パーフェクトにおける事象の時間構造への写像および参照時の設定に関する意味論的研究

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はしがき

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Present Perfect Puzzle and Two Types of Temporal Adverbials in Japanese

0. Introduction

In the present paper, I consider the two types of present perfect in Japanese: the one which can be replaced with the simple past tense, as in (1a, b), and the one which cannot, as in (2a,b). In particular, I focus on the widely acknowledged phenomenon of apparent free co-occurrence of the present perfect in Japanese with time adverbials such as 'kyonen' *last year* and 'sudeni' *already* as in (1) and (2).

(1) a. *Kyonen*, Taroo-wa chuugoku-e it-tei-ru.
Last year, Taroo-TOP China-to have-went
(Last year, Taroo has been in China.)

b. Taroo-wa *kyonen* chuugoku-e it-ta.
Taroo-TOP last year China-to go-PAST
(Taroo went to China last year)

(2) (at the moment of scoring the second goal in a soccer match)

a. Kare-wa *sudeni* 1 gooru kime-tei-masu.
He-TOP already 1 goal have-scored
(He has already scored one goal.)

b.*Kare-wa *sudeni* 1 gooru kime-masi-ta.
He-TOP already 1 goal score-PAST
(He scored one goal already.)

Sentence (1a) has the reading that there is some interval last year when Taroo was in China. Sentence (2a) has the reading that the event of his scoring second

goal has occurred in the past. The meaning of (1a) seems similar to that of the 'experiential perfective' proposed by Comrie (1976:58-59): "the experiential perfect indicates that a given situation has held at least once during some time in the past leading up to the present". We will hereinafter call the present perfect of the type seen in (1a) the 'experiential perfect' and the type seen in (2a) the 'genuine present perfect'[1].

In contrast with Japanese, the English present perfect shows very limited co-occurrence with temporal adverbials of the kind used in (3) and (4) (Klein, 1992).

(3) a.*Chris has left York *last year*.

b.*Last year, Chris has left York.

(4) a.*Chris has left York *yesterday*.

b.*Yesterday, Chris has left York.

Klein (1992) refers to this phenomenon in English as the 'present perfect puzzle'.

It must be noted, however, that despite the apparently free occurrence of time adverbials in Japanese, there are a number of exceptions. First of all, point-time adverbials such as 'yo-zi ni' *at four* are to be distinguished from the other time adverbials which co-occur with the present perfect in '*-teiru*'. The possible

[1] According to Comrie (1976:59), (i) is an example of the experiential perfect and (ii) of the perfect of result.

(i) Bill has been to America.
(ii) Bill has gone to America.

The example in (ii) has the implication that Bill is in America or on his way there. (i) however has no such implication but says that on at least one occasion Bill did in fact go to America. To avoid possible confusion, this paper does not adopt the term PERFECT OF RESULT as it has the implication that the perfect describes a telic event.

occurrence of point-time adverbials is restricted to the simple past in '*-ta'* in-out-of-the-blue context, as shown in the examples (5a) and (5b).

(5)a. *Taroo-wa *yo-zi ni* kawet-tei-ru.

Taroo-TOP four-at have-left

(Taroo has (already) left at four.)

b. Taroo-wa *yo-zi ni* kawet-ta.

Taroo-TOP four-at leave-PAST

(Taroo left at four.)

Not only the example of the genuine present perfect in (2a), but even the experiential perfect as in (1a) cannot replace with the simple past if the temporal adverbial is a point-time adverbial:

(1)'a.* *Yo-zi ni* Taroo-wa chuugoku e it-tei-ru. (it-ta)

Four at Taroo-TOP China-to have-went

(At four, Taroo has been in China.)

(2)'a.*Kare-wa *ku-zi ni* 1 gooru kime-tei-masu.

He-TOP nine-at 1 goal have-scored

(He has scored one goal at nine.)

The examples in (1'a) and (2'a) show that the modification by point-time adverbial is generally excluded from constructions with present perfects in '*-teiru*'.

Moreover, a detailed inspection of the distribution of temporal adverbials shows that in Japanese, it is not possible for them to be used with more than one type of present perfect. For instance, the successful co-occurrence of 'kyonen' *last year* is

limited to the experiential perfect and does not extend to the genuine present perfect as shown in (2"a). With 'sudeni' *already,* however, it is limited to the genuine present perfect and does not extend to the experiential perfect without some special context as shown in (1"a).

(1)"a.??*Sudeni*, Taroo-wa chuugoku e it-tei-ru.

Already, Taroo-TOP China-to have-went

(Already, Taroo has been in China.)

(2)" (at the moment of scoring the second goal in a soccer match)

a.*Kare-wa *kyonen* 1 gooru kime-tei-masu.

He-TOP last year one goal has-scored

(He has scored one goal last year.)

These examples suggest that there is not much divergence between the English and the Japanese present perfect. But there is a difference. It lies in the fact that Japanese has two types of present perfect with regard to temporal adverbials: experiential perfect and genuine present perfect. A locus of debate in the literature has been whether this puzzle is a semantic/pragmatic (Klein, 1992, among others) or a syntactic phenomenon (Giorgi & Pianesi, 1997, among others). However, a complete treatment of this area must explain two basic facts, which are the main questions to be clarified in the present paper:①it must account satisfactorily for the regularity in form found in each class of present perfect in Japanese, and, at the same time, ②it must allow for the fact that the '-*teiru*' affix of the experiential perfect, when it co-occurs with p-definite temporal adverbials with which the genuine present perfect cannot, shares certain properties with the '-*ta*' affix of the simple past. If there is a close correlation between (i) alternation between '-*teiru*'

and '*-ta*' and (ii) non-co-occurrence of temporal adverbials with '*-teiru*', then it is reasonable to state that the present perfect puzzle can be reduced to the intersection of (i) and (ii).

In the present paper, I examine the data from Japanese present perfect in '*-teiru*' form and argue that the perfective aspect generally expresses the relation between descriptive event and background information in which the former is evaluated and therefore it is not sufficient to postulate that the phenomenon is explained by a simple pragmatic constraint, as proposed by Klein (1992) or a morphosyntactic analysis, as proposed by Giorgi & Pianesi (1997), but that the phenomenon can be fully accounted for in terms of situation theoretical approach based on the perspectival relativity of natural language. The keys of my argument are the interaction between the properties of aspectual affix *'-teiru'* and of temporal adverbials and its appearing circumstances.

The discussion proceeds as follows. In § 1, I sketch the nature of Japanese present perfect. In § 2, I review the fundamental facts of present perfect puzzle and in § 3, I review previous discussions about present perfect puzzle. In § 4, I introduce my observations into the treatment of definite description in situation semantics and analyze the data. Based on this result, in § 5, I clarify the problem about alternation between '*-ta*' and '*-teiru*' in Japanese present perfects. In § 6, I establish a general parameter called uniqueness constraint explaining the diversity of the phenomenon in unified way. In § 7, I explore the semantic basis of uniqueness constraint and present evidence for it in considering apparent counter examples to uniqueness constraint. In § 8, I discuss how semantic interpretation interacts with syntactic configurations and suggest that the phenomena can be best described by the processing view. Conclusions are presented in § 9.

1. Present Perfect in Japanese

In this section, I will sketch the basics of the aspectual property of the '*-teiru*' and '*-ta*' affixes and give an introduction regarding the nature of the present perfect in Japanese.

1.1 Verb Types and Present Perfect Meanings

First of all, the aspectual affix '*-teiru*' has not only a perfective but also a progressive reading depending on the aspectual class of the co-occurring predicate (Kindaiti,1950). The progressive reading is applied with activity or accomplishment verbs as shown in (6a, b).

(6) a. Taroo-wa ima hasit-tei-ru.
Taroo-TOP now run-PROG
(Taroo is running now.)
b. Taroo-wa ima uti-wo tate-tei-ru.
Taroo-TOP now house-ACC build-PROG
(Taroo is building a house.)

However, as noted by Fujii (1966), the '*-teiru*' construction applied with accomplishment verbs like 'taore-ru' *fall down* can be used to talk about two different types of result states: that is, 'regular' result states and 'experiences'. The former readings can occur only with adverbials like 'ima' *now* and the latter one can occur with adverbials that denote past intervals like 'kyonen' *last year* and 'mae-ni' *in the past*.

(7)a. Kare-wa *ima* taore-te iru.

He-TOP now fall-down-PRES

(He is now lying [on the ground](as a result of having fallen.)

b. Kare-wa *zenkai* totyuu-de taore-te iru node,

He-TOP last-time half-way-at have-fallen-down since,

konkai-mo abunai.

this-time-also uncertain.

(Since he fell down half way through (the race), he probably won't make it this time, either.) [Ogihara, 1998]

The example in (7a) entails that he is lying on the ground, whereas (7b) does not entail it. According to Ogihara (1998), the former describes the sate that is transient and is very much like the properties denoted by "stage-level predicates" (Carlson, 1997), while the latter expresses a permanent property of the individual in question and is like the properties denoted by "individual-level predicates" (Carlson, 1997).

Moreover, 'regular' result state reading is applied also with achievement verbs like 'sinu' *die*:

(8) Taroo-wa sin-dei-ru.

Taroo-TOP be-died

(Taroo is dead.)

By contrast, if a verb is a state verb, then it cannot appear in any present perfect sentences. But, when an adverbial that indicates a definite interval of an event is added to the sentence, only the activity predicates like (6) can convert to

accomplishment predicate, as shown in (9a).

(9)a. Taroo-wa *iti-zi-kan* hasit-tei-ru. (hasit-ta)
Taroo-TOP one-hour-for be-running
(Taroo {was running/has run} for one hour.)
b.*Taroo-wa iti-zi-kan sin-dei-ru. (*sin-da)
Taroo-TOP one-hour-for be-dead
(Taroo was dead for one hour.)

It needs to be noted that (9a) can be categorized in experiential perfect. Thus, in a previous account (Kudo, 1995, among others), sentences with a perfect reading were taken in general to describe an event that has reached an end and to signify that the event is telic.

It is often argued, however, that it is not possible to predict whether a given verb turns out to be perfect or not from the verb's type. For example, even when the sentence expresses an atelic event as in (10), the experiential perfect reading can be possible[2].

(10) Hanako-wa *sakuya* kawa de oyoi-dei-ru. (oyoi-da)
Hanako-TOP last night river-LOC have-swum
(Hanako swam in the river last night.)

Moreover, although a verb is an achievement verb, it does not appear in the genuine present perfect, as shown in (11b)[3] and (12b)[4].

[2] The affix '*-da*' in (11b) is a phonetic variant of '*-ta*'.
[3] This observation is due to Mitio NAKAMURA(p.c.).See § 2.1 for a relevant discussion.

(11) a. Taroo was accused of a traffic violation.

b.* Kare-wa singoo wo musi-si-tei-ru no-da.

He-TOP traffic signal-ACC have-ignored

(He has ignored a traffic signal.)

c. Kare-wa singoo-wo musi-si-ta no-da.

He-TOP traffic signal-ACC ignore-PAST

(He ignored a traffic signal.)

(12)a. Senshuu, kare-wa asita kuru to it-ta.

Last week, he-TOP tomorrow come-FUTURE COMP say-PAST

(He said last week that he would come tomorrow.)

b.* Iie, kare-wa sin-dei-masu.

No, he-TOP have-died

(No, he has died.)

c. Iie, kare-wa sini-masi-ta.

No, he-TOP die-PAST

(No, he died.)

It is clear that here we need two distinct patterns in present perfect, one, which requires contextual information, and one, which does not, to indicate the reference time. Since the achievement verb can appear in the former pattern, it proves that the type of present perfect, namely genuine present perfect or experiential perfect, is crucial for the appearance of the achievement verbs in present perfect construction.

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[4]The affix '*-dei-ru*' in (10b) is a phonetic variant of *'-tei-ru'*.

1.2 The Meanings of '-Ta' and '-Teiru'

In the literature, it is proposed that the sentential aspect controls the flow of time in a narrative, that is, the perfective/bounded event advances time in a narrative, while the imperfective/unbounded event does not advance time but overlaps with the surrounding discourse (Dowty, 1986; ter Meulen, 1995, among others). The former is exemplified in (13a) and the latter in (13b).

(13) a. John entered the president's office. The president stood up.

b. Mary opened the window. It was raining.

(13)'a.John-wa daitooryoo-no heya-ni hait-ta. Daitooryoo -wa *tatiagat- ta*.

b. Mary-wa mado-wo ake-ta. Ame-ga *fut-tei-ta*.

As is clearly demonstrated by (13a,b) and their Japanese translation in (13'a,b), Japanese does not differ from English in this point. The event described in '*-ta'* advances time, while the event described in '*-teita*' (the past form of '*-teiru*') does not advance time but overlaps the surrounding discourse. Therefore, the atelic aspect expressed by 'oyoi-dei-ru' *be swimming* and 'fut-tei-ta' *was raining* is normally interpreted to overlap with the surrounding discourse and does not advance the flow of time in the discourse. This is why we can infer so-called 'current relevance' of present perfect: the event has some ongoing relevance to the current topic of discourse (Comrie, 1976), for instance, (10) might infer Hanako's one day. This indicates that establishing a link between an event described by a statement and the surrounding discourse is an inherent part of the lexical function of the aspectual affix '*-teiru*'.

In contrast, the current relevance cannot be inferred from the affix '*-ta'* as shown in (10'b). The simple past tense form 'oyoi-da' *swam* cannot imply current

relevance and does advance the flow of time in the discourse as shown in (10'a) and (14a), whereas '*-teiru*' cannot advance the flow of time in the discourse and therefore cannot express a succession of two events, as shown in (10'b) and (14b)[5].

(10)'a.??Hanako-wa *sakuya* kawa-de oyoi-de-iru. Sosite, uti-e kawet-ta.

Hanako-TOP last night river-LOC have-swam.Then, house-to return-PAST

(Hanako swam in the river last night. Then, she returned to her house.)

b Hanako-wa *sakuya* kawa-de oyoi-da. Sosite, uti-e kawet-ta.

Hanako-TOP last night river-LOC swim-PAST. Then, house-to return-PAST

(Hanako has swam in the river last night. Then, she returned to her house.)

(14)a. Keeki-ga yake-ta. O-cha-ni siyoo.

Cake-NOM bake-PAST Tea-DAT let us do-PRESENT

(The cake baked. Let us have tea.)

b.?? Keeki-ga yake-tei-ru. O-cha-ni siyoo.

Cake-NOM bake-PAST Tea-DAT let us do-PRESENT

(The cake is baked. Let us have tea.)

Since (10'b) does not in themselves allow a perfective reading, it is anticipated that when examples containing a predicate in '*-ta*' form can indicate a perfective reading, this reading comes from a context in which a succession of events is described, as in (14a).

This signals that the crucial difference between (1a) and (1b) emerges from subtle meaning differences between '*-teiru*' and '*-ta*': while a predicate containing

[5] The adequate reading of the example in (14b) is that the cake is baked; it is otherwise awkward in the context.

the affix '*-teiru*' is a present perfect form expressing past action dependent *on* or with current relevance *to* the surrounding discourse, a predicate including the affix *'-ta'* is a simple past tense form expressing past action independent *from* or without current relevance *to* the surrounding discourse.

This does not mean, however, that the experiential perfect as in (1a) and the genuine present perfect as in (2a) share the same semantic structure. What they share is regularity in the form of a predicate which includes the aspectual affix *'-teiru*' and implies some 'current relevance' to the surrounding discourse, but there is a crucial difference between them. This lies in the degree of interchangeability with the simple past. The existence of a set of examples showing variable behaviors across verb types, however, dose not have the implication that Krifka(1993), Tenny(1994) and Singh(1998) have suggested that aspect is also determined at the sentential level by the thematic relation between events and objects. Thus, it should be observed that while the degree of result is based on the thematic relation between verb and its argument, the variation in present perfect is determined by contextual parameter.

With this in mind, in what follows we will present examples of the present perfect puzzle and argue that despite the apparent contrast between Japanese and English in the co-occurrence of the present perfect with temporal adverbials, a close examination of the data reveals that the present perfect puzzle is also present in Japanese.

2. Present Perfect Puzzle

2.1 Data

As stated before, very limited co-occurrence of the English present perfect with temporal adverbials like *at four* and *yesterday* is called present perfect puzzle by

Klein(1992). It can be observed that the present perfect puzzle splits largely the Romance languages and the Germanic languages (Giorgi & Pianesi, 1997). The acceptability seen in (1a) indicates that Japanese is categorized as the former group languages as like Italian. To illustrate that this is not correct, first observe the fact that the temporal adverbials 'yo-zi ni' *at four* and 'kyonen' *last year* differ in their co-occurrence with present perfect in Japanese.

First of all, the examples in (5a,b) show that a point adverbial such as 'yo-zi ni' *at four* is incompatible with the present perfect not only in English but also in Japanese[6]:

(15) a.*John has left *at four*.

b. John left *at four*.

(5) a.*Taroo -wa yo-zi ni kawet-tei-ru.

Taroo-TOP four-at have-left

(Taroo has (already) left at four.)

b. Taroo -wa yo-zi ni kawet-ta.

Taroo-TOP four-at left

(Taroo left at four.)

According to Reichenbach (1947), the event time E[7] in the present perfect is

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[6] The example in (5a) becomes adequate when we add 'kinoo' *yesterday* and introduce a contrastive reading between 'kinoo' *yesterday* and other days, as in (i).

(i) *Kinoo*, Taroo wa *yo-zi ni* kawet-teiru.
Yesterday, Taroo-TOP four-AT have-left
(Yest erday, Taroo has left at four.)

In this case, (5a) is considered to be no longer genuine present perfect, but experiential perfect. We will discuss this problem later.

[7] Generally, a point-time adverbial is in best accord with a punctual event characterized by telicity and boundedness, so that the point-time adverbial must be

interpreted as temporally prior to the reference time R[8], which is simultaneous to the speech time S; this tense ordering is represented as E_R,S ('E_R' indicates that E is prior to R and 'R,S' that R and S coincide temporally), while that of the simple past tense is represented as E,R_S. Therefore, to obtain an adequate reading, the event must be described in a past tense form as in (15b)[9].The awkwardness of (15a) can then be explicable as a mismatch between the past meaning of the time adverbial *at four* and the present-like interpretation of the tense. In Japanese example (5a), the only possible (but unnatural) interpretation of the present perfect is that the event in which Taroo leaves occurs at four o'clock, and that this is contemporal with the speech time (E_R,S). Otherwise, (5a) is impossible because the adequate tense ordering E,R_S would force the verb to take the simple past tense form 'kawet-ta' *left* as in (5b).

The coincidence in unacceptability between (15a) and (5a) shows that the present perfect puzzle is present also in Japanese. What is important is that the awkwardness of (5a) is explained also as a mismatch between the meanings of the temporal adverbial and the present tense. Therefore, with the pattern of occurrence of temporal adverbials observed in the present perfect, it can be stated as a first approximation that temporal adverbials can occur freely only in

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considered to express event time E.

[8] It is proposed by the literature based on Reichenbach that the concept of reference time R,namely, the time of some other event, which is defined by Reichenbach ,is considered to be similar to that of time of some event which is typically mentioned in the preceding context and which can also be in the past. Klein(1992), however,claims that the reference time is fuzzy categories, characterized by ample use made in a given situation or text structure.

I take here the core of the notion of 'reference time' to be roughly defined to be the time unit containing the event described by the sentence on the basis of the definition proposed by Reinhart(1995).

[9] Notice that the present analysis uses Reichenbachian temporal ordering only in the sense of the 'output' of the temporal calculations for sentences. Some researchers have found it for system static. Therefore, it is worth mentioning here that the main point of this paper is to clarify the dynamic process of temporal calculations rather than to describe the static output of sentence meaning.

experiential perfect with the tense ordering E,R_S (more rigorously E⊆R,_S as in (1a)).

Another piece of evidence for the presence of the present perfect puzzle in Japanese is the non-co-occurrence of punctual events with the present perfect, as shown in (11c), repeated here as (16c), and (12b).

(16) (=(11)) a. Taroo was accused of a traffic violation.

b. Kare -wa singoo wo musisi-ta no-da.
He-TOP traffic signal-ACC neglect-PAST
(He ignored a traffic signal.)

c. *Kare -wa singoo wo musisi-tei-ru no-da.
He-TOP traffic sig nal-ACC have-neglected
(He has ignored a traffic signal.)

In order for this construction to be well formed as a genuine present perfect, the example in (16c) must be assumed to have the tense ordering E,R_S. An achievement verb like 'musi-suru' *ignore*, however, cannot be used with '*-teiru*' affix in (16c). In fact, the sole possible interpretation for the example in (16c) is for the event to be simultaneous with speech time S. But this is not the meaning we would expect. Since the sentence in (16) expresses a punctual event, in order for the sentence to be well formed, it must be described in a past tense form as in (16b). This might be taken as indicating that the contrast in acceptability between (16b) and (16c) illustrates the same type of present perfect puzzle as observed in the English data, as in (15a,b).

2.2 Two Types of Temporal Adverbials

Given the above observation, it is now easy to see that free co-occurrence of temporal adverbials with the present perfect in Japanese is limited to the experiential perfect assigned the tense ordering E,R_S, and does not extend to the genuine present perfect. Here, it is important that the permissible temporal adverbial is one such as 'sudeni' *already* whose position on the time axis cannot be fixed without discourse resource, and not one whose position can be fixed with reference to the speech time, such as 'ku-zi ni' *at nine* or 'kinoo' *yesterday*.

According to Klein (1992), temporal adverbials are classified into two categories: p-definite and non-p-definite. Klein calls temporal adverbials whose position on the time axis cannot be fixed without discourse resource 'non-position-definite' (non-p-definite), and those whose position can be fixed with reference to the speech time 'position-definite' (p-definite). According to this classification, 'mae-ni' *in the past*, 'arakajime' *beforehand* and 'sudeni' *already* are non-p-definite while 'kyonen' *last year* and 'yo-zi ni' *at four* are p-definite. The lexical meaning of each class of temporal adverbials can be classified by means of an operational test: that is, occurrence/non-occurrence in the genuine present perfect. The data considered so far show that this test affects classification in Japanese. The list in (17) are sample lists of Japanese temporal adverbials:

(17) P-DEFINITEADVERBIALS NON-P-DEFINITE ADVERBIALS

‘ roku-zi-ni’ *at six* ‘saikin’ *recently*

‘ kinoo’ *yesterday* ‘sudeni’, *already/before/once*

‘kyonen’ *last year* ‘itu(si)ka’ *one day*

‘iti-zi-kan mae-ni’ *one hour before* ‘katute’ *once*

‘1985-nen-ni’ *in 1985* ‘arakazime’ *beforehand*

‘yo-zi-ni’ *at four* ‘mae-ni’ *in the past*

‘Sudeni’ *already* in (2), repeated here as (18a), and in (19a) are non-p-definite, while ‘ku-zi ni’ *at nine* in (18b) and (19b) are p-definite.

(18) (=2)(at the moment of scoring the second goal in a soccer match)

a. Kare -wa *sudeni* 1 gooru kime-tei-masu.

He-TOP already one goal has-scored

(He has already scored one goal.)

b. * Kare -wa *kuzi-ni* 1 gooru kime-tei-masu.

He-TOP nine at one goal has-scored

(He has scored one goal at nine.)

(19)(Taroo was accused of a traffic violation. At the time, the police said to him,)

a. Kimi-wa *sudeni* sake-ni yot-tei-ru ne.

You-TOP already sake-DAT have-got drunk

(You have already got drunk with sake.)

b. *Kimi-wa *ku-zi-ni* sake-ni yot-tei-ru ne.

You-TOP nine-at sake-DAT have-got drunk

(You got drunk with sake at nine.)

In these examples, S and R are contemporary and share the genuine present

perfect tense structure E_R,S. Therefore, the interpretations of (18a) and (19a), for instance, are that the described events are before the speech time most closely following the reference time.

2.3 Some Idiosyncratic Ambiguity

Although the (non)occurrence in the genuine present perfect test is capable of diagnosing a fairly wide range of data, there are some temporal adverbial-specific phenomenon. This comes from the fact that the non-p-definite temporal adverbials like 'sudeni' *already* , 'katute' *once* and 'mae-ni' *in the past* denote the past interval as well as p-definite temporal adverbials like 'kinoo' *yesterday* and 'kyonen' *last year*. Since 'sudeni' *already* and 'katute' *once* are non-p-definite, in out-of-the-blue context, they are generally not compatible with experiential perfect as shown in (20a). But they may appear in experiential perfect, if it involves the p-definite adverbial 'itido' *one time* or 'kinoo' *yesterday* as shown in (20b).

(20)a.??{*Sudeni/Katute/Mae-ni*}, kare-wa chuugoku-e it-tei-masu. (*iki-masi-ta)
Already/In the past, he-TOP Chiina-to have-been
(He has been in China {before/in the past}.)
b.{*Sudeni/Katute/Mae-ni*},kare-wa {*itido/kinoo*} chuugoku-e it-tei-masu.
Already/In the past, he-TOP. {one time/yesterday} China-to have-been
(iki-masi-ta)
(He has been in China one time {before/in the past }.)

Since the meaning of 'itido' *one time* that infers a completed event is consistent with the inherent properties of the simple past, (20b) is compatible not only with the '-*teiru*' affix but also with the '-*ta*' affix and 'itido' is readily preceded by any

temporal adverbials that indicate the past intervals.

In the case of (21), however, 'sudeni' *already* and 'katute' *once*, 'mae-ni' *in the past* marks a difference in the acceptability.

(21)a.*Kinoo*, kare-wa *sudeni* chuugoku-e it-tei-masu. (*iki-masi-ta)

Yesterday, he-TOP already China-to have-gone

(Yesterday, he has already gone to China.)

b.**Kinoo*, kare-wa {*katute/mae-ni*} chuugoku-e it-tei-masu. (*iki-masi-ta)

Yesterday, he-TOP in the past China-to have-gone

(Yesterday, he had gone to China in the past.)

I presume that the difference between (21a) and (21b) stems from the fact that in (21a), 'sudeni' makes reference to non-p-definite time of the described event that precedes the reference time 'kinoo' *yesterday*, whereas in (21b), 'katute' and 'mae-ni' mean prototypically non-p-definite past interval and therefore clash with the meaning of 'kinoo' *yesterday* that indicates also p-definite past interval. Thus, in (20b), 'sudeni' indicates a time prior to the speech time, while in (21a), it indicates a time prior to the reference time, namely 'kinoo' *yesterday*. In other words, in (20b), 'sudeni' *already* takes wide scope over p-definite temporal adverbial 'itido' *in the past*, while in (21a), 'sudeni' takes narrow scope, that is, it takes scope inside the p-definite temporal adverbial 'kinoo' *yesterday*. This does not mean, however, that the adverbial 'sudeni' is not polysemous. Rather, in both cases, it indicates just a time prior to a pertinent reference time. Thus, it can be said that the two different readings in (20b) and (21a) are contributed by the difference of reference times with which it co-occurs. Therefore, I will refer hereafter to the temporal adverbial 'sudeni' as 'intermediate type temporal

adverbial', in the sense that it can appear both in experiential and genuine present perfects.

Accordingly, it is possible to make the generalization regarding the classes of temporal adverbials in terms of occurrence/non-occurrence in present perfect that (i) the genuine present perfect is compatible with the non-p-definite temporal adverbials, (ii) the experiential perfect with the p-definite temporal adverbials and (iii) the experiential perfect with the intermediate type temporal adverbial. These are illustrated in (21). (TA: time adverbial)

(21)

	p-definite TA	non-p-definite TA	intermediate TA
genuine present perfect	no	yes	yes
experiential perfect	yes	no	yes

These are the regular patterns of distribution of temporal adverbials observed in reliable data. The basis of this phenomenon will be discussed in turn. In what follows, I will review some of the discussions of the present perfect puzzle in the literature and show that both simple pragmatic and morphosyntactic accounts fail to explain the phenomenon in a unified way.

3 Previous Discussions: Pragmatic or Syntactic Solution

3.1 Dowty (1979)

Dowty (1979) has proposed a hypothesis that is so called 'extended now' account, according to which the present perfect puzzle comes from the fact that English present perfect denotes an interval that includes the event time and extends up to the speech time. The important device is the predicate *XN* (extended now) whose truth condition is defined as follows (Dowty, 1979:342):

(22) *XN(t)* is ture at 〈*w,i*〉 iff *i* is a final subinterval of the interval denoted by *t*.

Assuming that temporal adverbials such as *at four* and *yesterday* modify the extended now, it ends up being identified with *at four* in (15a). Hence, given that the speech time cannot be contained within four o'clock, a contradiction arises and (15a) is ruled out, as shown in (23).

(23)a. *John has left at four.

b.(∃ t_1) (XN.(t_1) ∧ four-o'clock.(t_1) ∧ (∀ t_2.($t_2 \subseteq t$ ∧ XN.(t_2)) → (XN.(t_2) ∧ AT.(t_2, leave'))))

In (23b), the time of leaving is contained in t_2. which, in turn, is contained in the extended now *four o'clock*. In order for *four o'clock* to be an extended now at S, it must contain S. But it is not possible for *four o'clock* to be assigned to more than one time. It is quite clear, however, that this assumption cannot be maintained for Japanese and Italian-like languages.

3.2 Klein (1992)

In the pragmatic framework, Klein (1992:546) argues that the present perfect puzzle in English can be explained by the following constraint:

(24) P-DEFINITENESS CONSTRAINT[10]:

[10] The term TT is the abbreviation of 'topic time':that is "the time span to which the claim is made on a given occasion is constrained" (Klein, 1992:535) and the term TSit is the abbreviation of 'time of the situation': that is "the time of whatever is described in the nonfinite part of the utterance" (Klein, 192:533). According to Klein, both TT and TSit are time spans and aspect is the relation between them, so in present perfect, TT is in posttime of TSit. Therefore, it can be said roughly that TSit corresponds to 'event time' E and TT 'reference time' R in Reichenbach's system.

In an utterance, the expression of TT and the expression of Tsit cannot both be independently p-definite.

According to him, the English present tense is p-definite in that every temporal entity includes the speech time S. On the other hand, the simple past is non-p-definite in that it is required only that the time of the event precede S. Klein claims then that example (15a) is ruled out unless it is the case that John leaves exactly at four, because the present tense auxiliary 'has' expressing R is p-definite, and so is E because of the p-definite time adverbial *at four*. However, the Japanese data show that for example, though 'kinoo' *yesterday* (R) and knowing English (E) which is contained within R are not be independently p-definite[11], they cannot co-occur in the present perfect sentence as follows:

(25)* Taroo -wa *kinoo* eigo-wo sit-tei-ru.
Taroo-TOP yesterday English-ACC have-known/be-knowing
(Taroo has known English yesterday.)

Therefore, it can be said that this view based on (24) cannot capture the diversity of the phenomenon uniformly. Moreover, it has not been made clear what the motivation for the constraint is.

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[11] In Japanese, not just as English, the verb 'siru' *know* does not count as a state verb. This can be checked by co-occurrence with the '-*ta*' affix:

(i)Kare-wa iti-nen mae-ni jibun-no shussei-no himitu-wo sit-ta.
He-TOP one year before himself-GEN birth-GEN secret-ACC know-PAST
(He knew the secret of his birth last year.)
(ii)Kare-wa iti-nen mae-ni sudeni jibun-no shussei-no himitu-wo sit-tei-ru.
He-TOP one year before already himself-GEN birth-GEN secret-ACC have-known
(He had already known the secret of his birth last year.)

3.3 Giorgi & Pianesi (1997)

In the morphosyntactic framework, on the basis of Italian-like languages in which the present perfect puzzle is absent as shown in (26a), Giorgi & Pianesi, (1997:112-3) argue that Klein's (1992) constraint cannot be taken as a primitive principle but is rather the consequence of morphosyntactic properties.

(26)a. Gianni e partito *alle quattro*.

b. *John has left *at four*.

In Girogi & Pianesi(1997), the morphosyntactic system of the verb serves as the basis for explaining the different behaviors of Italian and English present perfects. Assuming Split-Infl hypothesis (Pollock, 1989; Chomsky, 1991) which consider AGR and T as separate heads, it is problematic that in English, the agreement morpheme does not appear when tense is lexically realized. They, therefore, stipulate that in English only one affixal head can be realized different from that of Italian like languages and argue that in English, the feature of AGR and the feature of T project a single category called AGR/T hybrid. Assuming that separate AGRs and T categories are projected only when there is positive evidence in morphosyntax, tense feature is always present in English. On the other hand, in Italian, present tense forms do not exhibit any T morpheme, therefore, no T category in syntax. Thus, in the former case, the temporal feature of T is spelled out S=R at LF but in the latter case, the present tense is assigned a default interpretation and the default interpretation S⊆R is directly supplied at LF. That is, in English the tense and the agreement features constitute a hybrid category AGR/T but in Italian the tense and the agreement features are realized on

independent categories, namely AGR and T. Thus, the present perfect puzzle arises in languages, which have the hybrid category AGR/T, and not in those which have a Split-Infl and no T category in the present tense [12].

The crucial part of Giorgi & Pianesi's claim is that the present perfect puzzle originates from the difference in morphosyntactic properties between English and Italian-like-languages. If we take a brief look at Italian, English and Japanese, we can readily verify the nature of the problem of cross-linguistic variation mentioned by Giorgi & Pianesi (1997). The Japanese experiential perfect like (1a), which receives the interpretation S⊆R, can be taken as equivalent to the Italian present perfect. However, experiential perfect examples can take both the simple past affix '-*ta*' and the present perfect affix '-*teiru*' as confirmed by (1a,b). Thus, if the behavior of the present perfect can be explained on the basis of morphological properties, it could be seen as problematic that the simple grammatical category of the present perfect belongs to more than one morphological category. This shows that the simple grammatical category of the present perfect belongs to more

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[12] According to them, what characterizes this contrast is the difference of morph syntactic systems. Given that there exists two functional categories that can be endowed with T1 and D/P (that heads participial projections), the English present tense always has the T-DEF feature in AGR/T1. In present perfect, D/P incorporates into auxiliary that inherits the T-DEF feature. However, since features on functional categories are noninterpretable (Chomsky, 1995), once checked the T-DEFs on AGR/T and auxiliary are erased. Thus, *at four* is not forced to move out of the VP and the Mapping Hypothesis is violated (cf. (i)).

(i) AGR/T1 $_{\text{T-DEF}}$ D/P $_{\text{T-DEF}}$ T2 [$_{\text{VP}}$ V T-Arg $_{\text{T-DEF}}$]]
*J. has left at four
[Giorgi & Pianesi, 1997:115]

On the other hand, in Italian there is no temporal projection in present tense and D/P has the optional T-DEF feature. Therefore, in present perfect *alle quattro* can covertly raise to check the feature T-DEF on D/P and the Mapping Hypothesis is satisfied (cf.(ii)).

(ii) AGR D/P $_{\text{T-DEF}}$ T2 [$_{\text{VP}}$ V T-Arg $_{\text{T-DEF}}$]]
G. ha telephonato alle Quattro
[Giorgi & Pianesi,

than one morphological category. This is not desirable in a syntactic analysis like that of Giorgi & Pianesi (1997) which relies upon morphosyntactic properties in order to account in a unified way for the diversity of the present perfect phenomenon in various languages[13].

Moreover, although Japanese parallels Italian in the experiential perfect, these languages differ on the behavior of the present perfect involving the temporal adverbial like 'kinoo' *yesterday*.

(27) a. *Taroo--wa *kinoo* kaet-teiru.
Taroo-TOP yesterday have-left
(Taroo has left yesterday.)
b. Taroo-wa *kinoo* kaet-ta.
Taroo-TOP yesterday left-PAST
(Taroo left yesterday.)

While the Italian present perfect can take 'alle quattro' *at four*, Japanese present perfect cannot, which is identical to the English one. The existence of a set of present perfect examples showing variable behaviors across languages does not have the implication that Giorgi & Pianesi has suggested.

Giorgi & Pianesi (1997) furnish a basis on which researchers interested in morphosyntactic category of tense and aspect can build up their theory. However, they are not an exhaustive study of present perfect in general and they are not

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1997:116]

[13] Moreover, it is not entirely clear whether the concept of present perfect expressed by Italian and English should be conceived of in the same way. It has been claimed in the literature that the Italian simple past and present perfect are free variant. Although I am not in a position to evaluate the discussion, it is worth mentioning here that the concept of present perfect in Italian and English are not conceived of in the same way.

applicable to Japanese data.

3.4 Summary

In sum, we have seen that Klein's claim, namely, "in an utterance, the expression of TT and the expression of Tsit cannot both be independently p-definite", is apparent, whereas Klein does not make explicit what the motivation for the constraint is. If Klein's claim is motivated by the morphosyntactic difference between English and Italian-like languages as argued by Giorgi & Pianesi (1997), some properties of the present perfect in Japanese must also be morphosyntactic. But, a close inspection of the data reveals that they are not applicable to Japanese.

It must be noted, however, that although these two analyses, namely those of Klein (1992) and Giorgi & Pianesi (1997), differ in detail, they share one crucial assumption, which they both take Klein's observation to be the basis of the analysis. Furthermore, the contrast between (28a)(=(18a)) and (28b) confirms that the aspectual affix '-*teiru*' has the function of expressing the contemporaneity of the descriptive event and the narrative progression, whereas the '-*ta*' affix has not (cf. § 1.2).

(28)(At the moment of scoring the second goal in a soccer match,)

a.Kare-wa *sudeni* 1 gooru kime-tei-masu.

He-TOP already 1 goal have-scored

(He has already scored one goal.)

b.*Kare -wa *sudeni* 1 gooru kime-masi-ta.

He-TOP already 1 goal score-PAST

(He scored one goal already.)

This characteristics of present perfect entirely random cross-linguistically, but may be offered a straightforward account in terms of the processing view.

With this much as a background, in what follows, I examine the consistent correlation of types between the reference time and the temporal adverbials in terms of the types of aspectual affixes and proceed to discuss the way of processing the interpretation of present perfects in Japanese. In particular, I argue that the phenomenon is constrained by different semantic correlates, such as verb aspect, the inherent meaning of the temporal adverbials, and discourse information.

4. Application of Situation Based Approach

As I have argued, in Japanese, there are two ways to express a past event: one uses the '-*teiru*' affix and the other the '-*ta*' affix. The former is divided into two classes: the genuine present perfect that has only non-p-definite reading and the experiential perfect that has p-definite and intermediate type readings. Each of the readings correlates with a selective constraint on the temporal adverbials we have been discussing. In this chapter, by incorporating my observations into the treatment of the meaning of definite description in Barwise & Perry (1983) among others, I will show that the (non-)co-occurrence of temporal adverbials with '-*teiru*' is due to application of a processing view to anchor the descriptive content of statement in an appropriate situation.

4.1 Context Dependency of Temporal Adverbials

It is often observed that it is not possible to predict easily from its inherent meaning whether a given temporal adverbial will turn out to be p-definite. Klein

(1992:544-546), for instance, said, "an expression is p-definite if its lexical content in an appropriate context fixes the position of a time span on the time axis". Klein's point is that it is sometimes hard to define p-definite or the opposite using only the lexical meaning of adverbials. In fact, there are temporal adverbials that can be either p-definite or non-p-definite. This is exemplified by the adverbial of time 'roku-zi ni' *at six* which refers to non-p-definite time in (29a) and (30a) but to p-definite time in (29b) and (30b)[14].

(29) a. Chris has left at very different times:
He has left *at ten*, he has left *at eleven*, and he has left *at six*.
b. *Today*, he has left *at six*. (Klein, 1992:549)

(30) a. Taroo -wa iroiro na zikan ni kawe-ru. Kare -wa *jyuu-zi ni* kawet-tei-ru-si,
jyuuiti- zi ni kawet-tei-ru-si, *roku-zi ni* mo kawet-tei-ru.
b. *Kyoo*, Taroo -wa *roku-zi ni* kawet-tei-ru.

This shows that the adverbial's interpretation is determined largely by discourse structure. But it is not clear how the process works.

4.2 Interpretation of Definite descriptions

We propose a unified framework for the interpretation of Japanese temporal adverbials in present perfect sentences using “semantichy” situation-based approach on the perspective relativity of natural language. In what follows, we will show that p-definite and non-p-definite readings can be accounted for in terms of an extension of the treatment of definite description.

[14] The examples in (30a,b) are Japanese translations of (29a,b).

4.2.1Resource Situation and Types of Temporal Adverbials

Barwise & Perry (1983) introduced the notion of *resource situation*, which provides a part of the world small enough to allow the referent of the noun phrase use to be uniquely identified by the property (Cooper, 1996): that is, the background information to determine the referent of the definite descriptions and other noun phrases[15]. In the case of quantified noun phrase like '*everybody came to the party*', it is assumed that a resource situation contributes to restricting the range of quantification in some way by the context of use (See Westerståhl 1985, Cooper 1996, Lappin 2000). We saw in the previous section that some temporal adverbials can be either p-definite or non-p-definite and the interpretation of sentences, which contain them, is determined largely by discourse structure. We make here the assumption that both p-definite and non-p-definite temporal adverbials presuppose a resource situation that is something about the set of forms, as its restriction. At this point, it is crucial to note that the notion of reference time differs rigorously from that of resource situation. Because the primary candidate for resource situation is the reference time given by the (p-definite) temporal adverbials in the sentence, there is a significant overlap between the two notions. But since reference time represents "the time unit containing the event" (Reinhart, 1984) and since resource situations may assume a background information to determine the range of situation in which the existential presupposition, namely the effect that the restriction set is presupposed to be non-empty, of the described situation is identified and be built up in a variety of ways (B & P, 1983), the notion of resource situation has a wider

[15] The notion of resource situations, which are defined on the basis of the basic intuition concerning uniqueness behind the Russellian treatment of definite descriptions, however, claims that it is clear that "*the dog ran away*' does not require that there only be one dog in the universe and therefore the resource situation must be part of the world, that is a situation, rather than the whole world.

application.

Therefore, if we assume that there might be a resource situation to which temporal adverbials could be related, it seems to us that on both analysis, definite descriptions and temporal adverbials, need the resource situation which provides the background information to determine the range of situation in which an descriptive content of the verb phrase is evaluated. In this regard, we can think that the "semantichy" situation-based approach for the definite descriptions, like Heim (1990) and Barwise & Perry (1983) among others, lend quite naturally to analyzing a correlation between the environment temporal adverbial occurs and the interpretation it receives. Hence, hereafter, I will refer to the kind of background information provided by context of use or lexical information as 'resource situation' and to the descriptive content of the statement as 'described situation'.

4.2.2 Referential Use vs. Attributive Use

Expressions like *the man* and *the dog* are definite descriptions that can be used to identify an object by the properties it has in some situation. Barwise & Perry (1983) (hereinafter B&P) proposed that this interpretation is obtained by means of a relation between discourse situations (*d*), connections (*c*), situations (*e*), and objects. Discourse situation (*d*) is constructed with the demonstrative content of the statement conveyed by an utterance. Situations (*e*) are the situations to be exploited to identify an object and are called 'resource situations'. A resource situation can be built up in a variety of ways, that is (i) by being perceived by the speaker, (ii) by knowledge of (part of) the world, or (iii) by previous discourse, etc. Connections (*c*) have to do with the way the speaker/listener are connected with the world. The meaning of the definite description *THE* π is given by (31) (B & P,

1983:149).

(31) d,c ⟦π⟧ $a_{\sigma,e}$ iff d,c ⟦π⟧ $a_{\sigma,e}$;

and there is at most one b such that d,c ⟦π⟧ $b_{\sigma,e}$

The *d,c* ⟦π⟧ is a partial function from situations *e* to individuals *a*: that is, *d,c* ⟦π⟧ *(e)* is defined and = a_{σ} iff *d,c* ⟦π⟧ $a_{\sigma,e}$.

It is well known that a definite description can pick up a referent in two ways, that is, directly through the speaker's connections or indirectly by having some other referring expression as an antecedent. Assuming the subscript notation in (31), it is said that a definite description α can exploit a situation e^1 given by the speaker's connection ($e^1 = c(\alpha)$). However, α can also exploit a situation *e* described by a previous utterance or by the utterance as a whole. The former is the case in referential use, and the latter in attributive use, of a definite description[16]. In the case of referential use, fixing the discourse situation and connections, including the connection to the resource situation, gives an individual. In other words, once the discourse situation is fixed, we obtain a certain function from situations to individuals. In the case of attributive use, however, fixing the discourse situation and the connection gives only a relation between situations and individuals; that is, a partial function from situations to individuals.

Therefore, to indicate an attributive use of example (32) where the situation described by the whole is constrained by *THE* α, a superscript *j* is used on the

[16] The concept of attributive/referential use of a definite description, which is defined on the basis of the meaning of singular noun phrases, is similar to that of referential/attributive use proposed by Donnellan (1966). According to Barwise & Perry (1983:146), however, Donnellan's distinction is "two cases of a more general phenomenon".

sentence and the NP as in (33a).

(32) THE α is β-ING.

(33)a. [(THE α)^{j} is β-ING]^{j}

b. [(THE α)^{0} is β-ING]^{1}

In (33a), the sentence describes an event e^{j} that is also constrained to contain a unique α. In contrast, the referential use is indicated by a superscript on the NP that is not common to any earlier or containing sentence as in (33b), where the statement describes an event e^{1}, but the NP is used in a referential manner in respect of resource situation e^{0}.

4.2.3 Extension

If the assumption is correct that the p-definite or non-p-definite reading of temporal adverbials is determined by means of resource situation irrespective whether directly with reference to utterance time or indirectly to context of use, it might be assumed that there is a significant correlation between p-definite reading of temporal adverbial and referential reading of definite description on the one hand and non-p-definite reading and attributive reading on the other, just in terms of whether they allow contextually determining the resources or not[17].

To see this, let us examine more closely how temporal adverbials produce p-definite/non-p-definite readings in terms of extension of B & P's (1983) treatment of definite description (cf.(31)). Compare again the examples in (1a) and (18a), repeated here as (34) and (35) respectively.

[17] Our discussion is limited to cases of p-definite and non-p-definite temporal adverbials. Since intermediate type temporal adverbials are ambiguous between p-definite and non-p-definite, the case of intermediate one will be discussed afterward.

(34)(=(1a)) *Kyonen*, Taroo-wa chuugoku-e it-tei-ru. (it-ta)

(Last year, Taroo has been in China.)

(35)(=(18a)) Kare-wa *sudeni* 1 gooru kime-tei-masu. (*kime-masi-ta)

(He has already scored one goal.)

The interpretation of (34) is obtained through the discourse situation; once the discourse situation that provides the information as to the identity of the speaker and the location of the speech time is fixed, we obtain a partial function $d,c\,[\![THE\ \pi]\!]$ from some particular resource situation e to an individual. If speech time S is on July 1st 2001, that is, e^0 and e^1 correspond to the situation containing Taroo's visit to China last year, then roughly:

(36)d,c [[LAST YEAR]] $(e^1) = 2000$

In (36), the statement describes an event e^1, whereas the temporal adverbial is used referentially in respect of resource situation e^0.

In contrast, in (35), fixing the discourse situation and speaker's connections with the world gives a relation between situations and individuals, but this relation is not always an appropriate one that supplies the relevant value of the function. In other words, for a given *d,c,e*, there may be more or less than one individual *a*. Therefore, in (35) we need some knowledge about which resource situation is being spoken of; that is, the referent of 'sudeni' *already* is supplied by the context of use. If e^j corresponds to the described situation in which the referent of 'he' scores one goal in the first half of the relevant match, then informally:

(37) d,c ⟦ALREADY⟧ (e^j) = in the first half of the match

When 'sudeni' *already* is used, the described situation is devoid of an event time fixed on the time axis irrespective of context. This parallels (33a). Therefore, in contrast with (35), the awkwardness of (18b), repeated here as (38), is explained by stating that there is a clash between the definiteness of the p-definite temporal adverbial 'ku-zi ni' *at nine* and the indefiniteness of the described situation e^j represented by the aspectual affix '-*teiru*'.

(38) (=(18b))(at the moment of scoring the second goal in a soccer match)

*Kare -wa *ku-zi-ni* 1 gooru kime-tei-masu.

In (38), we cannot apply a common superscript *j* to the described situation and the temporal adverbial as in (39).

(39) * [(AT NINE) ^{0} has β -ed] ^{j}

The converse is also true. The awkwardness of (40) is explained by the clash between the indefiniteness of the non-p-definite temporal adverbial 'sudeni' *already* and the definiteness of the event represented by means of the tense affix '-*ta*'. This parallels (33b)

(40) (At the moment of scoring the second goal in a soccer match)

*Kare -wa *sudeni* 1 gooru kime-masi-ta.

In (40), the temporal adverbial cannot be used referentially in respect of

resource situation e^0. Therefore, informally:

(41) * [(ALREADY) ^{j} β-ed] ^{1}

In this analysis, then, both (38) ((39)) and (40) ((41)) are ruled out of (33a) and (33b) respectively.

In what follows, let us consider how the affixes '*teiru*' and '*ta*' can alternate in experiential perfect.

5. Alternation between '-*teiru*' and '-*ta*'

5.1 Temporal (In) dependence and Affixes

It is quite clear that here the extension from referential and attributive reading of definite descriptions to p-definite and non-p-definite reading of temporal adverbials depends largely on the processing view: for instance, in (35), the temporal adverbial 'sudeni' *already* is linked to the contextually determined resource situation e^j to which the described situation is linked (cf. (33a), (37)); on the other hand, in (34), the temporal adverbial 'kyonen' *last year* is linked to resource situation e^0, whereas the described situation is linked to e^1 (cf.(33b),(36)).

The fact that the alternation between '-*teiru*' and *'-ta'* is not available for (35) indicates that *'-ta'* is devoid of function to express 'contemporaneity' between a described situation and the surrounding discourse context and the possibility of linking the descriptive content of utterance and the context is restricted to verbs containing the aspectual affix '-*teiru*'. However, this does not hold in (34). In (34), the temporal adverbial may be linked directly to speech time S in terms of resource situation e^0. This is the reason why *'-teiru'* can alternate with the *'-ta'* affix in (34).

Therefore, the difference between p-definite—'-*ta*' correlation and non-p-definite —'-*teiru*' correlation can then be traced to a difference in the subtle information structure that reflects in the significant correlation between temporal adverbials and its appearing circumstances: that is, while the latter effects a necessary dependence *on*, the former effects a specification *of* the resource situation containing the described situation in terms of the temporal position of p-definite adverbials with reference to speech time, rather than a temporal dependence on the previous utterance. This provides us with a piece of evidence in support of the view that while the non-p-definite temporal adverbials can be characterized as being *'context-presuppositional'*, in the sense that the resource situation is provided by antecedent, p-definite temporal adverbials can be characterized as being '*existence-presuppostional*, in the sense that the resource situation is given by means of whatever information of the pertinent sentence itself'[18].

5.2 P-Definiteness of Temporal Adverbials and Discourse Structure

5.2.1 Point-Time vs. Past Interval

It must, however, be noted that in the experiential perfect '-*teiru*' and '-*ta*' are both acceptable, whereas the predicate in the genuine present perfect typically involves the '-*teiru*' affix. The fact that in the experiential perfect the affix of the verb can alter illustrates that the appearing circumstance of experiential perfects is different from the one of genuine present perfect: in the former, temporal dependence on the previous utterance does not seem to be a necessary condition

[18] The terms *context-presuppositional* and *existence-presuppositional* here originate from Musan's (1999) terminology of 'context presuppositional noun phrases' and 'existence presuppositional noun phrases'. Strictly speaking, these terminologies are not the same in sense as ours, i.e. they do not concern directly adverbials. As the type of presupposition, however, is relevant in our analysis, this paper adopts the terms *context-presuppositional* and *existence-presuppositional* for ease of exposition.

for the selection of '*-teiru'* affix. A similar pattern of contrast can be found for point-time adverbials as shown in (16). Despite the fact that the point-time adverbials are characterized by p-definiteness, point-time adverbials cannot occur in experiential perfects. It should be borne in mind, however, that the notion of a linking function is relevant only for the surrounding discourse context in which the sentence is embedded. It is also not desirable for our analysis to rely on '*-teiru'* incorporating a linking function in order to account for the current relevance of perfective sentences in general, since, even in the experiential perfect, '*-teiru'* needs some contextual information to be linked, as with a genuine present perfect. What kind of contextual information is relevant for experiential perfects? And how intermediate type temporal adverbials undergo an operation to appear in experiential perfect? Obviously, we'd have to introduce additional machinery, that allows for past-interval p-definite temporal adverbials like 'kinoo' *yesterday* and 'kyonen' *last year* to occur with both the '*-ta'* and '*-teiru'* affixes but for point-time adverbials to occur only with the '*-ta*' affix.

5.2.2 Past Interval P-Definite Temporal Adverbials

Let us now turn to the examples in (1a), repeated here as (44a), and (44b), that is the interesting minimal pairs involving on the one hand the '*-teiru*' affix and on the other hand the '*ta*' affix:

(44)(=(1))a. *Kyonen,* Taroo-wa chuugoku-e it-tei-ru.
(Last year, Taroo has been in China.)
b. *Kyonen* Taroo-wa chuugoku-e it-ta.
(Last year, Taroo went to China.)

Recall that according to the previous discussion, temporal adverbials that have p-definite reading are determined by means of resource situation constructed with reference to utterance time. So far we only looked at examples parallel to (44a) where in fact there is sole temporal adverbial in sentence initial position that serves the role as the background (=resource situation). In general, the topic (with accent) involves a focus within it provides a "contrastive topic" (Carlson 1983). The contrastive topic induces a set of alternatives which implies the contrast between 'kyonen' *last year* and, for instance, 'kotosi' *this year* in (44a). Since the contrastive topic is pervasive, the similar interpretation will apply to (44b) too. It must be noted, however, that if the given sentence contains more focus than just the contrastive topic, we predict that how constructs a discourse structure by means of whatever information the experiential perfect itself provides in out-of-the-blue: that is, the sentence bear two accents, namely, focus and topic accents, helps us guessing context that the experiential perfect like (44a) reconstructs (Büring, 1996).

According to Büring (1996,1997), a constituent marked by topic accent, namely S-Topic, is different from Foci in the fact that the former does not correspond to the *wh*-word of original question as in (45a) and indicates a departure from the original question, as shown in the right hand side of (45b), whose Japanese counterpart is (44a). (A subscript T marks the topic and a subscript F marks the focus.)

(45) a. Where has Taroo been so far?

b,[LAST YEAR]$_T$ Taroo went to [CHINA]$_F$ ⇒. Where did Taroo go last year? or Where did Taroo go this year? or….

c. Last year Taroo went to [CHINA]$_F$.

This indicates that leaving out the first accent, as shown in (45c), renders the sentence inadequate as answer to the question in (45a)[19]. Thus, declarative sentence with S-Topic and Focus like (45b) uttered in out-of-the-blue indicates one of the questions we can get by replacing the focus by the corresponding *wh*-word and replacing the S-Topic by some alternative, which must be the D-Topic, and allows for reconstructing a set of potential D-Topics, namely Topic Value of S, as shown in the right hand side of (45b)[20]. This Topic Value of S happens to provide an antecedent (=resource situation) for the described situation to be linked with. Hence, (45b) and it's Japanese counterpart (44a) have the implication such as "Every year, Taroo goes to somewhere. This year he went to Canada, last year he went to China and … " . In this case, sole the '-*teiru*' affix is available. But this does not happen neither in (45c) nor in it's Japanese counterpart (44b) that involves '-*ta*' affix.

The crucial point now is that the semantic difference between (44a) in '-*teiru*' form and (44b) in '-*ta*' form resides in the difference between their discourse structure, namely potential questions, and these are the regular patterns of distribution observed in reliable diagnostics for affix-antecedent correlations.

5.2.3 Intermediate Type Temporal Adverbials

Consider next the difference in acceptability between the example in (46a) (=(20b)) and (47) =(1"a)) in out-of-the-blue.

(46)a(=(20b)) *Sudeni*, kare-wa *itido* chuugoku-e it-tei-ru. (it-ta)

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[19] (45c) is adequate as answer to the question "Where did Taroo go last year?".
[20] The terms S-Topic, D-Topic, Topic Value of S are Büring's (1996) terminologies.

Already, he-TOP one time China-to have-gone

(He has already been in China one time.)

b.(= 1"a))??*Sudeni*, Taroo-wa chuugoku-e it-tei-ru. (??it-ta)

Already, Taroo-TOP China-to have-gone

(Taroo has already been in China (before).)

The experiential perfect reading is available in (46a) but difficult in (46b). According to our discussion so far, the acceptability of the example in (46a) comes from the Topic-Focus relation between 'sudeni' *already* and p-definite adverbial 'itido' *one time*: that is, while the described situation is existentially quantified by virtue of p-definite adverbial 'itido' *one time*, the S-Topic 'sudeni' *already* takes scope over 'itido' and provides the restriction/background (=resource situation) for the matrix (=described situation). By contrast, the example in (46b)(=(1"a)), which is devoid of the p-definite adverbial 'itido' *one time,* cannot be existentially quantified, so that (46b) has to be supplied some additional resource situation for the described situation, otherwise (46b) is not appropriate in out-of-the-blue context. In these cases, the fact that 'itido' *one time* existentially quantifies the matrix (=described situation) serves the reason why the '-*teiru*' affix in (46a) can be replaced by '-*ta*' but not in (46b).

In order for the construction in (46a) is well formed, a particular relationship must be hold between the temporal adverbials and Topic-Focus structure: that is, in (46a), the intermediate type temporal adverbial, namely 'sudeni' *already,* must be understood as S-topic, and the p-definite adverbial 'itido' *one time* in VP must be understood as Focus. The inverse is never appropriate:

(47)* *Itido*, Taroo-wa *sudeni* chuugoku-e it-tei-ru. (*it-ta)

One time, Taroo-TOP already China-to have-gone

(One time, Taroo has already been in China.)

Furthermore, with the '-*ta*' affix, (46a) is not possible to construe the Topic Value of S and makes reference just to the particular situation in the past as in (46'a).

(46)'a *Sudeni*, kare-wa *itido* chuugoku-e it-ta.

Already, he-TOP one time China-to go-PAST

(Already, he went to China one time.)

The data considered so far indicate that the dividing line between experiential and genuine present perfects in out-of-the-blue context rests on whether or not a pertinent sentence can construct a resource situation by means of whatever information the pertinent sentence itself provides and the best source of information we have is the Topic-Focus structure as indicated by accent.

At this point, the pattern of distribution of the difference in questioning, namely antecedent, observed between (44a) and (44b) may be carried over into the interesting minimal pairs in (48a) and (48b). Now let us look at the relation between discourse structure and point-time adverbials in more detail. First of all, the example in (48a), becomes adequate in virtue of the attachment of a focus-sensitive particle 'mo' *also* to p-definite temporal adverbial 'ku-zi ni' *at nine* as in (48b) or adjoining the adverbial that indicates the past interval as S-topic as in (48c):.

(48) a. (=(18b))(at the moment of scoring the second goal in a soccer match)

*Kare -wa *kuzi-ni* 1 gooru kime-tei-masu.

(He has scored one goal at nine.)

b. Kare –wa *kuzi-ni-mo* 1 gooru kime-tei-masu. (kime-masi-ta)

He-TOP nine-at also one goal has-scored

(He has scored one goal at nine also.)

c. *Kinoo*, kare -wa *kuzi-ni* 1 gooru kime-tei-masu.

Yesterday he-TOP nine-at one goal has-scored

(Yesterday, he has scored one goal at nine.)

Notice that by virtue of the focus-sensitive particle 'mo' *also*, (48b) can construct the set of sets of alternatives to the described situation, namely " λ x λ y (he scores y at x)", which corresponds to the Topic Value of S, and therefore (48b) can have a different truth condition to (48a), as experiential perfect[21]. This is what happens in (48c), where it is inferred that there is a temporal adverbial 'kinoo' *yesterday* denoting resource situation, and we find the same effect as in (48b), except that in (48c), the resource situation is provided explicitly from S-Topic 'kinoo'. However, if point-time adverbial becomes S-Topic, we cannot expect the same effect as in (49):

(49) **Kuzi-ni* , Kare–wa *kinoo* 1 gooru kime-tei-masu.

Nine-AT he-TOP yesterday one goal has-scored

(*kime-masi-ta)

(At nine, he has scored one goal yesterday.)

This clearly shows that the point-time adverbial does not establish the resource

[21] Certainly (48b) may have the implication such that "in this game, he scores several times. At 8:30, he scores the first goal … and at 9:00, he scores the

situation, and that the partitive effect that allows point-time adverbials to appear in the experiential perfects like (48b,c) derives from the fact that it establishes the relation with the upper bound resource situation reconstructed by virtue of whatever information provides the pertinent sentence itself.

5.3 Summary

To sum up, our analysis so far has two implications. First, it is quite clear that the descriptive content alone does not induce the alternation of the verb affix, for the simple past and experiential perfect differ depending on the type of their antecedent, namely possible questions. Then, for the '*-teiru*' affix can be used, regardless of whether one is experiential or genuine present perfect, both of them need in common upper bound background, namely resource situation. Second, this parallels any type of temporal adverbials: regardless of whether or not one is conceived as context-presuppositional or existence -presuppositional, they need the upper bound resource situation. The table below shows the distribution of temporal adverbial occurrences among present perfect sentences.

TAs	Context-p.	Sentence-p.	Existence-p.	Sentence type	Affix
P-definite TA.	*	*	✓	Experiential	ta/teir
Non-p-definite TA	✓	*	*	Genuine	*ta/teiru
Intermediate type TA	*	✓	*	Experiential	ta/teiru

What must be emphasized is that the construction of the resource situation is the necessary condition for any interpretations of temporal adverbials.

6. Semantic Bases of Present Perfect

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second".

6.1 Uniqueness Constraint

The discussion so far shows that the resource situation is crucial to the analysis of both experiential and genuine present perfects. It is because it restricts the domain of identification, that is analogous to a least common upper bound to compose two situations, i.e. context of use and descriptive content of matrix. This suggests that it may be possible to take the simple view that the diversity of the phenomenon can be explained by fixing just one parameter, namely the uniqueness of resource situation. The parameter is represented by the constraint shown in (50):

(50) The Uniqueness Constraint:

The resource situation must be unique in an utterance.

The constraint in (50) predicts three things. First, the non-p-definite temporal adverbials are incompatible with the experiential perfect but compatible with the genuine present perfect because they are context-presuppositional. Second, the p-definite temporal adverbials are incompatible with the genuine present perfect but compatible with the simple past and experiential perfect because p-definite temporal adverbials are intrinsically existence-presuppositional and can exclusively specify an appropriate resource situation on their own. Third, the intermediate type temporal adverbials have the property that they cannot specify an appropriate resource situation on their own but the information inside a sentence serves to give rise a background to make available the existential presupposition of the described situation.

6.2 Verb Meanings and Uniqueness Constraint

The observation so far shows that whether the aspectual affix '*-teiru*' has a perfective reading or not depends on the aspectual class of the co-occurring predicate: that is, both experiential and genuine present perfect are available with activity and accomplishment verbs but both are unavailable with state verb. However, experiential perfect is available but genuine present perfect is unavailable with achievement verb (see § 1.1). With this in mind, we now present an array of examination that clearly indicates that Uniqueness Constraint is consistent with the verb specific constraint in present perfect.

6.2.1 Punctual Event

The present perfect involves achievement verb, which cannot be formed with the addition of an aspectual affix '*-teiru*' in genuine present perfect, as shown in (15a,b), repeated here as (51a,b).

(51) (Taroo was accused of a traffic violation.)

a. Kare-wa singoo-wo musisi-ta no-da.
(He ignored a traffic signal.)

b. *Kare-wa singoo-wo musisi-tei-ru no-da.
(He has ignored a traffic signal.)

The event of leaving or ignoring is, in unmarked cases, performed at a punctual moment. The awkwardness of (51b) can then be taken as showing that the reference time of the accusation of traffic violation and the event time of ignoring the traffic signal do not intersect, which suggests that the example in (51) lacks any resource situation on which to establish a relation and must select the simple past form as in (51a).

It may be argued, however, that it is not possible to predict easily that punctual event is never permitted in genuine present perfect construction. For instance, the example in (52a) raises the problem, for it is observed that the point-time temporal adverbial 'san-zi jyup-pun ni' *at three ten* can occur in the present perfect construction:

(52)(Looking at a notice board at airport,)

a. JAL 401-bin-wa yotei-yori hayaku *san-zi jyup-pun-ni* shuppatu-si-tei-ru.
JAL 401-TOP (before time) three-ten-at have-departed
(JAL 401 has departed at 3:10 before the time.)

b. JAL 401-bin-wa yotei-yori hayaku *san-zi jyup-pun-ni* shuppatu-si-ta.
JAL 401-TOP (before time) three-ten-at depart-PAST
(JAL 401 departed at 3:10 before the time.)

In fact, the example in (52a) has the genuine present-like implication that JAL 401 is on its way at speech time. But, it must be noted that despite the fact, (52a) involves reference time inferred by 'yotei-yori kayaku' *before time* inside the sentence and bears both S-Topic, namely "JAL 401" and Focus, namely 'san-zi jyup-pun ni' *at three ten*, all of which are intended to be relatively easy to infer Topic Value of S, namely " λ x λ y(x departs at y)". With regard to this problem, we have observed just before that the Topic Value of S performs the role normally performed by the resource situation, so that a successful construal of experiential perfect is not completely blocked in (52a). This can be readily verified if we look at the fact that the '-*teiru*' affix alters easily into the '-*ta*' affix as in (52b). Thus, we can conclude that the example in (52a) is taken to mean that it is experiential perfect and is not categorized as problematic for our Uniqueness Constraint.

This parallels the example of the present perfect puzzle in (5a,b), repeated here as (53a,b). In the examples in (53a,b) out-of-the-blue, the resource situation, that is indispensable to anchor the described situation, is overtly absent; therefore the point-time adverbial is allowed to co-occur only with the '-*ta*' affix.

(53)a. *Taroo-wa *yo-zi ni* kawet-tei-ru.
(Taroo has (already) left at four.)
b. Taroo-wa *yo-zi ni* kawet-ta.
(Taroo left at four.)

The examples clearly show that the prime parameter for the present perfect puzzle can be construed in terms of the presence or absence of an unique resource situation as mentioned in (50).

6.2.2 Stative

While in (51b) the verb expresses an event that does not intersect with the given resource situation, the examples in (54a,b) express events which could be anchored in more or less than one resource situation apart from the situation given by the previous utterance, since an event denoted by a state verb, for instance the event of loving or being able, is not performed at a punctual moment, and may be incompatible with the simple past as well as with all patterns of the present perfect, as shown below[22]:

[22] Theoretically, individual-level stage-level predicates such as 'iraira-suru' *be put out* may not appear in perfective sentences as in (ib).

(i) a. Taroo wa kootuu-ihan de tukamat-ta.
Taroo-TOP traffic violation-of was-accused
(Taroo was accused of a traffic violation.)
b.?? Kare wa iraira-si-teiru no-da.

(54) a.*Taroo -wa *kinoo* eigo-ga deki-tei-ru.

Taroo-TOP yesterday English-NOM have-be able.

(Taroo has been able to speak English yesterday.)

b.*Taroo -wa *kinoo* eigo-ga deki-ta.

Taroo-TOP yesterday English-NOM can-PAST

(Taroo could speak English yesterday.)

In general state verbs denote events whose length extends beyond the range of the time to be found over a resource situation, namely 'kinoo' *yesterday*. Hence, it is clear that such verbs as *be able* are devoid of perfective sense.

The fact can then be characterized by stating that while state verbs differ from achievement verbs at the semantic level, the present perfect reading is determined by a sole parameter, namely, the contrast of presence/absence of a least upper bound resource situation.

7. The Semantic Basis of Resource Situation

7.1 On the Notion of Part-of Relation

States and achievements can be readily distinguished by a number of criteria. As argued by Dowty (1979:166), the basic versions of Taylor's postulates that specify the logical characteristics of states and achievements are (55) and (56).

He-TOP have-been put out
(He has been put out.)

The fact that 'iraira-suru' *be put out* is compatible with the time adverb 'itizikan' *for one hour*, but 'itizikan-de' *in one hour* shows that the predicate is an atelic(activity predicate). Thus, the choice of predicates in present perfect depends on partially

(55) If α is a stative predicate, then (the atomic sentence) α(x) is true at an interval *I* only if α(x) is true at all moments within *I*.

(56) If α is an *accomplishment/achievement verb*, and if α(x) is true at *I*, then α(x) is false at all subintervals of *I*.

The former denotes a (unbounded) current state and the latter an inherently bounded motion. In spite of this unbounded/bounded contrast between states and achievements, they do not occur in the present perfect construction involving the '*-teiru*' affix. By contrast, in the case of typical example of genuine present perfect, the reference time provided by previous utterance (studying yesterday) usually overlaps with the described situation (watching B's behavior), as shown in (57):

(57) A: B san, *kinoo* kissaten-de benkyoo-si-tei-ta n-jya-nai no.
B-TOP, yesterday coffee house-AT be-studying-PAST weren't you
(B, were you studying at the coffee house yesterday, weren't you.)
C: (pointing to A,): Kansatu-si-tei-ru. (*kansatu-si-ta)
(You) Have-watched
(You (=A) have watched (B's behavior).)

Thus, it can be said that the semantic basis for a present perfect construction is roughly determined as follows:

(58) If α is a predicate involved in a present perfect, then α(x) is true only in cases where α(x) is true at some subinterval which intersects (a reference

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whether the predicate has activity or accomplishment semantics.

time given as) a least upper bound resource situation.

As noted earlier, the awkwardness of (51b) can then be taken as showing that the reference time of the accusation of traffic violation and the event time of ignoring the traffic signal do not intersect. This crucially suggests that the example in (51b) lacks any reference time on which to establish a relation, in the sense of (58), and must select the simple past form as in (51a). This confirms that the prime parameter for the present perfect puzzle can be construed in terms of the presence or absence of a least upper bound resource situation including a given described situation.

However, the problem of the sort of argument that (58) has presented is that this analysis predicts that the example in (35), repeated here in (59), is not admissible, because the resource situation (reference time) of the scoring the second goal and the descriptive content (event time) of scoring the first cannot intersect as well as the bad example in (51b) which denotes a punctual event. But, (59) is clearly good example.

(59) (At the moment of scoring the second goal in a soccer match)
Kare -wa *sudeni* 1 gooru kime-tei-masu. (*kime-masi-ta)
(He has already scored one goal.)

Intuitively, we find that the difference between the examples in (51b) and (59) can be traced to a difference in the relation between the resource situation and the described situation; that is, while in (51b) the former cannot intersect neither temporally nor logically the latter, in (59) the former can overlap logically with the latter. But how do we manage this difference?

7.2 Resourse Situation vs. Described Situation

In situation semantics, each use of a definite description could be related to a different resource situation in which there is exactly one object (B & P, 1983). That seems to be on the right track unless this resource situation is used to determine the singular referent of the use of the definite description. However, a number of researchers (e.g. Westerståhl 1985, Cooper 1996, Herburger, 1997, 2000 among others) discuss that the trouble is that the sentence on its own cannot provide with any clues which would establish which available resource situations would be associated with one noun-phrase use or the other[23].

Turning to our argument, the discussion so far has resulted in at least one issue that the phenomenon heavily relies on a relation between semantic characteristics of temporal adverbials and its appearing circumstances: that is any temporal adverbials need in common the background information. Accordingly, the interpretation of present perfect sentence consists of two parts: A) the background information, namely resource situation and B) the descriptive content of the sentence, namely described situation. As for A), there are two basic ingredients: For one thing, context of use in case of genuine present perfect. For another, Topic-Focus structure in case of experiential perfect. B)-part will be descriptive content of a matrix (=VP), which is a part of resource situation of A) but cannot be contained in every subsets of A). Therefore, it must be known that the available resource situation would be associated with one described situation to be uniquely identified.

Before entering this topic, recall that the notion of resource situation, rather

[23] It is clearly indicated by the phrase 'every thing on the table'. The main problem is the following: the phrase describes a situation in which there is a table and 'everything' is on it, but 'everything' cannot include everything in the situation. Thus, it is important to distinguish a resource situation from the

than reference time, is used here to characterize descriptive content's evaluation, because given the proposed semantic constraint (58), resource situations intersect with described situations when the former is counted as the topic of the sentence or of the discourse that temporally governs the latter. However, in the adequate example (59), resource situation does not intersect temporally the described situation.

To see why this should be so, let me make this more precise. In (59), we know that scoring the second goal presupposes necessarily scoring the first; therefore the fact of scoring the second may locate the conversational contribution with respect to background (= resource situation) to identify the existential presupposition, e.g. the effect that the resource situation is presupposed to be non-empty, of the descriptive content of scoring the first (= described situation). On the other hand, in the case of (51b), we know that the traffic violation does not presuppose necessarily ignoring a traffic signal, because we can draw any causes about the accusation of traffic violation apart from ignoring a traffic signal and we cannot determine the accusation as a sole resource situation for the existential presupposition of ignoring a traffic signal.

Thus, the fact that (59) can be felicitously uttered but (51b) cannot supports the claim that in the case of genuine present perfect, the appropriate resource situations can be determined even if the resource situation does not intersect temporally the described situation: that is, the logical entailment observed in (59) overrides what kind of part-of constraint in (58) requires and contributes to the extension of the range of the resource situation. This means that the Uniqueness Constraint can be a non-defeasible constraint and the constraint in (58) can be a defeasible constraint. That is, the argument in (58) needs some further

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described situation to determine the resource for "everything"(Cooper, 1996).

assumption that a relation between the resource situation and the described situation is wider than the part-of relation temporally defined because there may be infinitely many situations. Therefore, it is necessary to impose a more selective part-of relation on (58) which does the right thing for our problem.

7.3 Minimality Requirement

7.3.1 Minimal Situation

Restricting the semantics to minimal situations approaches this issue. Heim (1990:146) gives the definition on minimal situations in (60).

(60) For any set of situations S, the set of minimal situation in S,

$$\min(S) = \{s \in S : \neg \exists s' \in S(s' \leq s \,\&\, s' \neq s)\}$$

$$= \{s \in S : \forall s' \in S(s' \leq s \rightarrow s' = s)\}$$

Adopting Heim's analysis, von Fintel (1992) argues that a fact that makes a proposition true does not contain any situation that does not contribute to the truth of the situation: that is it does not contain any irrelevant stuff. It is defined as follows,

(61) If s is any situation and p any proposition, then s is a fact that makes p true iff for all s' such that s'≤ s and s' ∉ p, there is an s", such that s'≤ s"≤ s, and s" is a minimal situation in which p is true. [Fintel, 1992:72]

The definition ensures that the minimal situations in a set of situations are those that do not have proper parts that are also in the set: in other words, any two minimal situations cannot be related by the part-of relation (von Fintel, 1994).

For the present purpose, I will adopt the notion of minimal situations and

assume that the relevant resource situation over described situation applies at the level of minimal situation: that is, the minimal resource situation does not contain any irrelevant situation to identify the described situation. On this view, in following von Fintel (1994), we make up the definition for the part-of relation between the resource situation and the described situation as follows:

(62)If s is any resource situation and p any described situation, then s is an resource situation in which p is true iff for all s' such that s'≤ s and s'∉ p, there is a s" such that s'≤ s"≤ s, and s" is a minimal situation in which p is true.

This means that the Uniqueness Constraint must apply at the level of the minimal resource situation[24]. Given the Uniqueness Constraint, we can say with this definition that in the case of (59), the described situation of scoring the first goal may be contained in the resource situation of scoring the second, because the latter is the minimal situation in which no other situation that supports to the existential presupposition of described situation of scoring the first to be guaranteed is contained. In the case of (57), replacing the described situation variable and the resource situation variable, we obtain the same result as (59) does. On the other hand, in the case of (51b), a resource situation of accusation of traffic violation does not necessarily support the existential presupposition of the described situation of negligent of traffic signal.

[24] Westerståhl (1985:400) notes that "in natural language, it occurs frequently that the operation of restricting the universe (of discourse) to a smaller subuniverse, which occurs frequently. Often the subuniverse is not explicitly mentioned, but has to be inferred from the context".

7.3.2 'Evidences in Favor of Minimality Requirement

Keeping this in mind, I now present an array of examples that clearly indicates that the Uniqueness Constraint and the minimality requirement are manifested in Japanese present perfect constructions.

First, a piece of evidence in favor of minimality requirement can be found in the examples below: in (63b), the minimal situation encoded in temporal adverbial 'ku-zi ni' *at nine* that restricts the resource situation, whereas in (63a), 'kinoo' *yesterday* is not sufficiently restricted as the resource situation and only '*-ta*' is available.

. (63) a.??*Kinoo*, Taroo -wa CD-wo kat-tei-ru. (kat-ta)

Yesterday, Taroo-TOP CD-ACC have-bought (boutht-PAST)

(Yesterday, Taroo bought a CD.) .

b *Kinoo*, Taroo -wa CD-wo *ku-zi ni* kat-tei-ru. (kat-ta)

Yesterday, Taroo-TOP CD-ACC nine-at have-bought (bought-PAST)

(Taroo bought a CD at nine yesterday.)

Second, another piece of evidence in favor of minimality requirement can be found by looking at the contrast in acceptability between (64a) and (64b), both of which involve the same verb 'keru' *kick*.

(64)a. *Kyonen*, kare-wa booru-wo nan-zyuuman-kai-mo ket-tei-ru.

Last year, he-TOP ball-ACC ten thousands-CL -Q have-kicked

(Last year, he kicked a ball ten thousands of times.)

b.**Kyonen*, kare -wa booru-wo ket-tei-ru.

Last year, he-TOP ball-ACC have-kicked

(Last year, he kicked a ball.)

The important point here is that when 'keru' *kick* is used as an individual-level predicate by virtue of the thematic relation, the sentence is well-formed as in (64a). In contrast, when 'keru' *kick* is used as a stage-level predicate, the sentence is awkward as in (64b). The crucial fact is that the contrast in acceptability can be taken as showing that present perfects carry the meaning that the described situation of kicking ten thousands of times asserts an essential property holds for the resource situation, namely 'kyonen' *last year,* as a whole. This indicates that the description of essential property is relevant for the minimality requirement to be fulfilled. Thus, Ex. (64b), where the described situation may not locate essential property with respect to the resource situation (=S-topic) cannot be allowed in '-*teiru*' construction. The contrast between (64a) and (64b) is retrieved if we look at the minimality requirement.

Finally, let us consider the fact that although the achievement verbs like 'tukamaru' *be caught* and 'hiki-korosu' *kill by running over* are used in the present perfect examples in (65a) and (66a), they are appropriate examples in contrast with (51b).

(65)a. Hannin-wa *sudeni kinoo* tukamat-tei-ru. (tukamat-ta)

Criminal-TOP already yesterday have-been caught

(The criminal has already been caught yesterday.)

b.Dakara, moo ansinsi-te-ii yo.

Therefore now may-feel at ease

(Therefore, you may feel at ease now.)

(66)a. Ano hito-wa *kyonen* kodomo-wo hiki-korosi-tei-ru.

That man-TOP last year child-ACC have-killed by running over

(hiki-korosi-ta)

(That man killed a child by running over last year.)

b.Dakara zettai kuruma-ni-wa nora-nai n-da.

Therefore absolutely car-DAT-TOP drive-not

(Therefore, he never drives the car.)

In (65a) and (66a), the alternation between '*-teiru'* and '*-ta'* is available. In this respect, they might group together with experiential perfect. To see why this should be so, let us first observe that despite the fact that they denote punctual events, which cannot normally co-occur with the '-t*eiru*' affix in genuine present perfect like (51b), they can co-occur with it in these examples. The important point that distinguishes them to (51b) is that (65a) and (66a) are given as a sole reason initiating the results, namely (65b) and (66b), whereas (51b) cannot be perceived as a unique reason initiating the accusation. This contrast depends also on the types of the predicates constituting the described situation denoted by the second sentence: that is, the predicates like 'ansin-suru' *feel at ease* in (65b) and 'zettai nora-nai' *never drive* in (66b) are categorized in individual-level predicate, which make easy to hold the minimality requirement for resource situation, whereas 'tukamaru' *be caught* in (51b) is stage-level predicate, with which it is not easy to hold minimality requirement. Because the experiential perfect can start the discourse on it's own, (65a) and (66a) may be assumed to be resource situation. For example, in Ex. (66), the resource situation of killing a child by running over (cf. (66a)) serves as a minimal situation that supports the described situation of never driving the car (cf. (66b)). Hence, if the example in (51b) may be given as unique reason of accusation of traffic violation, even punctual event of ignoring a

traffic signal can co-occur with the '-*teiru*' affix, as shown in (67a):

(67)a. Kare-wa *sakuya* singoo-wo musisi-tei-ru n-da.
You-TOP last night traffic signal-ACC have-ignored
(He ignored a traffic signal last night.)
b. Sorede, kootuu-ihan de tukamat-ta no sa.
Therefore traffic violation-DAT be-PAST-caught
(Therefore, he was accused of traffic violation.)

Here, (67a) can start the dialogue on it's own and serves as minimal resource situation that supports the described situation of accusation of traffic violation.

7.4. Exceptions

I now consider the following question: when an utterance contains two p-definite temporal adverbials, what affects their interpretation? The data so far has been restricted mainly to sentences containing a single temporal adverbial. We will next look at sentences that contain two temporal adverbials in argument and non-argument positions.

First of all, although the p-definite/non-p-definite readings of temporal adverbials come about in a similar fashion to the referential/attributive (or specific/non-specific) readings of definite descriptions, in the data, some experiential perfects containing a p-definite temporal adverbial in sentence-initial position can contain also a p-definite temporal adverbial within the VP, as shown below.

(68)a. *Kyonen*, Taroo -wa *sangatu-ni* chuugoku-e it-teiru.

Last year, Taroo-TOP March-in china-to have-gone

(Last year, Taroo has been in China in March)

b..??*Sangatu-ni,* Taroo -wa *kyonen* chuugoku-e it-tei-ru.

March-in Taroo-TOP last year china-to have-gone

(In March, Taroo has been in China last year.)

If there are two p-definite temporal adverbials in a sentence, the sentence will be unacceptable. However, this situation does not arise in (68a): although (68a) includes two p-definite temporal adverbials, it is acceptable. This raises a problem with respect to the Uniqueness Constraint. However, the example in (68b) that has an invert order of adverbials with the one in (68a) is acceptable. Notice that (68a) is characterized by whole-part relation between the temporal adverbial in sentence-initial position and the one in VP, while (68b) is not. The fact indicates that (68a) fulfills Uniqueness Constraint and Minimality Requirement, whereas (68b) does not. This is the reason of the contrast in acceptability between (68a) and (68b).

With this in mind, consider the following:

(69)a *Kyoo*, Taroo-wa *san-zi-ni* kaet-tei-ru.

Today, Taroo-TOP three-at have-left

(Today, Taroo left at three.)

b.?**San-zi-ni*, Taroo-wa *kyoo* kaet-te-iru.

Three-at, Taroo-TOP today have-left

(At three, Taroo left today.)

As stated before, the point-time adverbial has a function to minimize the level applied by Uniqueness Constraint. What is particularly interesting about this type of temporal adverbial is the fact that it can appear solely in VP, and cannot in sentence initial position as in Ex. (69b). This fact indicates that the point-time adverbial usually takes narrow scope and never serves as resource situation. This is the reason why point-time adverbials cannot appear in the present perfect.

These facts clearly show that the two temporal adverbials in part-of relation are not understood as constituting counter examples for Uniqueness Constraint and Minimalists Requirement, rather, their (un)acceptability are correctly explained by them.

7.5 Summary

Summarizing, we have seen that the semantic base for determining the possible present perfect that involves the '*-teiru*' affix is the restriction of the range of resource situation. And it can be characterized in the following constraints: Uniqueness Constraint (cf.(50)) and Minimalists Requirement (cf.(62)). Under this view, it is quite naturally predicted that the '*-teiru*' affix alternates predicates into individual-level predicates, and the temporal adverbials that occur in the present perfect in '*-teiru*' form are in fact generalized quantifier, in the sense that they presuppose the least upper bound restriction, namely the resource situation.

8. Semantic-Syntactic Relation in Experiential Perfect and the Way of Processing

So far we have seen how the semantic characteristics of temporal adverbials interact with the way resource situation is construed and to what extent this directly follows from Uniqueness Constraint and the Minimalist Requirement.

The discussion suggests that the fact can be best described on a basis of more general mechanism of processing the present perfect sentences. In the remainder of this paper, we will investigate how a resource situation is construed and interacts with a described situation and how semantic interpretation interacts with syntactic configurations of experiential perfect.

8.1 Mapping Hypothesis and It's Application

8.1.1 Diesing (1992)

One phenomenon that depends on semantic characteristics of temporal adverbials seems to show similar way of interpretation as those exhibited by noun phrases with a determiner: the most NPs are understood in connection with the surrounding discourse. Diesing (1990,1992), among others, assumes a Lewis-Kamp-Heim style approach and presents an analysis according to which the different reading of indefinite, that is specific and nonspecific, is obtained by means of a mapping procedure that divides the syntactic tree into two parts which correspond to the two different parts of the semantic representation; one consisting of the VP and the other consisting of the sub tree dominating the VP, that is IP-level structure. The derivation of the representation is expressed as follows: the material from the VP is mapped into the nuclear scope and the material from the IP is mapped into the restrictive clause. This split is responsible for cases in which items in the IP area are interpreted as specific and items in the VP area as nonspecific. The specific/nonspecific readings can be tantamount to the presuppositional and non-presuppositional readings described by Milsark (1974) based on a semantic distinction between 'weak' and 'strong' determiners[25]: while

[25] The *weak* determiners, such as *some, many,* and numerals, can appear with a subject NP in the there-insertion contexts given in (ia), and the *strong* determiners, such as *most, all, the*, cannot appear in the contexts given in (ib) (Diesing, 1992:59)

strong determiners presuppose the existence of the entities they are applied to, weak determiners are ambiguous between a presuppositional reading and a non-presuppositional/cardinal reading, in which they merely assert the existence of whatever entities they are applied to but do not presuppose existence[26].

Building on the ambiguity of weak determiners, Diesing argued that the strong readings of weak NP are associated with the restrictive clause and the weak readings with nuclear scope in LF. Within this framework, a weak NP subject originates at D-structure in the SPEC of the VP, and then it is raised at S-structure to subject position, namely the spec of the IP in English-like languages, to satisfy case or agreement.

8.1.2 Hitzeman (1997)

Adopting the Mapping Hypothesis, Hitzeman (1997) explains the ambiguity of temporal adverbials containing a weak determiner in English sentences. Based on Dowty (1979) in which he associates the p-definite reading with the sentence-level attachment of the adverbial and the non-p-definite reading with VP-level attachment, Hitzeman (1997:96) argues that there is no reason to consider that a sentence-level adverbial must be raised at S-structure in order to satisfy case and agreement, so that it is possible to assume that the weak object of a temporal

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(i)a. There is/are a/some/a few/many/three fly (flies) in my soup.
b. *There is/are the/every/all/most fly (flies) in my soup.

[26] The following examples illustrate the presuppositional and non-presuppositional readings displayed by 'some"..

(i) There are some ghosts in my house. (unstressed *some*)
(ii)SOME ghosts are in the pantry; the others are in the attic.

In (i), the existence of ghosts is asserted but not presupposed. In (b), the stressed *some* presupposes the existence of ghosts and the NP SOME ghosts takes its referent from the set of ghosts in the context.

adverbial does not move but instead in LF. Therefore, a weak NP object of an adverbial that is at sentence-level at S-structure does not lower but instead must raise to adjoin to IP at LF and is interpreted by the Mapping Hypothesis as p-definite/strong or the one that remains in the VP is interpreted as non-p-definite/weak.

But Hitzeman's analysis does not successfully explain the Japanese data as shown so far. In what follows, we will reconsider the Japanese data

8.2 VP-Internal vs. VP External

Assuming Mapping Hypothesis, it can be expected generally that the p-definite temporal adverbials may be related to strong determiners, which have the specific, namely strong reading, regardless of their syntactic position as in (70a,b) (=(1a,b)), likewise, the non-p-definite and intermediate type temporal adverbials may be related to weak determiners, which is vague between weak and strong readings in terms of syntactic position, namely VP-external or VP-internal.

However, the examples in (71) show an unfortunate fact:

(70) (=(1)) a. *Kyonen*, Taroo -wa chuugoku-e it-teiru.

(Last year, Taroo has been in China.)

b.Taroo -wa chuugoku-e *kyonen* it-teiru.

(Taroo has been in China last year.)

(71) (At the moment of scoring the second goal in a soccer match)

a. (=(2a)) Kare wa *sudeni* 1 gooru kime-tei-masu.

He-TOP already one goal have-scored

(He has already scored one goal.)

b. *Sudeni* kare -wa 1 gooru kime-tei-masu.

Already, he-TOP one goal have-scored

(Already, he has scored one goal.)

Not only p-definite but also non-p-definite temporal adverbials may have a proper reading, whether or not they are VP internal. These facts clearly show that in Japanese, it is not true that by being VP internal, a weak element will automatically contribute to the nuclear scope at LF and by being VP external, weak element will contribute to the restrictive clause at LF as the Mapping Hypothesis predicts.

The easiest way is to give up the claim that non-p-definite temporal adverbials are ambiguous between a weak and strong reading. Instead, one can say that the strong-specific/weak-non-specific distinction of temporal adverbials is determined by its lexical semantics. However, what remains to be explained on this view is why there should be a correlation between the circumstances a temporal adverbial occurs in and the interpretation it receives. With this in mind, notice next that as the data shown, their semantics, namely the p-definite/non-p-definite, are actually not a defining factor of the syntactic behavior in present perfect construction.

8.3 Interpretation Principle

8.3.1 Possible Configurations with Two Temporal Adverbials

With the pattern of distribution observed in the examples that take temporal adverbials, let us assume that (i) when sentence has two temporal adverbials, the temporal adverbial adjuncts to IP is it's restriction (=resource situation), and the temporal adverbial attaches to matrix (=VP) that denotes it's described situation. (ii) When sentence has one temporal adverbial, it is by default attached to matrix that denotes it's described situation. This predicts that successful configuration

will be limited to the one in which the part-of relation between a restriction in IP-level and a described situation in VP-level is hold. This prediction is borne out.

Assuming that present perfect sentences have at most two temporal adverbials and that there are three kinds of temporal adverbials, namely p-definite, non-p-definite and intermediate type, there are four possible configurations with two temporal adverbials, given a single sentence. These are listed below along with an example of each type:

(72) P-DEF×P-DEF:

a. *Kinoo*, Taroo-wa *san-zi-ni* kaet-tei-ru.

Yesterday, Taroo-TOP three-at have-left

(Yesterday, Taroo left at three.)

b.?**San-zi-ni*, Taroo-wa *kinoo* kaet-te-iru.

Three-at, Taroo-TOP yesterday have-left

(At three, Taroo left yesterday.)

(73) P-DEF ×NON-P-DEF:

a.* *Itido*, Taroo-wa *mae-ni* chuugoku-e it-tei-ru.

One time, Taroo-TOP in the past China-to have-gone

(One time, Taroo has been in China in the past.)

b. *Mae-ni*, Taroo-wa *ichido* chuugoku-e it-tei-ru.

In the past, Taroo-TOP one time China-to have-gone

(In the past, Taroo has been in China one time.)

(74) P-DEF ×INTERMEDIATE:

a. *Kinoo*, Taroo-wa *sudeni* chuugoku-e it-tei-ru.

Yesterday, Taroo-TOP already China-to have-gone

(Yesterday, Taroo has already been in China.)

b. *Sudeni*, Taroo-wa *Kinoo* chuugoku-e it-tei-ru.

Already, Taroo-TOP yesterday China-to have-gone

(Taroo has already gone to China yesterday.)

(75).NON-P-DEF×NON-P-DEF

a. **Sudeni*, Taroo-wa *mae-ni* 1 gooru kime-tei-masu.

Already, Taroo-TOP in the past one goal have-scored

(Taroo has already scored one goal in the past.)

b. **Mae-ni*, Taroo –wa *sudeni* 1 gooru kime-tei-masu.

In the past, Taroo-TOP already one goal have-scored

(Taroo has already scored one goal in the past.)

In (72a), S-topic 'kinoo' *yesterday* is represented as adjunction to IP and show wide scope over point-time adverbial 'san-zi-ni' *at three* and constructs the restriction over point-time adverbial, while the point-time adverbial attaches the matrix and is not overtly minimize the restriction, but the sentence is interpreted in "It's at three where Taroo left yesterday". On the other hand, in (72b), where the point-time adverbial 'san-zi-ni' adjuncts to IP and 'kinoo' *yesterday* attaches to VP, 'san-zi-ni' fails to take wide scope over 'kinoo' and cannot provide the restriction over 'kinoo'. In (73a), a p-definite adverbial 'itido' *one time* in IP-level cannot show wide scope over non-p-definite temporal adverbial 'mae-ni' *in the past* in VP, so that (73a) is unacceptable, while in (73b), where 'mae-ni' in IP can take wide scope over 'itido' in VP, (73b) constructs the restriction and is acceptable, in which 'itido' serves to minimize the restriction. Interestingly, the configurations in (74a,b) are both acceptable. One notable property associated with an intermediate type temporal adverbial 'sudeni' *already* is that 'sudeni' may be combined freely with any temporal adverbials that are p-definite, regardless of their syntactic

positions (cf. § 2.3). Therefore, in (74a), 'kinoo' *yesterday* adjuncts to IP shows wide scope over 'sudeni' in VP, and therefore (74a) has the reading that "Yesterday, Taroo has already been in China", in which 'sudeni' indicates the event time that is prior to yesterday. By contrast, in (74b), 'kinoo' *yesterday* in VP takes the narrow scope and shows weak reading that "It's yesterday where Taroo went to China", in which 'kinoo' should serve to minimize the restriction. Finally, in (75a,b), neither cases have no effect to construct a restriction and are unacceptable.

The data considered so far indicate that there are at least three types of temporal adverbials are allowed in IP-level to construct the restriction over the temporal adverbial in matrix (=VP): (1) p-definite temporal adverbial except for point-time adverbial is possible with p-definite and intermediate type temporal adverbials; (2) non-p-definite temporal adverbial is possible with p-definite temporal adverbials; (3) intermediate type temporal adverbial is possible with p-definite temporal adverbials. Thus, it is possible to confirm that the experiential perfect is available when there is at least one p-definite temporal adverbial in a sentence, regardless of their syntactic position.

8.3.2 Semantic-Contextual Parameters

This fact clearly shows that p-definite temporal adverbials are characterized by being existence-presuppositional, while non-p-definite and intermediate type temporal adverbials are not. But, it must be noted that despite of it's p-definiteness, the point-time adverbials can attach only to VP and cannot adjunct to IP, and therefore they have usually partitive-reading that presupposes its restriction provided by the information of pertinent sentence itself (just like intermediate type temporal adverbials). On the other hand, we see the opposite in

non-p-definite temporal adverbials: they can adjunct only to IP as shown in (76a,b):

(76)a. *Mae-ni* Taroo-wa *itido* chuugoku-e it-tei-ru.
In the past, Taroo-TOP one time China-to have-gone
(In the past, Taroo has been in China one time.)
b.**Itido*, Taroo-wa *mae-ni* chuugoku-e it-tei-ru.
One time, Taroo-TOP in the past China-to have-gone
(One time, Taroo has been in China in the past).

This class of temporal adverbials includes non-p-definite temporal adverbials such as 'izen' *before*, 'katute' *once*, etc. that indicate indefinite past interval and share the property that they do not permit any p-definite temporal adverbials to precede them in present perfect construction. With non-p-definite temporal adverbials, only p-definite temporal adverbials can co-occur and since other kinds of p-definite temporal adverbials cannot co-occur, this means that certain temporal adverbials adjunct to IP-level may serve as restriction of p-definite temporal adverbials, and that at the same time, p-definite temporal adverbials in VP serve to minimize the restriction, while non-p-definite temporal adverbials may not.

These facts clearly show that p-definite vs. non-p-definite (and intermediate type) distinction cannot correlate with the syntactic position but with the existence-presupposition vs. context-presupposition difference. Hence, we can safely conclude that the prime parameter to construe present perfects in '- *teiru*' construction is the (non)existence of least upper bound resource situation. (At this point, it can be said that since non-p-definite temporal adverbials are temporally

dependent on contextual information in genuine present perfect, the genuine present perfect also cannot be independent on the least upper bound resource situation.)

The discussion suggests that the facts can be best described by the processing view that states the restrictions in terms of the Uniqueness Constraint and the Minimalists Requirement, through the analysis of interaction between lexical semantics of temporal adverbials and its appearing circumstances, that involve not only discourse structure but also syntactic configurations that vary language to language.

9. Conclusion

I have argued on the basis of Japanese data that the relevant phenomena, including the present perfect puzzle, can best be analyzed by the processing view, rather than syntax-based analysis. It may seem that no universal treatment can explain the variety of interpretations of temporal adverbials in present perfect construction. I, however, have argued on the contrary that the only conceivable way of accounting for the phenomenon is to clarify the way of processing in such a way as to map described situation onto resource situation. The specification of minimal resource situation involves essential reference to contextual parameters including Topic-Focus structure through the analysis of interaction between lexical semantics of temporal adverbials and its appearing circumstances that involve not only discourse structure but also syntactic configurations. The present perfect puzzle that is caused by the lack of set that forms resource situation as restriction is an instance of a more general mechanism of processing depending on the semantic and contextual parameters. More research must be done before the issue can be completely resolved, but it is fairly clear that the situation-based

analysis provides us some insight into the nature of information packaging observed in natural language.

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