

## The Theoretical Analysis of 'the Present Perfect Puzzle'

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### Introduction

In *preterite* sentences in present-day English we can easily find past-time adverbials, whereas in *present perfect* sentences we hardly ever get a chance to do so. Commonly speaking, it is ungrammatical to bring past-time adverbials in *present perfect* sentences, the problem of which Wolfgang Klein (1992)<sup>1</sup> discussed in detail. He named it *the present perfect puzzle (PPP)* in his article (525)<sup>2</sup>. The purpose of this article is to discuss the syntactic aspects of the following pair of contrast:

- (1) a. Mary left Tokyo yesterday.  
b.\*Mary has left Tokyo yesterday.

As for the contrast, three related questions arise at once. (A) Why is 1b an ungrammatical sentence? The simplest answer to this is that *present perfect* of present-day English -the perfect form 'have (auxiliary)+the past participle'- is not compatible with past-time adverbials (e.g. yesterday). Everyone knows the phenomenon. Then, (B) why is the co-occurrence like this impossible? In general, a plausible reason is that *present perfect* is absolutely in the scope of *present*, because 'have' as an auxiliary originally is a full verb denoting 'possession' and *present perfect* indicates the state carrying over the past event to the moment of utterance. Hence, if a past-time adverbial is inserted into a *present perfect* sentence, the co-occurrence will crash semantically and pragmatically. Next, I might ask: (C) Could we give a syntactical interpretation for this *puzzle*?

Generally, modern linguistics has recognized the adequacy of semantic or pragmatic exposition for the solution of *PPP*. In addition, Klein (1992) supposes that the *PPP* cannot be dealt with under syntactic or semantic framework respectively, and claimed furthermore that plausible approaches require pragmatic perspective. Let us look at the following quotation:

The incompatibility of the present perfect and most past tense adverbials has neither syntactic nor semantic causes but follows from a simple pragmatic

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<sup>1</sup> Wolfgang Klein. "The Present Perfect Puzzle." *Language*, vol. 68, no. 3, 1992, 525-552.

<sup>2</sup> The problem is also universally recognized as '*the present perfect paradox*'. (Sato:2009 12)

constraint, called here the ‘*position-definiteness constraint*’. (525)

Accordingly, these considerations imply the difficulty of syntactic approach for the *puzzle*. In this connection, Klein also speculates that the *puzzle* involves speaker’s consciousness, and that the speaker can identify only one temporal focus (‘*position-definiteness constraint*’) (546). That is, in the case of (1b), since two definite temporal points (‘the moment of utterance’ and ‘yesterday’) are denoted in one sentence, it is not pragmatically recognized. Thus, he applies the pragmatic constraint theory. I would desire, however, to provide a certain syntactic constraint on the basis of Universal Grammar (UG). This article has a specific target to the question (C) rather than to that of (A) or (B).

Let us start with three significant points as preliminary consideration. Firstly, I will briefly discuss *tense* as a starting point in section 1, which would be of help to set a basic guideline for tackling the problem of *PPP*. Secondly, I will investigate a historical development of *present perfect* to take a full understanding of its status in present-day English in section 2. Thirdly, I will introduce the *tense* system of Reichenbach (1947)<sup>3</sup> in section 3. In section 4, I will treat the *puzzle* from a syntactic perspective based on the frame of generative grammar. This syntactic problem will be discussed with special reference to Reichenbach’s symbolic representation. I expect that this tentatively syntactic approach would be reasonable, however there remain many problems to be clarified. And regarding the theorization of *tense* system, I will mainly apply a positive methodology grounded on generative grammar, which I think will give any possibility that the syntactic analysis will offer a clarification of *PPP*.

### Section 1 Two Time Representations

Now, let us consider *tense* and *time* in turn. I assume that to understand the difference between them will lead us to one of the guiding ideas concerning a new methodology for a solution of ‘*PPP*’. In linguistics, a clear boundary must be drawn between *tense* and *time*. Let us refer to Declerck’s interpretation (2006): *time* is “an extralinguistic category”, and *tense* is “a linguistic concept”<sup>4</sup>(94). The notion *time* may be beyond linguistics in itself, however it is inevitably subsumed into utterances as time-representations. *Tense* is also

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<sup>3</sup> Hans Reichenbach. *Elements of Symbolic Logic*. The Macmillan Company, New York, 1947.

<sup>4</sup> Renaat Declerck. *The Grammar of The English Tense System. The Grammar of The English Verb Phrase*, edited by Kortmann, Traugott, Elizabeth Closs, Mouton de Gruyter Berlin, New York, vol1, 2006.

related to time-representation. In this respect, we accept the presence of two time-representations provisionally. These two time-representations could be distinguished from each other according to a criterion of whether or not they are a grammatical device, or whether or not they are sentence constituents from the viewpoint of a functional category but not from a lexical category: *Tense* is functionally a requisite item to construct a sentence, while the other time-representation may be unrelated to building up of sentences, although not always without relationship. This is because speakers always consider *time* in mind consciously or unconsciously.

Judging from the view of generative grammar, brains seem to perform a variety of constructive computations almost automatically when we generate sentences. In the generating process of sentences, then, *tense* is determined. Their sentences, therefore, turn out to possess the sentential *time* i.e. *tense* which is unrelated to *time* that exists in the speaker's consciousness. It is assumed here that *tense* has a 'referential feature (r-feature)' which is unaffected by *time*-notion that the speaker is aware of. While *tense* involves such a referentiality, the sentence in the case where speakers produce utterances with *time* in mind, will typically have a device indicating 'a speaker's attitude'. While a speaker's attitude is mostly expressed by modal auxiliaries, 'a speaker's focus toward time location' is represented by time adverbials (e.g. yesterday, tomorrow, two years ago). We could define that referring to the property of time adverbials, they contain an 'orientational feature<sup>5</sup>(o-feature)', and that *tense* contains an r-feature.

Let us return to (1b): \*I have seen Mary yesterday. In this *present perfect* sentence are embedded double time representations; one is an r-feature, and the other is an o-feature. The former is an indispensable component for constructing sentences, but since the latter is optional, it is not always necessary.<sup>6</sup> These embedded features are represented as 'have' and 'yesterday' respectively. On the basis of these properties regarding time-representation, we could reconsider more convincingly *the puzzle* in (1b). I tentatively assume that a certain condition concerning such property as *time* is not fulfilled. We have called this violation *PPP*. If so, the answer to the question (C) mentioned above will also be deduced from thinking of under what syntactic condition the violation is caused<sup>7</sup>. These issues may

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<sup>5</sup> We shall call the property of time adverbials o-feature for want of a better terminology. This is motivated by Declerck (2006). He uses the term 'orientation time' (95).

<sup>6</sup> According to phrases structure' theory, the optional element is categorized as 'adjunct'. (cf. Chomsky:1995)

<sup>7</sup> This research will furthermore be motivated by the pursuit of general principles of Universal Grammar(UG).

be clarified by examining linguistic facts of the *present perfect*; one is by historical aspects, and the other by syntactic ones.

## Section 2 A Diachronic Approach for *Present Perfect*

Let us historically survey how *the present perfect* has been established. Although it is confirmed that this linguistic expression has been used since Old English, in fact, it is quite recent that the perfect form 'have + past participle' was morpho-syntactically established. On the diachronic level, the auxiliary 'have' was once used as a lexical transitive verb (Visser:2002, Curme:1976, Jespersen:1982). Let us look at the sentence by Jespersen (192)<sup>8</sup>:

(2) *ic hæbbe þone fisc gefangenne*

'I have the fish caught'

These examples here indicate the original form of perfect, not other constructions e.g. causative. The full verb '*hæbbe*' takes an objective case followed by the NP (Noun Phrase), including the past participle '*gefangenne*' inflected as causative. In this construction, the past participle can be interpreted as a predicative adjective of the object '*fisc*'. Curme (1976) describes the past participle as "participial adjective"<sup>9</sup>, and adds that it implies the states resulting from the previous action, which shows here 'finished' state (358). And morphologically speaking, the participial adjective functioned like an adjective in that the adjective once inflected in concord with the preceding noun or pronoun as the object of '*have*' throughout the period of OE to Early ME. Sweet (1975 51) gives the example below<sup>10</sup>:

(3) *hīe hæfdon hiera cyning āworpenne*

'They had deposed their king'

In ME, however the object-medium construction<sup>11</sup> gradually disappeared<sup>12</sup>, the reasons for which are considered to be due to a variety of factors such as a grammaticalization of '*have*', a verbal force of the past participle, the decay of the inflection of the participial

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<sup>8</sup> Otto Jespersen. *Growth and Structure of English Language*, Univ. of Chicago Press, 1982.

<sup>9</sup> Visser (2002) states that 'the past participle had a good deal of adjective force.' (2189)

<sup>10</sup> Henry Sweet. *Anglo-Saxon Primer*. Oxford at the Clarendon Press, 1975.

<sup>11</sup> Visser (2002) calls this word order of the object 'mid-position of object'. (2189)

<sup>12</sup> Jespersen (1982) states thus: "By and by a distinction was made between 'I had mended the table' and 'I had the table mended', 'he had left nothing' and 'he had nothing left'." (192-193)

adjective and so on. Although there was once a *present perfect* using 'be' ('be' perfect) instead of 'have' ('have' perfect), by ME the 'be' perfect had narrowed the usages and it professionally come to denote 'state.' (Mustanoja:1985 502)<sup>13</sup> Furthermore, as the distinction between perfect form and passive form ('be'+ past participle) was vague, 'be' perfect turned out to be obsolete<sup>14</sup>, and by E. ModE have' perfect solidified the status as *present perfect*. (Mustanoja:1985 501, Brinton:2006 349<sup>15</sup>)

Next, let us briefly grasp the difference between *present perfect* and *preterite* on the basis of historical facts. The discussion of these transitions stated in the preceding paragraphs was mainly concerning that of the transition of word-order of the perfect form from a syntactic angle, focusing on the object position. To take a functional angle, it is said that *present perfect* has developed out of the function to express the state in possession of the previous action, up to the moment of utterance<sup>16</sup>. The temporal function works as an indicator of the previous event like *preterit*. Consequently, this functional commonality causes vagueness in respect of the temporal character, which naturally arouses several controversies: how they should be elucidated as *tense* or aspect, etc. (Visser:2002; Anderwald:2016, Sato:2009) The vagueness seems to provide a focus for the contrast (1) to happen. The functional distinction between *present perfect* and *preterit* seemed to have not been explicit with respect to the distinction of these two temporal expressions before E. ModE. In this point, it can be observed that the co-occurrence of the *present perfect* and past time adverbials was not ungrammatical before E. ModE, even though it is recognized as one of a grammatical violation in the-present-day English as with (1b). Let us quote Mustanoja (1985 504):

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<sup>13</sup> Tauno F. Mustanoja. *A Middle English Syntax*. Muicho Fukyukai, 1985.

<sup>14</sup> See Visser's observation (2002, 2189), but still in the sixteenth century we can easily find some instances of the object-medium construction: Picus 33 DI, Sinne *hath* vs guilty *made* this many a yere. /Lamentation, Stanza 21, 6, Rychesse, honour, welth, and auncetry, *Hath* me *forsaken*.

<sup>15</sup> L.J. Brinton, L.K. Arnovick. *The English Language: A Linguistic History*. Oxford University Press, 2006.

<sup>16</sup> Mustanoja (1985) states as follows: "Psychologically the use of the perfect for this purpose (linking up previous action to the moment of speaking) is natural. This compound tense form is longer and therefore more emphatic than the simple preterite, which consists of only one word. A more emphatic verb form is desirable for indicating the completion of an action which continues up to the moment of speaking than for expressing an action which clearly belong to the past". (504)

In ME and early Mod. E the functional distinction between the preterit and the compound tenses of the past is not, however, nearly so clear-cut as it is today, and the perfect, for example, may occur in conjunction with adverbs of past time: *-and homeward he shal tellen. othere two [taels], Of adventures that whilom han befalle* (Ch. CT A Prol. 795).

Therefore, if it is after E. ModE when the functional distinction was drawn between *present perfect* and *preterit*, this period nearly coincides with that of the establishment of the word-order of *present perfect*. That is, the period when the functional distinction was drawn appears to be almost parallel in the period of the syntactical establishment of the *present perfect*. And, it might be safely said that the syntax triggers building up the function, the status, and the meaning of *present perfect*, and that as a result it rejects (1b). Therefore, it is required to display the following syntactic formula for finding the positional relation of words according to the phrase structure's theory.

(4) [I [VP have [V seen]] [NP Mary]]

Each phrase, however, is only labeled from a lexical category, and these labels are seen as lacking in a sufficient category to show *tense*. Then, how could two r-feature and o-feature relevant to time be embedded, of which the insight is in a semantic ground, into the phrase structure's theory, which is in a syntactic ground? Generally, this approach combining the semantic elements with the syntactic elements, which is a *tense*-analysis based chiefly on generative grammar, is motivated by Jackendoff (1972), Hornstein (1990), Zagana (1990), and Stowell (2007) etc. Moreover, it is desirable to look at the logical representation of *tense* by Reichenbach (1947) to clarify notions concerning time which they use in their respective proposition.

### Section 3 Reichenbach's *tense* system

Reichenbach's *tense* system (1947) is an indication of where the time which the *tense* denotes is located on the time axis giving three temporal symbols; S (speech point), E (event point), and R (reference point). He provides a representation of *tense* upon a symbol string determined from the combination of S, E, and R. Some linguists introduce his *tense* system as a linguistic theory of *tense*, but his *tense* system does not involve any kind of rule. His *tense* system seems to be merely a schema of *tense*, mainly treating a precedence relation of times as illustrated in (5). Thereby, his *tense* system should be tentatively called a symbolic representation of *tense*, since he recognized the location of time logically, but not theoretically.

- (5) a. X before Y  
 b. X after Y

## c. X with Y

X and Y are each distinctive time-denoting elements which are compatible with Reichenbach's S and E. S appears at the moment of utterance; hence the property of S serves as an indicator of the present point to be designated as a criterion point of the utterance. E indicates the time of the event in the sentence; the property of E is related to the predicate of the sentence or clause. Therefore, it is possible to discriminate the domain of times i.e. past, present, future, under the precedence relation of these two time-denoting elements as seen in (6). We can rewrite (6) into (7) following Reichenbach's interpretation: dash(-) indicates 'separation' of S from E and comma (,) 'simultaneity'. In other words, if dash has a contrasting status to comma, the former designates 'different points in time'. It is, then, possible to explain the presence of 'anteriority' and 'posteriority'. And we can also see that these three characteristics (posteriority, simultaneity, and anteriority) correspond with prepositions; after, with, and before, as in (6) below.

- (6) past: S after E  
 present: S with E  
 future: S before E
- (7) past: E-S  
 present: S, E  
 future: S-E

There is a problem as for the distribution of S and E. Which time-denoting elements should be placed in X, S or E? Should we recognize the past as the time that an utterance is generated after completion of an event, or the time that an event has been completed before generation of an utterance? Following Stowell (2007), I adopt the former. Since S is the criterion of an utterance as mentioned above, *tense* should be understood through the lens of S.

Reichenbach introduced R as the third element into his *tense* system, although not fully discussed. In (7), *tenses* have not been represented yet. This schema merely provides a mutual relationship of the notion of time. Indeed, only S or E seem to suffice to represent a simple *tense* at least because each simple *tense* denotes a single-temporal index alone, i.e. past, present, or future. In the case of a complex *tense* i.e. perfect, it has double-temporal indexes because the *present perfect* has a close relationship to past events. These indexes are represented as S and E. R serves to account for the distinction between S and E, eliminating the ambiguity, and explicitly determining the time denoted by the tensed clause (finite clause). Consequently, we can call the property of R an indexical property<sup>17</sup>.

<sup>17</sup> Sato (2009) defines S as follows: "S is an indexical point referring to the utterance time".

Reichenbach proposed the following *tense* system with the following three temporal symbols. Reichenbach's conclusion is, then, summarized as below: the representation (8) shows simple and complex *tenses*.

- (8) past: R,E-S      past perfect: E-R-S  
 present: S,R,E      present perfect: E-S,R  
 future: S,R-E      future perfect: S-E-R

#### Section 4 The Theoretical Framework

The syntactic analysis would make an effective contribution to the previous insights into *tense* i.e. the precedence relations of times as illustrated in Reichenbach (8). In order to develop this analysis, Binding Theory (1981) proposed by Chomsky would be useful. *Tense* has at least two time-denoting elements; S and E. For example, in (9), S represents the moment of the utterance, while E expresses the predicate of the clause; loving Mary.

- (9) a. John loved Mary.  
 b. John loves Mary.  
 c. John will love Mary.

The sentence (9a) can represent the precedence relation of time as 'S after E'. Let us consider the question why (9a) is determined as 'S after E'. At this point, the first thing we should think of is that the determination of the precedence relation of times is linked with the inflection of the finite verb. It can be, then, said that a certain condition has an important consequence for the setup of either the determination of the precedence relation of times or the inflection of the finite verb. I would like to tentatively hypothesize that a certain condition would complete the *tense* system as if it were domino theory. As for the property involved in such a determination of *tense* system, Reichenbach's R seems to have a similar behavior to its theory. Hence, we should roughly examine how a functional property like R is explained through a syntactic analysis, by which the connectedness between of several *tenses* and time adverbials would also be identified.

In (10) and (11), we can see that appropriate co-occurrence of *tense* and time adverbials is based on a certain pattern.

- (10) a. Mary left Tokyo yesterday.  
 \*b. Mary left Tokyo since 2006.  
 (11) \*a. Mary has left Tokyo yesterday.  
 b. Mary has left Tokyo since 2006.

The contrast between (10) and (11) contains the following idea: *Past* allows 'yesterday', but not 'since 2006' and 'recently'. *Present perfect* disallows 'yesterday', not 'since 2006' and 'recently'. Then, the correspondence is likely to be similar to behavior of the anaphoric



relation in (12). The reflexive 'herself' must denote the antecedent 'Mary', of which both elements must also be coreferential.

(12) a. Mary believes herself.

b. \*Mary's father believes herself.

The above exposition is able to be easily given in terms of a positional relation of words. The studies of ungrammatical sentences like (12b) produced 'Binding Theory'. This theory contains a certain condition under two DPs (NPs)<sup>18</sup> in the case of referring to the same target in the sentence. Generally, the property of DP is divided into three types, and they are each given conditions in the clause by Chomsky (1981): the first type is labeled *anaphor*<sup>19</sup> (a kind of reflexive such as *herself*), which must be bound in its government category (minimal clause) (A-type). The second type is pronominal (a kind of pronoun such as *them*), which must be free in its government category (B-type). The third type is r (eferential) expressions (such as *Mary*), which must be free (C-type). A kind of reflexive (anaphor) cannot have an inherent referentiality, hinging on the antecedent all the time, whereas r-expressions must independently exist without being bound by any DPs. These properties can be corroborated by examining inappropriate (13) and (14), and they can be schematized as seen in (15) and (16)<sup>20</sup>.

(13) \*Herself<sub>i</sub> believes the rumor.

(14) \*She<sub>i</sub> believes Mary's<sub>i</sub> father.

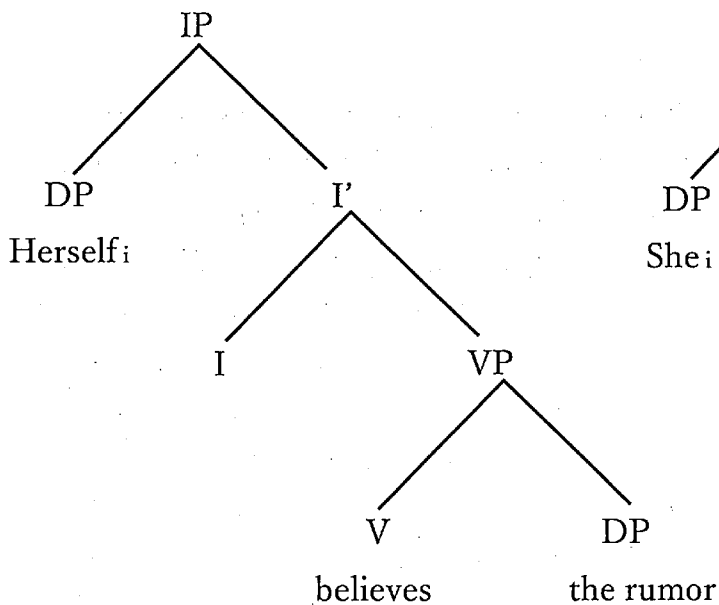
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<sup>18</sup> DP (determiner phrase) is a more syntactic terminology than NP (noun phrase). (cf. Poole:2011)

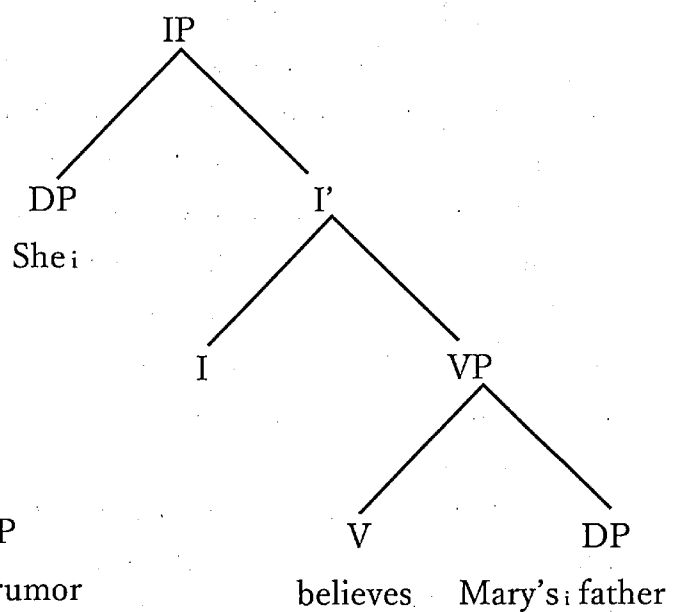
<sup>19</sup> Sylvia Chalker and Edmund Weiner (1994) define 'anaphor' as follows: "A word or phrase that refers back to an earlier word or phrase."

<sup>20</sup> The abbreviated sign 'I' signifies the inflection of verb. These abbreviations display as follows: i=index, IP=Inflectional Phrase, VP=Verb Phrase, DP=determiner Phrase

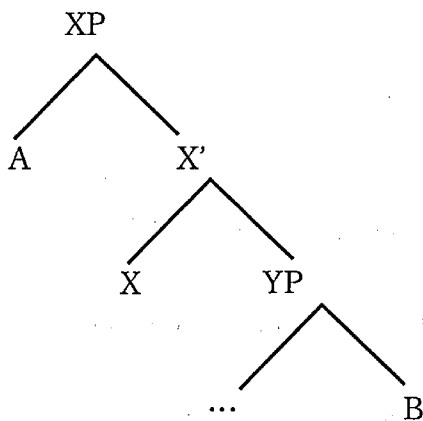
(15)



(16)



For the sake of satisfying these conditions on the connectedness between anaphor and r-expressions, we should note each position on these trees (15) and (16). In the case of (15), *herself* c-commands *the rumor*, but anaphor is required to be c-commanded by the antecedent, hence (15) is unacceptable. While on the other hand, r-expressions are required to be free, but in (16) *Mary* is c-commanded by the other DP denoting the same index, therefore it is ungrammatical. In other words, in (15) *herself* binds *the rumor*, and in (16) *Mary* is bound by *she*. For 'c-command', Koenenman, Zeijlstra's definition (2017) will suffice to understand it:



"A c-commands B if and only if the node that immediately dominates A also dominates B, and A does not dominate B." (129)

### Section 5 The Theoretical Approach for PPP

If the behavior of time-representations is structurally analogous to that of DPs, then we will be able to contemplate the possibility that the relation of *tense* and time adverbials may be inflected on the relation of binding. Time-adverbials have o-feature, and this is volitionally chosen by speakers. In this regard, the time-adverbials always show the property of *tense*. Then, we can consider that the property of time-adverbials is semantically orientational, and syntactically anaphoric. At the same time, since *tense* is analogues to r-expression in that *tense* is referential, it must syntactically be free in sentences. The result clearly shows that *tense* c-commands time-adverbials, so time-adverbials must be bounded by *tense*. As discussed above, *present perfect* has double-temporal indexes; *present* and *past*. This form means that the relationship of *tense* and time-adverbials should be understood to have something in common with the anaphoric relationship of plural reflexive:

(17) [Mary and John] *i* believe themselves *i*.

Since the antecedent of *themselves* contains two r-expressions, the anaphor in (17) must correspond to with these two indexes. Similarly, let us consider the following sentences:

(18) \*[Mary and [John *i*]] believe himself *i*.

(19) \*Mary [has [left *i*]] Tokyo yesterday *i*.

(20) Mary [has left] *i* Tokyo since 2006 *i*.

The time-adverbials in *present perfect* sentences must also agree with double-temporal indexes, on the basis of which the finite verb (have/has) and non-finite verb (past participle) constitute individual temporal index. If an anaphor denotes only one expression, (18) is strange. Consequently, we could also understand from the similar point of view that (19) causes the violation considered to be PPP. The time adverbial 'yesterday' is a sort of a specific past-time adverbial<sup>21</sup>, and it has only the single-temporal index. In (20) The time adverbial adequately reflects double-temporal indexes. In addition, the anaphoric relationship between complex tenses and the time adverbials indicates a distinct property of time adverbials. That is, the time adverbials as an anaphor on *present perfect* sentence must contain also double-temporal indexes in conformity with the antecedent. Therefore, we can

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<sup>21</sup> Some linguists state that 'yesterday' retains a certain time span as we can additionally put a spotlight on the time axes such as 'yesterday at 9'. I accept here that 'yesterday' regularly denotes a definite point of time because we do not mostly care about at what time in 'yesterday' until a more specific time in the range of *yesterday* is questioned as in 'What time did you leave Tokyo yesterday?'.

immediately consider the anaphoric relationship in the following interrogative sentences<sup>22</sup> which are posed by Klein (1992: 526). (21b) and (22b) show the connection of these indexes<sup>23</sup>:

- (21) a. \*When has Chris been in Pontefract?  
 b. \*[When i] [has j] Chris [been i] in Pontefract?
- (22) a. When has Chris ever been in Pontefract?  
 b. [When i] [has j] Chris [ever j] [been i] in Pontefract?

In (21) since the index 'j' of the time adverbial is lacking, it is unacceptable. In (22), however, the adverb 'ever' seems to involve present time, and to satisfy the index of 'j', hence it is acceptable.<sup>24</sup>

### Concluding Remarks: The Adequacy of the Theoretical Analysis.

There is another good reason for us to be able to expect that this theoretical examination would be a useful means to solve *PPP*. For example, 'scope solution'<sup>25</sup> and 'current relevance solution'<sup>26</sup> cannot deal with the following sentence: (23) \*Mary has left

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<sup>22</sup> Judging from the view of *wh*-movement in terms of the interrogative of *present perfect*, we could also consider the interaction of '*Island-constraint*'. As is the case in (20), the complex tense '*present perfect*' often brings complex adverbial phrases. Then in (20), it is taken for granted that it is forbidden to remove a part from the complex adverbial phrase 'since 2006' as follows: (23) \*When has Mary left Tokyo since \_\_? This is because this complex adverbial is composed of prepositional phrase i.e. PP[P[since] NP [2006]] and it is impermissible to take away a constituent from the prepositional phrase due to '*Island-constraint*'. (cf. Ross:1976)

<sup>23</sup> 'j' denotes another index when the anaphor and the antecedent contain complex indexes respectively.

<sup>24</sup> Klein recognizes (22) pragmatically as follows: "This is clearly possible, especially (but not only) if it is meant to imply that he has never been there" (526)

<sup>25</sup> Klein (1992) states thus: "The idea of the scope solution is roughly this: the entire clause includes two time specifications, one by the present morpheme *has* and second one by the temporal adverbial, for example *yesterday*. There may be good reasons to assume that adverbials of this type are sentential adverbs rather than VP-adverbs. Therefore, they have scope over the entire sentence, including FIN. There is thus a clash between the time specified by the adverb (before TU) and the time specified by FIN (including TU)" (527). The abbreviation 'TU' is Time of Utterance.

<sup>26</sup> Klein (1992) defines thus: "The event, process or state, although as such situated in the past, has some ongoing relevance that prolongs it somehow into the present." (531)

Tokyo at present. This is because, the scope of 'at present' easily overlaps with that of the finite verb 'has', and moreover because the adverb is relevant to at least the present point. However, under Binding Theory, we can immediately find the relation of the time adverbial and the antecedent, and accurately catch the factor as follows: (24) \*Mary [[has i] left] Tokyo at present i. As in the same analysis with (18) and (19), the time adverbial 'at present' displays only the index of finite verb 'has', even though in *present perfect* sentence time adverbials must contain double-temporal indexes; one is the index of finite verb, and the other is that of non-finite verb. Therefore, it can be said that (23) is ungrammatical.

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