it should be attributed to those of the present tense in English. I entertain the idea that the ‘present perfect paradox’ observed in English is due to a property of the English present tense in which TU is interpreted as simultaneous with TT, whereas in many other languages TU is interpreted as being included in TT.

The simple present tense in English is rather special in that it does not allow imperfective readings for eventive predicates, contrasting with other Germanic languages and Romance languages.

- (22) a. John eats an apple.
 b. John runs.
- (23) a. Gianni mangia una mela.
 eat_{pres,3,sg} art apple
 b. Gianni corre.
 run_{pres,3,sg}

The sentences in (22) cannot describe an ongoing event for an interval including TU. These sentences are felicitous in limited circumstances such as when they are interpreted with a habitual reading. By contrast, the corresponding Italian sentences in (23) allow an imperfect reading in which *Gianni* is interpreted as the agent of an ongoing event (eating/running) for an interval including TU. This difference between English and the Italian-type languages may be ascribed to the difference in the

meaning of the time-ordering predicate $[-\text{past}]$. In the Italian-type languages, $[-\text{past}]$ locates TU within TT, which overlaps TSit in the simple present tense. Hence, in these languages, the simple present tense allows an ongoing event interpretation at TU. In the English present tense, in contrast, TU and TT are interpreted as denoting the same time interval. Hence, the English present tense is severely restricted to events with very short duration, and the present imperfective reading of eventive predicates is not possible in English¹.

Provided that this analysis is on the right track, the difference in terms of the ‘present perfect paradox’ in languages may be attributed to the difference in the status of TT in the present perfect. In the English present perfect, TT is taken to be a distinct interval of time for being identical with TU. In contrast, in the Italian type languages, TT may be less salient than in English for not being identical with TU, but denoting a longer interval including TU. I speculate that due to this lack of salience, the modification of TSit by definite past time adverbs is possible in these languages. If the ‘present perfect paradox’ observed in English can be attributed to a property of the present tense in this language as suggested here, the difference in the modification by definite past time adverbials is not an argument strong enough to analyze the perfect differently from the past tense.

5. The perfect in infinitive

This section discusses that certain facts concerning the infinitival perfect provide supports for the presence of the feature $[\text{+past}]$ in the perfect.

5.1 Tense in infinitives

Simple infinitives express simultaneity or posteriority as shown in (24.a) and (24.b) respectively, but infinitives in the perfect express anteriority as observed in (24.c).

- (24) a. The professor believes the results to be unscientific. (simul-

- taneity)
- b. I persuaded Harry to join us. (posteriority)
 - c. I believe Sue to have been in Beijing when the Olympics were held. (anteriority)

Whether an infinitive expresses simultaneity or posterity is largely determined by the nature of a predicate taking the infinitival complement. Control predicates often take infinitives with a future-shifting tense interpretation whereas the infinitival complements of ECM predicates are interpreted as simultaneous with respect to the situation denoted in the higher clause.

Following Martin (1992) and Sato (2003), I assume that the feature specification of *T* in control infinitives is $[-\text{fin}, +\text{tense}]$, which is interpreted as a future-shifted tense. On the other hand, *T* selected by ECM predicates lacks tense specification, and thus, it is only specified as $[-\text{fin}]$. Based on this assumption, let us consider the relations among the temporal arguments denoted in the following example.

- (25) The architect believes his design to be revolutionary.

T in the infinitive complements in (25) is specified as $[-\text{fin}]$, and it cannot define by itself the temporal relation between *TU* and *TT* arguments of *T*. Therefore, these temporal arguments are given a default interpretation: *TU* being simultaneous with *TT*. The latter, in turn, is taken to be simultaneous with the embedded *TSit* because of the simple infinitival tense. Since *TU* of the embedded infinitive is controlled by the matrix *TSit*, the matrix *TSit* is interpreted as simultaneous with the embedded *TSit*, resulting in the so-called ‘simultaneous’ interpretation.

5.2 Some consequences of $[+\text{past}]$ in the infinitival perfect

Now let us consider a sentence, in which the complement infinitive is in the perfect.

(26) James claims to have discovered a new star last night.

In (26) the infinitival complement clause expresses a past situation as indicated by the presence of the definite past time adverbial expression *last night*. In the proposed analysis, the perfect in the infinitival complement entails the presence of T_2 as well as T_1 . Due to the presence of [+past] in T_2 , the situation expressed by the embedded infinitive is located in the past of the matrix TSit, and the embedded TSit can be modified by the definite past time adverbial *last night*. By assuming [+past] in T_2 , the past-shifted time expressed in infinitives can correctly be accounted for.

Furthermore, as shown by the following example, the infinitival complements of control predicates often receive a future-shifted tense interpretation.

(27) John hoped to get home.

As stated above, we are assuming that the future-shifted interpretation is due to [-fin, +tense] specified for the infinitival complement of control predicates. A predicate requiring a future-shifted interpretation for its infinitival complement can take an infinitive in the perfect as in the example below.

(28) John hopes to have gotten home when the guest arrives.

In (28) the time of John's getting home is interpreted as in the future with respect to the time of John's hoping, but it is located in the past of the time of the guest's arrival. In the proposed analysis, the embedded infinitival perfect clause has [T_2 + past] in addition to [T_1 - fin, +tense], which is responsible for the future interpretation of the infinitive. With these two instances of T , the time of John's getting home can correctly be interpreted as a time in the past with respect to a future time. The configuration of the temporal arguments and T s in (28) is shown in (29).

- (29) John [_T-past] hopes PRO [_{T1}-fin, +tense] have [_{T2}+past] gotten home (when the guest [_T-past] arrives).
 $TU_{\text{matrix}} = TT_{\text{matrix}} = \text{TSit}_{\text{matrix}} \quad TU_{\text{inf}} < TT_{\text{inf}}$
 $\text{TSit}_{\text{inf}} < TT_{\text{inf}}$

Due to [_T-fin, +tense] of the infinitival T_1 , TT of the infinitive (TT_{inf}) is located in the future of the embedded TU_{inf} , which is controlled by the matrix TSit . With [_{T2}+past], TSit_{inf} , the time of John's getting home is located in the past of TT_{inf} , which is in the future of TU_{inf} and is modified by the *when*-clause. Thus, the proposed analysis can derive the correct interpretation.

As widely recognized, under the nonhabitual reading, eventive predicates can be embedded under control predicates, but not under ECM predicates.

- (30) a. The architect hopes to study in Italy.
 b. *The contractor believes the architect to study in Italy.

If the difference between control infinitives and ECM infinitives is reduced to the feature composition of T as suggested above, the contrast can be attributed to the presence or absence of [+tense] feature in T . In ECM infinitives T is specified only for [-fin]. The relation between TU and TT of the infinitive can only be given the default interpretation, $TU = TT$. Since without T_2 TT is interpreted as identical with TSit , the resulting interpretation is that of simultaneity of TU , TT , and TSit . Therefore, when an eventive predicate is embedded under ECM predicate, it cannot be interpreted as describing an ongoing event at the time simultaneous with the matrix TSit , but it can only receive a habitual interpretation².

Attributing the impossibility of eventive interpretation in ECM infinitives to the default $TU = TT$ interpretation can be supported by a similar phenomenon observed in the English present tense. This restriction on eventive predicates in ECM infinitives seems parallel to the

situation observed for the English present tense, where TU is interpreted as simultaneous with TT, which in turn is interpreted as simultaneous with TSit. As discussed in Section 4.2, in the English simple present tense, nonhabitual eventive interpretations can only be possible when the event depicted is that of very short duration, i.e., the duration of TU, as in the cases of a live report from a sporting match, performatives, etc.

An eventive predicate is allowed in ECM infinitives, however, when it is in the perfect with the auxiliary *have*.

- (31) The contractor believes the architect to have studied in Italy.

The grammaticality of this sentence is predicted by the proposed analysis. The perfect in the infinitive requires the presence of T_2 containing [+past]. [T_2 +past] locates the embedded TSit in the past of the embedded TT. Thus, the event of studying in Italy is interpreted as an event terminated before TT of the infinitive, which is simultaneous to the embedded TU and the matrix TSit.

I have been assuming that differing from the present tense, [T -fin] does not determine the temporal order between TU and TT on its own, and in examples like (30.b) and (31) they are interpreted as simultaneous by default. There is an interesting fact that can be accounted for based on this assumption.

Hoffman (1966) observes that with a particular combination of temporal adjuncts, the infinitival perfect has an interpretation that can uniquely correspond to that of the finite past perfect.

- (32) He is rumored to have seen her only once before when I met him.
(It is rumored that he had seen her only once before when I met him.)

The two temporal adjuncts in (32) must be associated with a distinct time in the past. TSit denoted by the infinitive, the seeing time, is located in the past of TT by $[\tau_2 + \text{past}]$ in the infinitive and is associated with the adjunct, *only once before*. The infinitival T_1 has only $[-\text{fin}]$, and thus it does not specify by itself the temporal order between TU and TT of the infinitive. However, since the adjunct *when*-clause provides a temporal reference point in the past that is to be associated with the TT, TT is understood to precede the embedded TU. Thus, by assuming that the relation between TU and TT is not fixed by $[\tau - \text{fin}]$, the infinitival perfect in (32) is given an interpretation that corresponds to that of the past perfect.

The proposal that the perfect involves $[+\text{past}]$ in T_2 , which is a segment of the complex Tense, can also provide an account for the fact that the bare infinitive complement of perception verbs does not tolerate the perfect.

- (33) a. We saw John draw a circle.
 b. *We saw John have drawn a circle.

If perception verbs take VP as their complement but not TP, as argued in Sato (2003), the ungrammaticality of (33) immediately follows. If TP is not allowed, then T_2 is never licensed in the complement of perception verbs. As a consequence, the perfect is not allowed in perception complements.

6. The perfect and the sequence of tense

The sequence of tense is a term widely used to refer to a formal rule for the tense subordination in complement clauses when the tense of the higher clause is past as in the examples in (34). In the following it will be shown that the fact that the English perfect, just as the past tense, can trigger the sequence of tense in complement clauses provides supports for our proposal that the perfect is the realization of $[+\text{past}]$ in T_2 .

- (34) a. John believed that his girlfriend was happy.
 b. John told me that his girlfriend would be in Paris when I go there next week.

In (35) TSit of the complement clause can be interpreted as simultaneous with that of the matrix clause.

- (35) John said that he was unhappy.

In this simultaneous interpretation, the subordinate past tense does not have the past-shifting function, but is interpreted as if it were the present tense relative to the matrix past tense. This absence of the past-shifting function of the subordinate past tense in the scope of another past tense is due to the sequence of tense (SoT) effect.

The English perfect seems to trigger the sequence of tense (SoT) just as the past tense does. Sentence (36.a), where the most deeply embedded verb is in the past tense form, can be used to describe a situation depicted in (36.b). Thus, in interpreting sentence (36.a), the time of Bill's speaking to Mary and that of his feeling depressed can be understood to be simultaneous.

- (36) a. Bill seems to have told Mary that he felt depressed.
 b. Bill seems to have told Mary: 'I feel depressed.'

In its simultaneous interpretation, the past tense of the most deeply embedded clause does not locate TSit in the past of the time of Bill's speaking to Mary. Similarly, in the sentences in (37) drawn from Declerck (1991), the subordinate TSit is not shifted to the past of the eventuality expressed in the matrix clause with the present perfect.

- (37) a. He's been here once or twice, while his wife was on holiday.
 b. He has always promised her that he would not say anything to her husband.

Again in these examples, the subordinate past tense is not interpreted as the ‘real’ past tense, a situation paralleling to the SoT effect. If [+past] is present in the perfect, the absence of the past-shifting function of the subordinate past tense can readily be accounted for as the SoT effect. But, if the perfect were analyzed as an aspectual property rather than tense, the account based on the SoT would not be as straightforward as in the proposed analysis. Thus, the non past-shifting subordinate past tense in the above examples provides support for the proposal that the perfect is the manifestation of [+past] in T_2 , which can trigger the SoT.

There still remain apparent complications. Kiparsky (2002) notes that not all instances of the perfect can give rise to the SoT. In particular, he observes that the resultative perfect does not trigger the SoT contrasting with the other types of the perfect.

- (38) a. #I have finally realized that the earth was round.
 (Resultative)
 a'. I have finally realized that the earth is round.
 b. I have always known that the earth was round. (Universal)
 c. I have often thought that the earth was round. (Existential)
 (Kiparsky 2002, 125)

To account for the contrast observed in (38), [T_2 +past] in (38.a) must be assumed not to trigger the SoT. Drawing on Kiparsky’s analysis of the resultative perfect in which he argues that the change of state involved in accomplishment and achievement predicates is temporally located between TSit and TT, I assume that [T_2 +past] of the perfect cannot trigger the SoT when the entire eventuality depicted by a predicate is not subsumed under TSit. Hence, the absence of the SoT effect in the resultative perfect can be attributed to the property of the lexical aspect.

If the perfect are on a par with the preterit with respect to the temporal feature [+past] in T, the former should not only trigger the

SoT but it should also allow a simultaneous interpretation when it is under the immediate scope of the past tense. Stowell (2007) shows that the infinitival perfect actually behaves like the SoT past tense in (39.a).

- (39) a. Caesar actually believed his wife to have been in Rome at that time.
 b. Caesar actually believed that his wife was in Rome at that time.

(39.a) is ambiguous between the simultaneous and the past-shifted interpretation, as is its finite counterpart (39.b). In the infinitival perfect T_1 is only specified as $[-\text{finite}]$, and the relation between TU and TT is given the simultaneous interpretation as default. In (39.a), if $[+\text{past}]$ in T_2 is interpreted as is, the past-shifted interpretation results. If $[+\text{past}]$ in T_2 is there just for the tense concord and is not interpreted, the simultaneous interpretation results. Thus, in its simultaneous interpretation, the infinitival perfect in (39.a) shows the SoT effect in exactly the same way as the finite complement clause in the past.

Stowell (2007) reports that the past-shifted interpretation is favored in (39.a) over the simultaneous interpretation, and for the latter interpretation (40) is preferred over (39.a).

- (40) Caesar actually believed his wife to be in Rome at that time.

A possible explanation for the fact that (39.a) is less favored for the simultaneous interpretation than (40) may be provided in terms of the locality effect. In the infinitival perfect in (39.a), T_1 intervenes between the matrix past tense licensing the SoT and T_2 with $[+\text{past}]$. Being in a simple infinitive, the complement clause in (40) has only one instance of T.

The infinitival perfect seems to show a further similarity with the past tense. Declerck (1991) cites the following examples and judgments

from Costa (1972).

- (41) a. Marmaduke believed himself to be of royal blood.
 b. *Marmaduke believed himself to have been of royal blood.

Costa claims that in (41.b) the situation expressed with the infinitival perfect cannot be interpreted as simultaneous with the matrix TSit while that interpretation is available for (41.a). The SoT effect is not involved in the infinitival perfect in (41.b) unlike that of (39.a) above. The past-shifted interpretation is not possible for the infinitival complement in (41.b) either because it has an individual-level predicate; a situation described cannot be constrained by a certain time frame in the past.

The difference between (39.a) and (41.b) could be attributed to the difference in the nature of the predicate in the infinitival complement. In contrast to (41.b), the embedded predicate in (39.a) is a stage-level predicate. Similar contrasts can be observed in finite clauses. (42.a) and (42.b) show that with an individual-level predicate, the past tense due to the SoT is less felicitous than the present tense with the so-called ‘double access reading’. In contrast, with a stage-level predicate, the embedded past tense can be interpreted as the SoT past with the simultaneous interpretation.

- (42) Mary was born in Boston and has a US passport—
 a. Her brother said that she is American.
 b. ?* Her brother said that she was American.
 c. Her brother said she was in Naples.

In this paper I do not attempt to propose a concrete explanation of the contrasts observed in (42), but for the present purpose it may suffice to note that the contrasts between (41.a-b) and (42.a-b) suggest another parallelism between the past tense and the perfect.

7. Conclusion

The central argument presented in this paper was that the perfect belongs to the category of tense, which consists of time-ordering predicate [+past]. Thus, the function of the past tense and the perfect is that in both cases one of the temporal arguments of T is located in the past of the other. The Sequence of Tense effects manifested in the infinitival perfect and those triggered by the perfect show the parallelism between the past tense and the perfect, and support the assumption of [+past] in the latter as well. If the perfect consists of two instances of T, it follows that the present perfect implies the relevance to the present, and there is a tendency that the present perfect develops into the preterit in many languages. If the perfect is categorically Tense, not Aspect, then some of the remaining questions may concern whether the category Aspect should have a syntactic representation at all and how the progressive, which is often assumed to constitute Aspect Phrase, should structurally be represented. It may be possible that Aspect is confined to lexical aspect, i.e., the properties of each predicate, and it is not represented syntactically. I will leave these matters for future research.

Notes

- 1 Eventive verbs can appear in the present tense only in restricted contexts. These include sports commentary, instructions and demonstrations, stories in the historical present, performatives, plot summaries. See Wyngaerd (2005) for detailed description and analysis of the English present tense.
- 2 Enç (1991) argues that eventive predicate contain a temporal argument that needs to be bound.

References

- Comrie, Bernard. 1976. *Tense*. Cambridge: Cambridge University Press.
 ————. 1985. *Aspect*. Cambridge: Cambridge University Press.
- Condoravdi, Cleo. 2002. Temporal Interpretation of Modals. In *The Construction of Meaning*, ed. David I. Beaver, Luis D. Casillas Martinez, Brady Z. Clark,

- and Stefan Kaufmann, 59-87. Stanford : CSLI Publications.
- Costa, R. 1972. Sequence of tenses in *that*-clauses. In *Papers from the eighth regional meeting Chicago Linguistic Society*, ed. N.N. Levi and G.C. Phares P.M. Peranteau, 41-51 : Chicago Linguistic Society.
- Declerck, Renaat. 1991. *Tense in English : Its structure and use in discourse*. London : Routledge.
- Enç, Mürvet. 1987. Anchoring conditions for tense. *Linguistic Inquiry* 18 : 633-657.
- Enç, Mürvet. 2004. Rethinking Past Tense. In *The Syntax of Time*, ed. Jacqueline Gueron and Jacqueline Lecarme, 203-215. Cambridge, Massachusetts : The MIT Press.
- Giorge, Alessandra and Fabio Pianesi. 1997. *Tense and Aspect : From Semantics to Morphosyntax* : Oxford Studies in Comparative Syntax. Oxford : Oxford University Press.
- Hoffman, T.R. 1976. Past tense replacement and the modal system. In *Notes from the Linguistic Underground*, ed. James McCawley, 85-100. New York : Academic Press.
- Hornstein, Nobert. 1990. *As Time Goes By : Tense and Universal Grammar*. Cambridge, Massachusetts : The MIT Press.
- Iatridou, Sabine. 2003. A little bit more on the English Perfect. In *Perfect Explorations*, ed. Monika Rathert and Arnim von Stechow Artemis Alexiadou, 133-151. Berlin : Mouton de Gruyter.
- Iatridou, Sabine, Elena Anagnostopoulou and Roumyana Pancheva. 2003. Observations about the form and meaning of the Perfect. In *Perfect Explorations*, ed. Monika Rathert and Arnim von Stechow Artemis Alexiadou, 153-204. Berlin : Mouton de Gruyter.
- Kiparsky, Paul. 2002. Event Structure and the Perfect. In *The Construction of Meaning*, ed. David I. Beaver, Luis D. Casillas Martinez, Brady Z. Clark, and Stefan Kaufmann 113-135. Stanford : CSLI Publications.
- Klein, Wolfgang. 1994. *Time in Language*. London : Routledge.
- Martin, Roger. 1992. On the distribution and Case feature of PRO. Ms. University of Connecticut, Storrs.
- McCawley, James D. 1981. Notes on the English perfect. *Australian Journal of Linguistics* 1 : 81-90.
- Michaelis, Laura, A. 1994. The ambiguity of the English perfect. *Journal of Linguistics* 30 : 111-157.
- Moser, Amalia. 2003. Tense, aspect and the Greek Perfect. In *Perfect Explorations*, ed. Monika Rathert and Arnim von Stechow Artemis Alexiadou, 235-252. Berlin : Mouton de Gruyter.

- Reichenbach, Hans. 1947. *Elements of symbolic logic*. New York : The Free Press.
- Sato, Hiromi. 2003. Selection for Clausal Complements and Tense Features. Doctoral dissertation. University of Washington.
- Stowell, Tim. 1982. The tense of infinitives. *Linguistic Inquiry* 13 : 561-570.
- Stowell, Tim. 1993. The syntax of Tense. Ms. UCLA.
- Stowell, Tim. 1995. The phrase structure of tense. In *Phrase structure and the lexicon*, ed. Johan Rooryck and Laurie Zaring, 277-291. Dordrecht : Kluwer.
- Stowell, Tim. 2007. Sequence of perfect. In *Recent Advances in the Syntax and Semantic of Tense, Aspect and Modality*, ed. Jacques Moeschler and Genoveva Puskas Lous de Saussure, 123-146. Berlin : Mouton de Gruyter.
- Wyngaerd, Guido Varden. 2005. Simple tense. In *The Function of Function Words and Functional Categories*, ed. Marcel den Dikken and Christina M. Tortora, 187-215. Amsterdam : John Benjamins Publishing Company.
- Zagona, Karen. 1990. Times as Temporal Argument Structure. Ms. University of Washington.