Tense, Subject, and Derivation[1)]

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1. Types of Embedded Tense Interpretation

A theory of tense must explain at least the following.

(1) a. Simultaneous
'John said (last Monday) that Mary was sick (then).'

b. Past-Shifted
'John said (last Monday) that Mary was sick (three weeks ago).'

c. Double-Access
'John said that Mary is sick.'

d. Independent
'John saw a man who was crying.'

The simultaneous reading of the past morpheme in the embedded clause (1a) shows that the temporal denotation of Mary's being sick (‖Sick(m)‖) includes the temporal denotation of John's saying (‖Say(j)‖)[2)]. The past-shifted reading (1b) requires ‖Sick(m)‖ and ‖Say(j)‖ be disjoint: the lower tense is shifted away to a past from the

main tense. Two comments are in order: first, the past-shifted is more marked than the simultaneous in English [3]; second, the simultaneous and the past-shifted readings are mutually exclusive. In the double-access reading (1c), ‖Sick(m)‖ includes both ‖Say(j)‖ and the utterance time. The independent reading (1d) typically occurs with relative clauses, and the reading guarantees any temporal ordering of the main and the lower clause tenses; e.g., the time of the man's crying can precede, include, or follow the time of John's seeing.

The organization of this article is as follows: In Section 2, we introduce Stowell's (1993/1994) account, the insightful analysis on which we will capitalize for our proposal. Section 3 reports Japanese examples that pose interesting problems for Stowell's account. Section 4 proposes a mechanism which incorporates new data. More particularly, we argue that the existence or the non-existence of Spec-head agreement of subject interacts with the asymmetrical construals of English and Japanese tenses. We also provide an answer as to why the [+stative] feature of V is required for the simultaneous and the multiple access readings. Section 5 recapitulates the findings and remaining problems. For the general framework within which this project is carried out, the reader is refered to works as Lasnik and Saito (1992) and Chomsky (1995).

2. TP and the Arguments-Zagona (1990) and Stowell (1993/1994)

Stowell (1993, 1994) adopts Zagona (1990), which argues that T (Tense=the head of the functional category TP) is a dyadic predicate (a two-place predicate) which takes two time-denoting phrases (ZP,

i.e. Zeit Phrase, a functional category)[4]. The basic clausal architecture is expressed as follows:

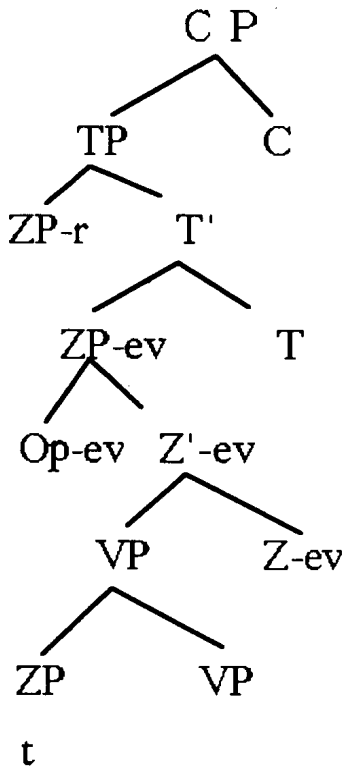


Figure 1.

T has the external argument ZP-r (the reference/evaluation-time denoting phrase) and the internal argument ZP-ev (the event-time denoting phrase)[5]. ZP-r typically denotes the utterance time at the matrix level. Op-ev originates in VP and moves to ZP-ev Spec to check its temporal feature. When Op-ev rises, it binds ZP variable t. The variable t is a ZP variable contained in VP similar to Kratzer's (1989) external event argument. ZP-ev, which takes VP as its internal argument, is analogous to DP or AGRoP taking an NP or VP complement, respectively. We assume that ZP-ev covers agreement relations, as do DP and AGRoP [6]. Let us see how the theory works for the four types of embed-

ded tense interpretation, repeated here as (2).

(2) a. Simultaneous

'John said (last Monday) [$_{CP}$ that Mary was sick (then)].'

b. Past-Shifted

'John said (last Monday) [$_{CP}$ that Mary was sick (three weeks ago)].'

c. Double-Access

'John said [$_{CP}$ that Mary is sick].'

d. Independent

'John saw [$_{DP}$ a man [$_{CP}$ who was crying]].'

Consider the independent reading (2d). Assume the quantifier raising (QR). A CP containing a relative clause (RC) QRs to the matrix level at LF, adjoining to the matrix TP. The relative clause ZP-r in the Spec of the TP behaves as the matrix ZP-r. Since there is no c-commanding ZP which binds or controls the relative clause ZP-r (the relative clause is now adjoined to the matrix TP by QR; the bold-typed argument in the following figure), ‖Relative clause ZP-r‖ is not ordered with respect to ‖matrix ZP-ev‖. At this point, Stowell assumes that the adjunct CP, i.e., the relative clause, does not leave its copy when QR applies. The structure for (2d) after QR is as follows.

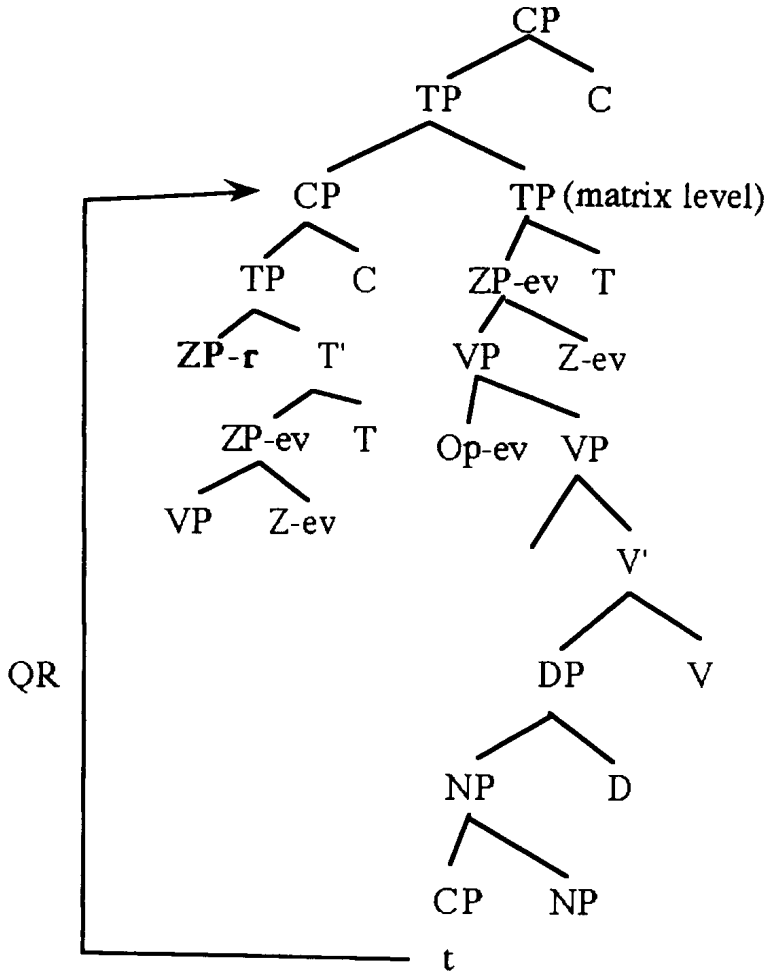


Figure 2.

In Figure 2, the adjunct CP QRs to the matrix clause TP and the original trace is deleted. But what motivates this deletion ? An adjunct trace is not deleted if it is a member of a legitimate LF chain[7]. Otherwise, we will lose an explanation for a typical ECP violation as the following [8].

(3)*How1 do you wonder [whether [John said [[Mary solved the problem t1]]]]
[-γ]

Since the operator-variable chain (how1, t1) in (3) is a legitimate LF object (a uniform chain), the trace of how in its original VP-adjoined position must not be deleted. The adjunct trace t1 is not γ-marked at LF, and the derivation crashes (Lasnik and Saito 1992). Following Enç (1987), we propose that the relative clause CP (without present morphology) does not QR in (2d) and that the relative clause is protected by some kind of barrier from direct binding from the matrix tense. The LF structure for (2d) before Op-ev movement is as follows.

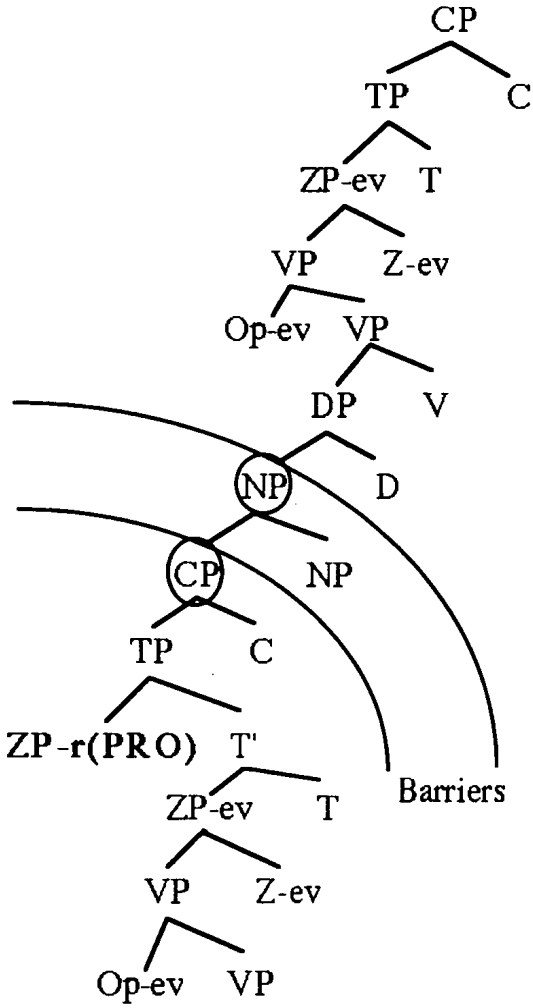


Figure 3.

ZP-r(PRO) in the embedded clause in figure 3 is PRO in nature. An obligatory control disallows long-distance control as in the following example.

(4)*John1 wants [Mary to try[PRO1 to leave]]

If some kind of barrierhood is involved in (4), so is in figure 3, that is to say, the two barriers in the sense of Lasnik and Saito (1992) illustrated in figure 3 blocks the long-distance control, i.e., the matrix O-ev (or its trace) controlling the lower ZP-r (the bold-typed argument) is prohibited [9]. It follows that the lower ZP-r behaves like a matrix ZP-r, which is unbound. The restrictions on temporal relation are: (a) the denotation of the time of John's seeing (‖S(j)‖) precedes the utterance time, and (b) ‖C(m)‖(the denotation of time of the man's crying) precedes the utterance time. Crucially, ‖S(j)‖ and ‖C(m)‖ are unordered, thereby permitting all the three possible timing as follows. UT stands for the utterance time. Arrows symbolize time.

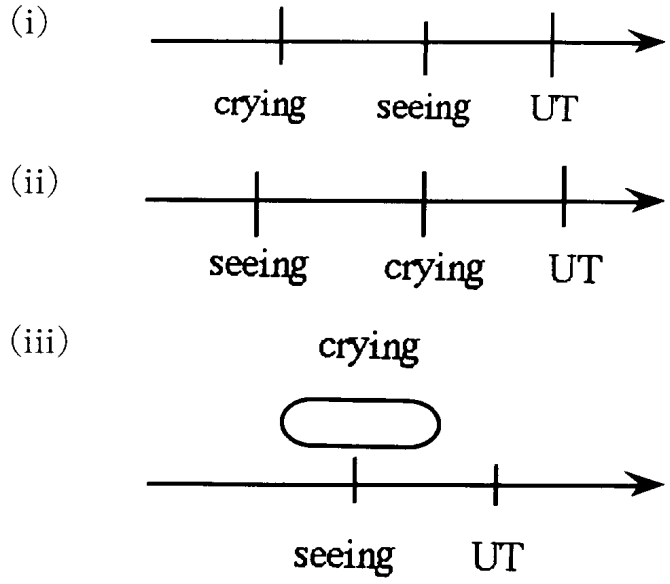


Figure 4.

Hence, the embedded-clause ZP-r in figure 3 behaves as the matrix-clause ZP-r. We do not need to speculate that QR of relative clause CP does not leave its copy.

Next consider the simultaneous and the past-shifted readings (2a and 2b). The relevant example without temporal adverbial is the following:

(5) John said that Mary was sick.

The lower past morphology was in the sentence in (5) is interpreted such that either (i) ||lower tense|| and ||main tense|| overlap each other (the "pure" simultaneous reading), or (ii) ||lower tense|| is shifted away to a past with respect to ||main tense|| (the past-shifted reading). The relevant structure is as follows.

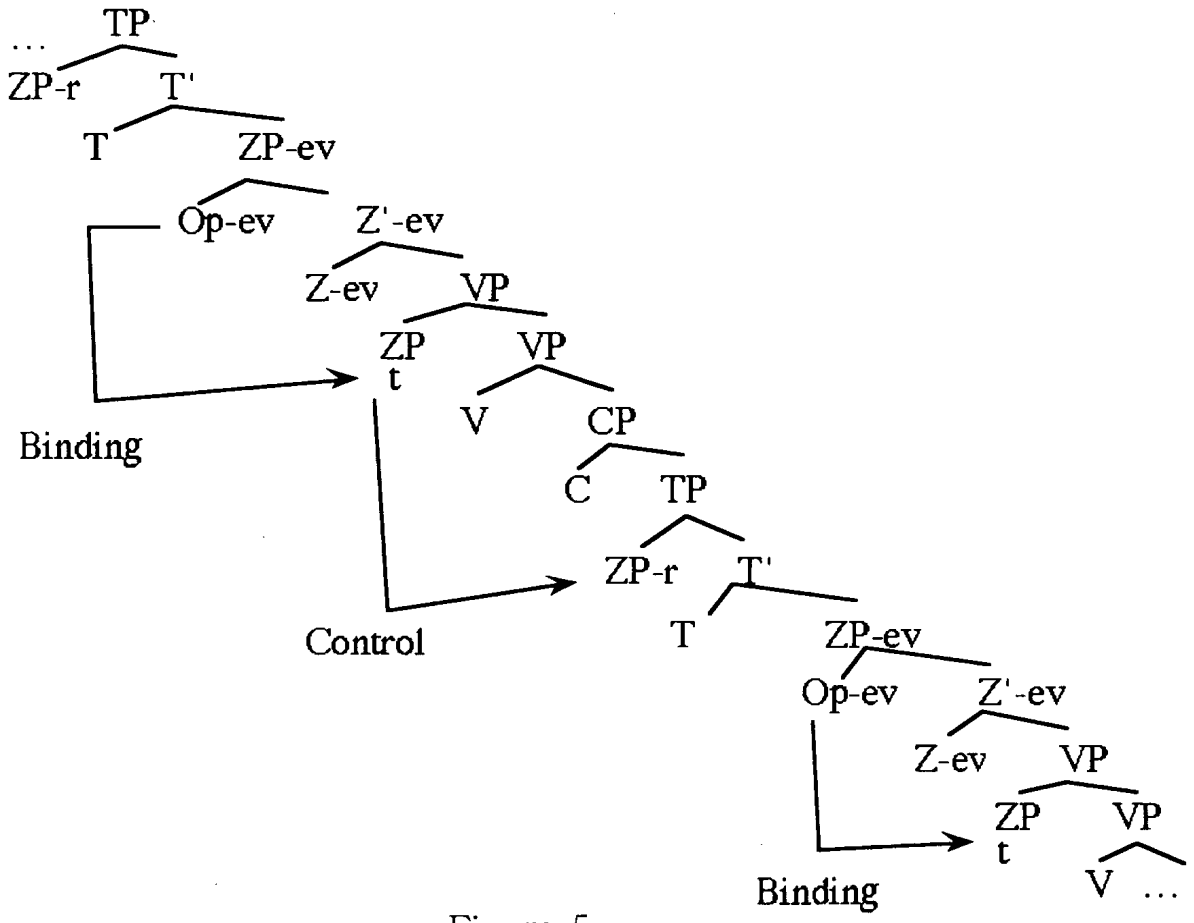


Figure 5.

Let us first see how the past-shifted reading arises. The matrix ZP-r denotes the utterance time. The matrix T is a "true" Past which places ‖ZP-ev‖ before ‖ZP-r‖. ZP-ev and Z-ev share features since the former is a projection of the latter, and Z-ev and Op-ev share the same feature by Spec-Head agreement. It follows that ZP-ev and Op-ev share features. The matrix-clause Op-ev binds the ZP variable t, which in turn controls the lower ZP-r; the matrix t in VP-adjoined position is the closest argument c-commanding the lower-clause ZP-r analogous to PRO. Notice that there is no barrier between the matrix ZPt and the embedded-clause ZP-r, i.e., the lower projection of the matrix VP is not a maximal projection, the complement CP and TP are L-marked by V. Thus, ZPt can control the embedded ZP-r. The lower-clause T is a "true" Past which places ‖embedded-clause ZP-ev‖ before ‖embedded-clause ZP-r‖ , the denotation of which precedes the actual utterance time. ZP-ev and Op-ev in the lower clause share the same value, and the lower Op-ev binds the lower t. The sentence yields the past-shifted interpretation: the utterance time is after a time t (the higher t) at which John says that this higher t is after another time t (the lower t), when Mary is sick.

The pure simultaneous reading is problematic. The matrix ZP-r denotes the utterance time. The matrix T is a "true" Past which places ‖matrix ZP-ev‖ before ‖matrix ZP-r‖ . The matrix ZP-ev and the matrix Op-ev share the same value. The matrix Op-ev binds the matrix ZP variablet, which in turn controls the lower-clause ZP-r. Up to this point, every derivational step is identical to that of past-shifted case. For further steps, Stowell suggests three alternatives, i.e., (i) the null T approach, (ii) the binding approach, and (iii) the definite Z approach[10]. Stowell eventually adopts the null T approach. Let us summarize the

null T approach.

(6)The Null T Approach

English is parametrized in such a way that the lower past T can be null. Such lower-clause null T is not a "true" Past, and it does not force ||lower ZP-r|| and ||lower ZP-ev|| disjoint. Stowell argues that English past morphology was is a realization of Z-ev, not a realization of T. The lower null T, lacking any time-ordering functions, does not shift ||lower ZP-ev|| to past from ||lower ZP-r||. Stowell proposes that was in the embedded clause is a Past Polarity Item (PPI) realized under the lower Z-ev. When the PPI is licensed by the c-commanding Past T in the embedded clause, it gives rise to the past-shifted reading. When the PPI is licensed by the matrix Past T, the derivation converges to yield the simultaneous reading.

Stowell hypothesizes that languages such as Russian and Japanese are parametrized in such a way that they lack the null T option: every T in these languages is non-null, and tense morphology is a realization of T. These languages have no PPI morphologically realized under the lower Z in the scope of the matrix Past T. As a consequence, Russian/Japanese-type examples corresponding to English example (5) do not exhibit simultaneous reading.

The dual-access construal (2c) is considered as the combination of the simultaneous and the independent readings. We repeat (2c) as (7).

(7)John said [$_{CP}$ that Mary is sick].

The time of Mary's being sick includes both the time of John's saying and the utterance time. The mechanism is as follows. QR applies to the embedded CP at LF. The movement develops an operator-variable chain, one of which is a legitimate LF object. The chain as a whole receives the interpretation, yielding the double-access reading. It is crucial that in English, CP with present tense must involve QR[11]. Thus, the raised complement CP guarantees the complement-clause tense to denote the utterance time: the time of Mary's being sick includes the utterance time. The reason is that nothing c-commands the reference time ZP-r in the lower TP Spec. Unbound reference time ZP-r which has the present morphology denotes the utterance time (Enç1987). The remaining CP copy of the complement clause assures the simultaneous reading. By means of their control relation, the denotation of embedded clause ZP-r can be identical to that of ZPt in the VP-adjoined position, which is Past. Since present tense is in the embedded clause does not shift the time back, ‖Embedded-clause ZP-ev‖ = ‖embedded-clause ZP-r‖. It follows that the time of Mary's being sick and the matrix event time overlap each other. However, the null T approach is incomplete in that it still has to solve the following questions.

(8)Questions Regarding the Null T Approach

a. Why is it that only stative verbs have the null T option in English ? The following sentence with a nonstative embedded verb cannot have the simultaneous reading, i.e., the lack of null T option.

John said that Mary hit the girl

b. As we will see in the next section, Japanese embedded-clause past morphology exhibits the so-called "past-dual access," which is the combination of the past-shifted and the simultaneous readings. How does the approach explain this partial appearance of the simultaneous construal in this language [12] ?

In the next section, we report Japanese samples which pose some problems to the traditional embedded-tense typology.

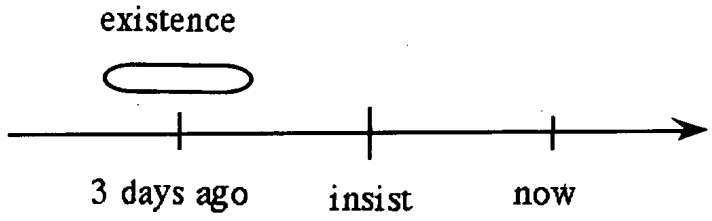
3. Multiple Accesses

We need a theory of tense which accounts for the semantic distribution among the following samples from Japanese [13]. We first show examples in which both the main and embedded clauses contain a temporal morpheme ta in (9), and then examples in which only the main clause contains ta in (10).

(9) a. Past-Shifted

John-ga mikka mae-ni soko-ni sono isu-ga at-ta to
-nom three days before-at there-at that chair-nom be-pst that
shuchooshi-ta (koto)[14]
insist-pst fact

'John insisted that the chair was there three days ago.'

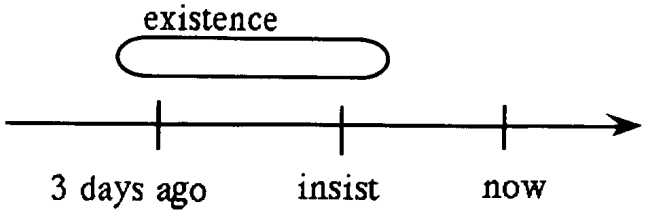


b. Past-Double Access

John-ga mikka mae-kara soko-ni sono isu-ga at-ta to
-nom three days before-since there-at that chair-nom be-pst that

shuchooshi-ta (koto)
insist-pst

'John insisted that the chair had been there since three days ago.'

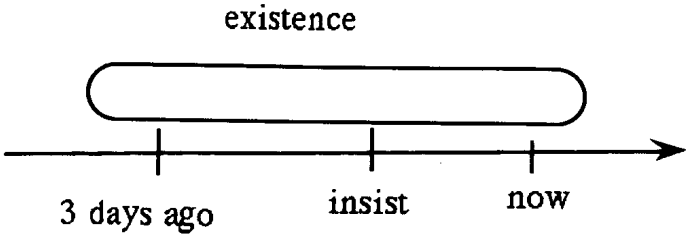


c. Triple Access

John-ga mikka mae-kara koko-ni kono isu-ga at-ta to
-nom three days-since here-at this chair-nom be-pst that

shuchooshi-ta (koto)
insist-pst

'John insisted that this chair had been here since three days ago (and that it is still here now).'



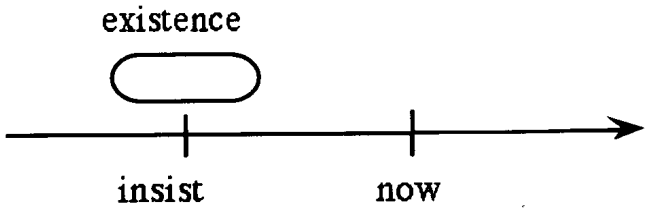
(10) a. Pure Simultaneous

John-ga soko-ni sono isu-ga　　ar-u to　　shuchooshi-ta

-nom there-at that chair-nom be-nonpst that insist-pst fact

(koto)

'John insisted that the chair was there.'



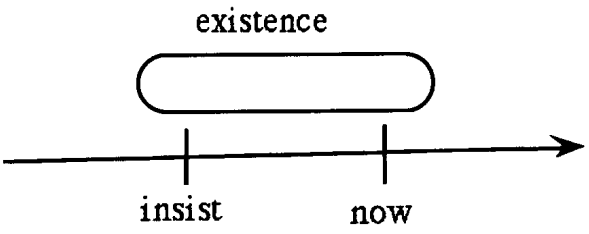
b. Double-Access

John-ga koko-ni kono isu-ga　　ar-u to shuchooshi-ta

-nom here-at that chair-nom be-nonpst that insist-pst fact

(koto)

'John insisted that the chair is here.'



In the past-shifted reading (9a), the denotation of the temporal morpheme ta in the embedded clause and the matrix event time are disjoint; the time of the chair's being there (‖E(c)‖) is shifted away to a past from the time of John's insisting (‖I(j)‖). The "past-double access" construal (9b) is the combination of the past-shifted and the pure simultaneous; ‖E(c)‖ includes both ‖three days ago‖ and ‖I(j)‖. The triple access (9c) is the combination of the past-shifted, simultaneous,

and independent: ‖E(c)‖ includes ‖three days ago‖, ‖I(j)‖, and the utterance time (‖now‖). In the pure simultaneous reading (10a), ‖I(j)‖ is the proper subset of ‖E(c)‖. The double-access reading (10b) is the combination of the independent and the simultaneous readings: ‖E(c)‖ includes both ‖I(j)‖ and ‖now‖. Let us summarize the English-Japanese contrast.

(11)

		[...pst [...pst]]	[...pst [...nonpst]]
past-shifted	Eng	+ marked	−
	Jap	+	−
pure simultaneoys	Eng	+	−
	Jap	−	+
double-access	Eng	−	+
	Jap	−	+
past-double access	Eng	−	−
	Jap	+	−
tripple-access	Eng	−	−
	Jap	+	−
independent	Eng	+	−
	Jap	+	−

In (11), the embedded clauses contain stative verbs. [...pst [...pst]] shows that both the main and embedded clauses involve past temporal morphemes, and [...pst [...nonpst]] expresses that the main clause contains a past morpheme and the lower clause contains a nonpast morpheme. A theory of tense must explain the English-Japanese asymmetry with respect to the pure simultaneous, the past-double access, and the triple-access construals. Let us summarize our problems.

(12) a. Why does English exhibit a marked past-shift reading, whereas the same reading is unmarked in Japanese ?

b. With the lower-clause past, why does Japanese lack the pure simultaneous, but English allow it ? With the lower-clause nonpast, why does Japanese obtain the simultaneous while English loses it ?

c. Why does English lack the past-double-access and the triple-access with the lower-clause past, while the asymmetry disappears when the lower-clause contains nonpast ?

The null T approach cannot solve the past-double-access problem; according to this approach, we are obliged to conclude that the past-shifted reading arises when the lower Tense is non-null, and the simultaneous reading results when the very same Tense is null. The lower Tense is non-null and null at the same time when one type of interpretation is involved. This is not a desirable consequence.

4. An Alternative-ZP-Operator Movement Approach

In this section, we propose a mechanism to explain the multiple-access and the other temporal interpretations. In 4.1, we argue for the absence of QR of the embedded CP in Japanese. In 4.2, we propose the ZP-movement approach.

4.1. Test I (Existence/Nonexistence of Lower CP)

We employ negative polarity item (NPI) licensing as a test to see if the lower CP undergoes QR in Japanese. Assume that NEG operator

must c-command NPI at least in overt syntax, i.e., pre-LF derivational stages. In the following examples, the embedded CP in the examples in (9) and (10) is changed to NPI.

(13) a. Past-Shifted

John-ga [mikka mae-ni soko-ni sono isu-ga at-ta to-sika]
-nom three days before-at there-at that chair-nom be-pst

shuchooshi-nakat-ta (koto)
that-only insist-neg-pst fact

'John only insisted that the chair was there three days ago.'

b. Past-Double-Access

John-ga [mikka mae-kara soko-ni sono isu-ga
-nom three days before-since there-at that chair-nom

at-ta to-sika] shuchooshi-nakat-ta (koto)
be-pst that-only insist-neg-pst

'John only insisted that the chair had been there since three days ago.'

c. Triple-Access

John-ga [mikka mae-kara koko-ni kono isu-ga at-ta
-nom three days before-since here-at this chair-nom be-pst

to-sika] shuchooshi-nakat-ta (koto)
that-only insist-neg-pst

'John only insisted that this chair had been here since three days ago (and that it is still here).'

(14) a. Pure Simultaneous
John-ga [soko-ni sono isu-ga ar-u to-sika]
-nom there-at that chair-nom be-nonpst that-only

shuchooshi-nakat-ta (koto)
insist-neg-pst fact

'John only insisted that the chair was there.'

b. Double-Access
John-ga [koko-ni kono isu-ga ar-u to-sika]
-nom here-at this chair-nom be-nonpst that-only

shuchooshi-nakat-ta (koto)
insist-pst fact

'John only insisted that the chair is here.'

The acceptability of the examples in (13-14) shows that the embedded CP-sika in these examples is c-commanded by the matrix Neg at least before Spell-Out. We conclude that QR need not take place in (9) and crucially in (10), that is to say, Japanese embedded clause need not QR even when the clause involves a nonpast tense [15]. Notice that we are not

claiming that QR never takes place in Japanese. What it amounts to saying instead is that the embedded CP can remain in its original position. At LF, QR may take place in Japanese as well if it is necessary [16]. The possibility of non-movement of the embedded CP hints another approach, i.e., an approach which employs X^0-movement and the temporal arguments.

4.2. ZP-Operator Movement Approach

The following mechanism yields the past-shifted reading in English (1b). We focus on the embedded structure.

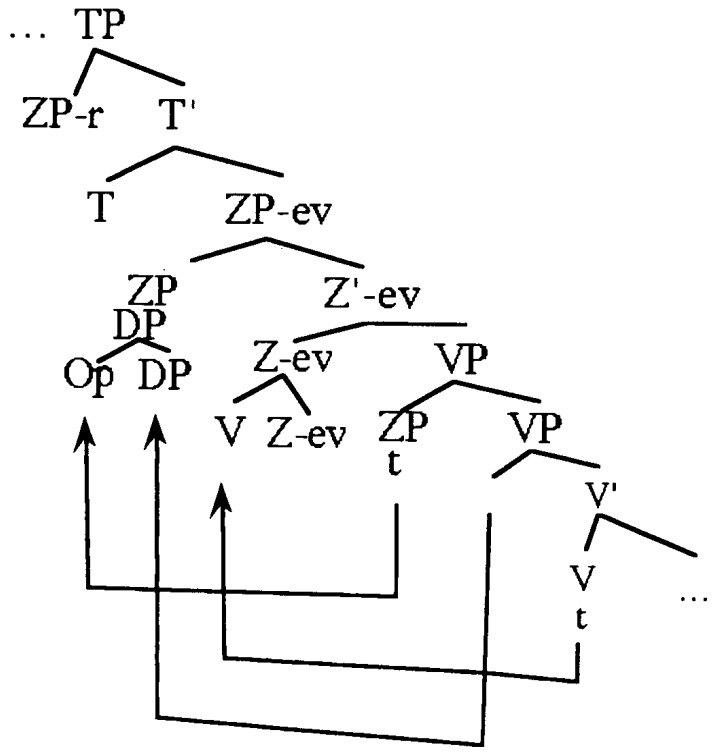


Figure 6.

V moves to Z-ev and forms a chain CH1= (V+Z-ev, traceV)[17]. We assume that the embedded-clause V is a stage-level be when the past-shift-

ed interpretation is involved (Diesing 1992)[18]. A stage-level predicate raises to Z-ev for feature-checking. Z-ev is analogous to D or AGR, so the subject DP in English must raise to the Spec of ZP-ev to check its Case feature[19]. The Z-ev projection closes off once this checking relation is established (Saito and Fukui 1996). An event-time ZP operator Op must also occupy the Spec of ZP-ev to have its semantic feature checked. Once checked, further movement is prohibited by the last resort principle [20]. Op cannot move further to the Spec of TP since the position is outside the minimal domain of CH1 [21]; the raising of Op to the Spec of TP, passing a subject DP, induces a minimal link condition (MLC) violation [22]. Op therefore must move to the Spec of ZP-ev to receive an interpretation. Since there is a subject DP in Spec of ZP-ev and the movement into TP Spec is blocked, Op is compelled to adjoin to the subject DP; otherwise Op is not interpreted. Recall that the past-shifted is marked in English; we need time adverbial to obtain the reading. This markedness comes from the compelled adjunction of Op to the subject DP, an operation which is the only remaining solution, and that is brought about as a last resort [23]. Every legitimate object must be fully interpreted (the principle of FI, Chomsky 1995). In other words, the markedness is induced by the non-optimal 2-to-1 relation of Spec-head agreement; an optimal Spec-head agreement is 1-to-1 (Saito and Fukui 1996). Thus, ZP-r is controlled by the matrix ZP variable, and the lower past T shifts back ZP-ev from ZP-r. ZP-ev and the Spec share the value, and so does Op. The denotation of Op precedes the matrix event time, which precedes the utterance time. But this approach still leaves us with the following question: Why is Japanese past-shifted reading natural ? This is accounted for if we assume that the Japanese subject adjoins to Z', but this adjunction does not close off the Z-projection,

since there is no Spec-head agreement in this language (Saito and Fukui 1996)[24]. The relevant structure is as follows:

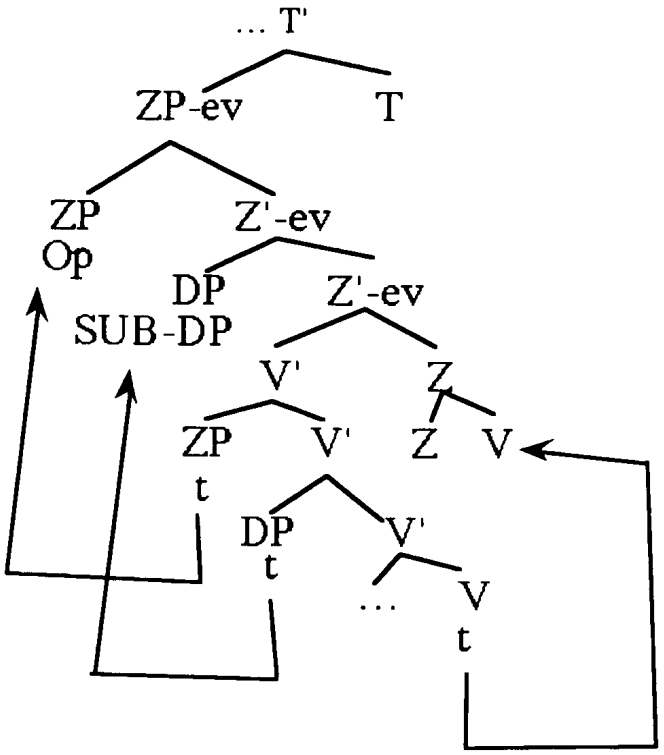


Figure 7.

A nominative Case of Japanese subject DP (SUB-DP) is licensed contextually on any argument phrase immediately dominated by a projection of Inflection I (analogous to Z in our context) (Saito and Fukui 1996). SUB-DP adjoins to Z'-ev, and Z-projection need not close off, since there is no Spec-head agreement in Japanese [25]. Op adjoins to Z'-ev and agrees with the head Z-ev, resulting in the closing off of the Z-ev projection. The Spec-head agreement here is 1-to-1 between ZP-Op and Z-ev, which is an optimal relation, hence the natural interpretation of past-shifted reading in Japanese is obtained.

The pure simultaneous in English arises from the following structure:

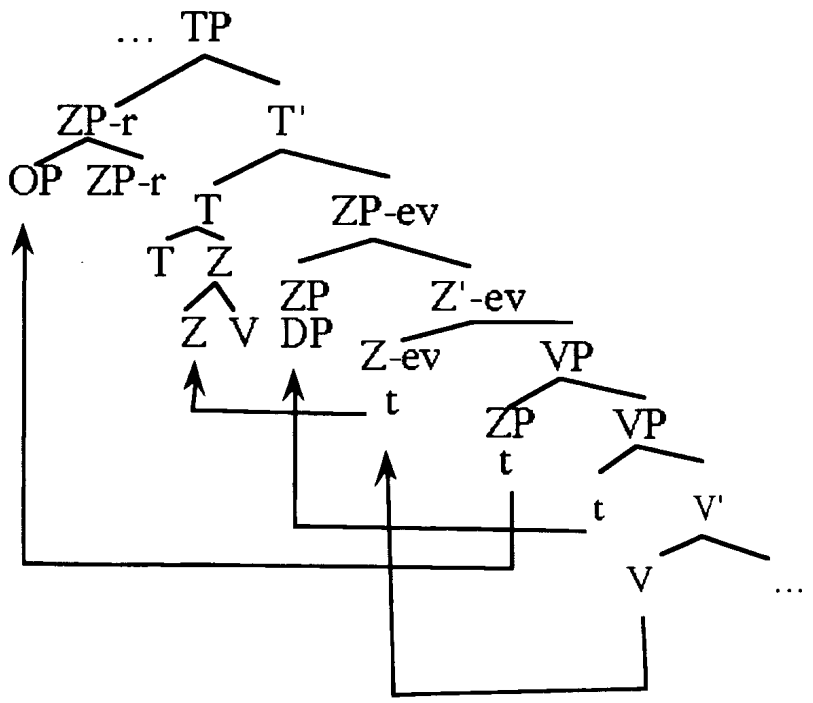


Figure 8.

V raises to Z-ev and to T, and forms a chain CH2=(T+Z+V, traceZ+V, traceV). We propose that the embedded-clause be is an individual-level predicate in the sense of Diesing (1992) when simultaneous reading is involved. Such be must raise to VP-external position, a syntactic domain of which is mapped into the restrictive clause in the logical representation. The individual-level be is a non-θ role assigner. Thus, it can raise up to T, which is opaque for θ role transmission. The movement itself is derived by the restrictive clause formation in the tree. In English, for example, the embedded-clause was raises up to T, and this head movement guarantees ‖TP Spec‖ = ‖ZP-ev Spec‖ by means of Spec-Head agreement. The subject DP is Case-checked in ZP-ev Spec. Op adjoins to ZP-r, to be controlled by the matrix ZP event time variable. The raising of Op, this time passing the intervening subject, does not induce MLC violation; the Spec of TP is a mem-

ber of the minimal domain of the formed chain CH2.

Now, how does this approach account for the following contrast ?

(15) a. John said [that Mary is pregnant]. (double access, no simultaneous)

b. John-ga [Mary-ga ninsin siteiru to] itta (koto)
-nom -nom pregnant being that said (fact)
'John said that Mary was pregnant.' (simultaneous)
'John said that Mary is pregnant.' (double access)

The English example is not ambiguous, whereas the Japanese example is ambiguous. In the English example (15a), the QR of the embedded-clause CP is inevitable when the lower complement CP contains the present tense morphology. Since the complement CP must be interpreted both at the matrix and the embedded levels, (15a) bears double-access reading. In Japanese example (15b), the QR of the complement CP is not obligatory. But it is not optional either, that is, when QR applies, the universal quantification is involved, and when QR fails to apply, the existential quantification is involved. Recall that we have empirical evidence from NPI licensing facts (section 4.1.) that Japanese complement CP does not always undergo QR at LF. Thus, in (15b), when QR does not take place, the pure simultaneous reading is derived; when QR applies, the double-access reading is induced.

The past-double-access construal in Japanese is explained if we assume that there is no subject DP which forms ZP-ev Spec in this language. The relevant derivation and structure are as follows:

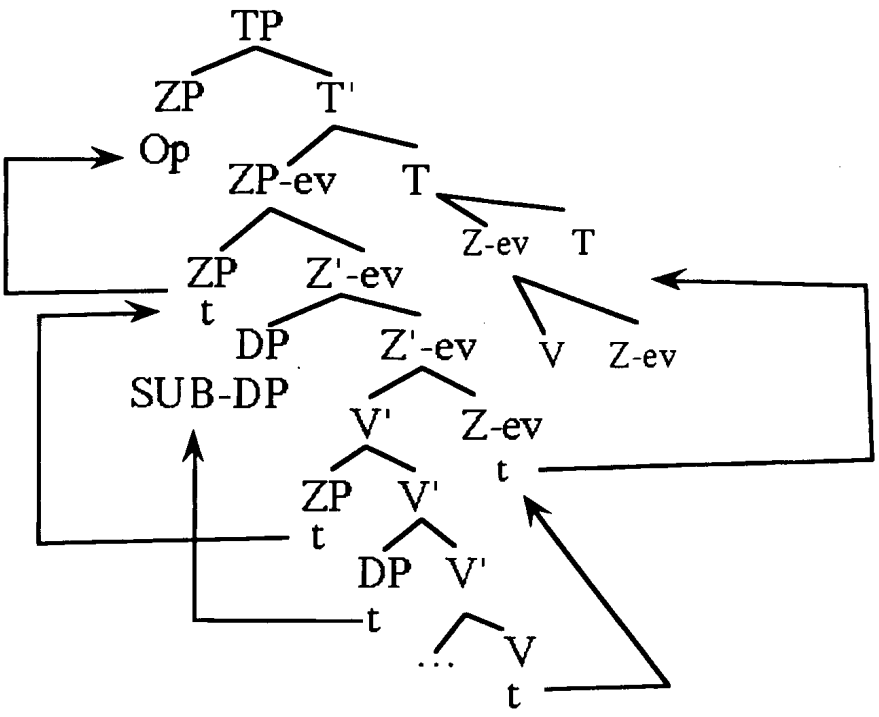


Figure 9.

SUB-DP (subject-DP) adjunction to Z'-ev does not realize ZP-ev Spec in Japanese since the operation does not close off the projection due to the lack of Spec-Head agreement. Op (ZP operator) may first adjoin to Z'-ev and agree with Z-ev, closing off Z-ev projection. At this point, V has amalgamated with Z-ev. This is the derivational stage at which ZP-operator is interpreted as past-shifted. In the next stage of derivation, [V+Z-ev] raises to T, and ZP-operator moves into TP Spec, where it is feature-checked. Thus, the lower-clause V atta in Japanese bears both stage-level and individual-level features. The copy in ZP-ev Spec is calculated giving rise to the past-shifted reading, and Op in TP Spec yields the simultaneous construal. Thus, the past-double access is the combination of the past-shifted and the simultaneous interpretations; the embedded event time includes both the matrix event time and the earlier time. In English, the subject DP builds ZP-ev Spec, clos-

ing off the Z-ev projection. Op therefore must move directly to TP Spec. This is the reason why past-double-access reading is not available in English (only the pure simultaneous reading is available).

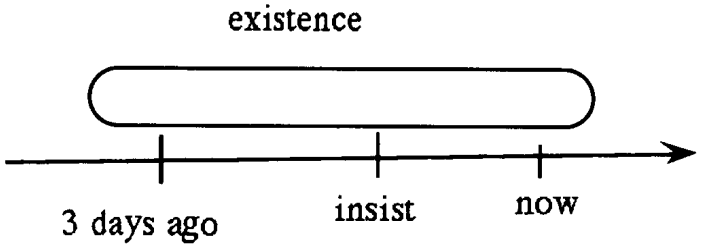
The triple-access reading is available only in Japanese. We repeat the example (9c), which demonstrates the triple-access reading.

(16) Triple Access

John-ga [mikka mae-kara koko-ni kono isu-ga at-ta to]
-nom 3 days-since here-at this chair-nom be-pst that

shuchooshi-ta (koto)
insist-pst fact

'John insisted that this chair had been here since three days ago (and that it is still here now).'



Triple-access interpretation is a combination of independent reading and past-double access, which in turn is a combination of past-shifted and simultaneous. The mechanism is as follows. At LF, the embedded-clause CP (the bracketed portion in (16)) undergoes QR and adjoins to the matrix-clause TP. The expression atta involves the perfective ta, the aspect of which is perfective but the tense is present. This present tense drives QR. The reference time ZP-r is free in the matrix TP-adjoined position, hence the independent part of the triple-access read-

ing. The copy of the complement CP left in the embedded clause is also calculated. The embedded-clause ZP operator is checked for its distinct features at two positions: the stage-level temporal feature at the embedded-clause ZP-ev Spec (past-shifted) and the individual-level temporal feature at the embedded-clause TP Spec (simultaneous). C_{HL} integrates these processes and yields the triple-access reading as an output.

5. Concluding Remarks

We set three questions in (12), which are repeated below.

(17) a. Why does English exhibit a marked past-shift reading, whereas the same reading is unmarked in Japanese?

b. With the lower-clause past, why does Japanese lack the pure simultaneous, but English allow it ? With the lower-clause nonpast, why does Japanese obtain the simultaneous while English loses it ?

c. Why does English lack the past-double-access and the triple-access with the lower-clause past, while the asymmetry disappears when the lower-clause contains nonpast?

The following is a summary of our solutions.

(18)

For (12a): In English, Spec-Head agreement involves the subject DP. When Spec-Head agreement takes place, it forms ZP-ev Spec (analogous to AGR Spec) and closes off Z-ev projection. The embedded-clause V raises to Z-ev to check its stage-level temporal feature. No further

V-movement is allowed. ZP operator must also check its feature. But the only place left for it to somehow check its feature is ZP-ev Spec, because the V-movement termination has failed to extend the minimal domain (or the target positions for temporal argument movement) of the chain. As a last resort, the ZP operator adjoins to the subject and coerces non-optimal 2-to-1 Spec-Head agreement. This coerced non-optimal 2-to-1 Spec-Head agreement accounts for the markedness of the past-shifted reading in English. In Japanese, the subject only adjoins to Z'-ev and does not establish Spec-Head agreement. Therefore, only ZP operator enters into the optimal 1-to-1 Spec-Head agreement with Z-ev head. Hence, the lack of such markedness of the past-shifted reading in Japanese.

For (12b): In English, the complement CP with the present tense morphology must involve QR. Therefore, it necessarily becomes double-access, which contains the denotation of the utterance time. In Japanese, the embedded-clause complement CP with nonpast tense allows the option of not choosing QR. We may hypothesize that English and Japanese are parametrized differently with respect to the relation between the present tense morphology and existential quantification.

Present Tense Morphology		
	Japanese	English
∀	ON	ON
∃	ON	OFF

Figure 10.

When QR does not apply, the pure simultaneous reading is realized. When QR applies, the double access reading is available.

For (12c): In English, the subject in ZP-ev Spec closes off the Z-ev projection. ZP-ev Spec being unavailable for ZP-operator checking, the ZP operator must raise to TP Spec. Hence, only results the simultaneous reading. In Japanese, since both ZP-ev Spec and TP Spec are available for ZP-operator checking, the stage-level feature is checked in the former position and the individual-level feature is checked in the latter. No QR is involved (the past-double-access). When QR applies at LF, the triple-access (a combination of independent reading and past-double-access) is induced. English lacks past-double access to begin with, so triple access does not exist.

Next, let us list the advantages of the ZP-movement approach.

(19)

a. The markedness contrast of past-shifted readings in Japanese and English is accounted for in connection with the distinct syntactic behavior of subject DPs in these languages.
b. The relevance of stativity of embedded V can be explained by employing the stage/individual-level distinction.
c. The approach can account for the distribution of past-double-access and triple-access in Japanese.

The following are the remaining problems.

(20)

a. Is it true that barrierhood is involved in Control ?

b. English present morphology does not allow the existential quantification, but Japanese does. Is it really a difference in parameter setting ?

c. Is the stage/individual-level distinction related to be real ?

d. The approach could accept QR as a syntactic operation Move. Does it mean that the theory needs QR ?

Notes

1) I am indebted to the two anonymous reviewers of the Journal of Japanese Linguistics (Keioo University, Tokyo), Mamoru Saito (Nanzan University, Nagoya), and Nanako Machida (Nanzan University, Nagoya) for their comments on the earlier versions, which have been drastically modified to acoommodate their insightful criticism. I alone am responsible for any errors.

2) $\|\alpha\|$ represents the denotation of α.

3) Ogihara (1995) reports that the past-shifted reading is difficult for some native speakers of English unless the sentence has assisting adverbials such as the day before.

4) See Pollock (1989) for splitting Infl into T, AGR, NEG, and other possible functional heads. Stowell argues that primary semantic function of T is to relate the denotation of the internal argument of TP (ZP-ev) to the denotation of the external argument of TP (ZP-r). For example, a "true" Past Tense T shifts back the time of ZP-ev away from the time of ZP-r. The relation between ZP-ev and VP is analogous to that between DP and NP (Abney 1987, Fukui 1986, among others) or AGRP and VP. ZP-r and ZP-ev obey the general principles of the Binding Theory just like other referential DP expressions.

5) The term "reference" here is distinct from the usage in Reichenbach (1947).

6) See Miyagawa (1997) for a suggestion that Japanese AGRo may be realized as aspect-related morphologies.

7) LF consists of chains. There are three types of LF chain (see, among others, Chomsky 1981, 1991, 1993; Chomsky and Lasnik 1993).

(i) An argument chain, headed by an element in a Case-checking position and terminates with an element in a θ-marked position.

(ii) An adjunct chain, headed by and terminates with an element in a non-L-related position.

(iii) An operator-variable chain, headed by an element in a non-L-related position and terminates with an element in a Case-checking position.

These chains are called uniform chains, the only legitimate LF objects. The notion of L-relatedness is defind as follows (Chomsky 1993, Chomsky and Lasnik 1993, Mahajan 1990)

(iv) A position is *L-related* if it is in a checking configuration with a head containing a lexical feature (e.g., a V-feature); otherwise it is non-L-related.

8) The ECP (empty category principle) is decomposed as follows (Lasnik and Saito 1984; Lasnik and Saito 1992).

(i) a. $t \rightarrow [+\gamma]$ when properly governed.

$t \rightarrow [-\gamma]$ otherwise.

b. *...t...

$[-\gamma]$

(ii) α *properly governs* β if

a. α binds β, and

b. β is subjacent to α.

(iii) β is *subjacent* to α if for every γ, γ a barrier for β, the maximal projection immediately dominating γ dominates α.

9) γ is a *barrier* for β if

a. γ is a maximal projection,

b. γ is not an A-bar binder,

c. γ is not L-marked, and

d. γ dominates β.　　(Lasnik and Saito 1992; 106)

10) The Binding Apporoach employs the strong crossover (SCO) effect to exclude the simultaneous reading with an eventive verb in the embedded clause. An operator in a stative VP raises to form ZP-ev Spec and functions as a stative/generic/habitual operator. The matrix Op-ev binds the matrix t. This t binds the lower Op-ev, which has the control properties of PRO, analogous to a null operator in a Tough-movement construction. The lower Op-ev binds the lower t. However, an operator in an eventive VP does not raise to form ZP-ev Spec. If we force the simultaneous construal, the matrix Op-ev binds the matrix t and Op-ev in a non-operator position. Since the matrix ZP variable t locally binds another variable Op-ev within the VP, it gives rise to SCO effect.

In the Definite Z Approach, Z-ev taking an eventive VP complement is assumed to be either definite or indefinite, and Z-ev merging with a stative VP is usually definite. A definite Z-ev projects a definite ZP-ev, the denotation of which must refer to the denotation previously introduced. Thus, the lower ZP-ev with the stative internal VP complement must refer to the denotation of the lower ZP-r.

These two approaches aim to incorporate the stative/eventive distinction that affects the simultaneous construal possibility.

11) The embedded clauses in the following examples have the formulas as follows.

(i) John said [that Mary is stick]

$\forall x$ (x=time $\rightarrow$ S (m) at x)

(ii) John said [that Mary was sick]

$\exists x$ (x=time & S (m) at x)

The universal quantification is involved in (i), and the existential

quantification is involved in (ii). QR of CP in (i) not (ii) is supported by the Mapping Hypothesis, i.e., a universally-quantified element is mapped into VP-external domain, whereas an existentially-quantified element is mapped into VP-internal domain (Diesing 1992).

12) The Binding Approach and the Definite Z Approach face the following questions.

Questions Regarding the Use of the Binding Approach

(i) Why does eventive verbs lack any operator in ZP-ev Spec ?

(ii) How does the approach account for the "past-double access" ?

Questions Regarding the Use of the Definite Z Approach

(iii) The approach leads to a wrong prediction; if ZP-ev taking an eventive VP is either definite or indefinite, the simultaneous reading could arise with eventive verbs. This is empirically incorrect: the simultaneous construal cannot take place with eventive verbs.

(iv) Even if the approach argued for the reverse, i.e., Z-ev is either definite or indefinite with a stative VP, a question remains as to why this is so.

(v) How does the approach explain the "past-dual access" ? Can Z-ev be definite and indefinite at the same time ?

13) The temporal morpheme ta is glossed as pst. It does not convey any particular theoretical distinction between perfective ta and past ta.

14) We are indebted to Teramura (1971/1984, 329–330) for the two types of temporal moepheme ta. The gloss contains koto 'fact' at the end of the sentence to avoid the unnaturalness due to the lack of the topic marker at the matrix level. The following examples provide evidence that lower clauses in these examples are not direct quotations

(ytday=yesterday).

(i) John-wa "boku-no kono isu-wa zettai kinoo-kara koko-ni ato-ta yo"
-top I-of this chair-top sure ytday-from here-at be-pst

to ita-ta
that say-pst

'John said, "I swear to God my chair had been here since yesterday and it is still here. "

(ii) John-wa kare-no sono isu-ga mae-no hi-kara soko-ni at-ta
-top he-of that chair-nom previous-of day-from there-at be-pst

to shuchooshi-ta
that insist-pst

'John insisted that his chair had been there since the day before (and that it is still there now).'

The deictic expressions in a direct quote in (i) such as boku "I", koko "here", and kinoo "yesterday"are changed to non-deictic expressions in an indirect quote in (ii). (ii) allows the multiple access construal.

15) The NPI test is not applicable to relative clause CP. In English, the independent construal is possible only when the complex DP is read as de re (Abusch 1988).

(i) John saw [$_{DP}$ a man who was crying] .

The independent reading of (i) is possible only when the speaker has a specific person in his mind. The de re reading forces QR of the complex DP. Japanese exhibits the same effect: otoko 'man' must be specific with the independent reading.

(ii) John-ga naite-ta otoko-o mi-ta (koto)
-nom crying-pst man-acc see-pst fact

'John saw a man who was crying.'

16) We propose that NPI-licensing involves γ-marking (Lasnik and Saito 1992). In overt syntax (=pre-Spell Out stage), once NPI is γ-marked, the marking is retained at LF and the NPI is free to move.

17) V-raising observes the head movement constraint (HMC), i.e., X^0 raises to Y^0 that properly governs X^0 (Travis 1984), where the proper government is defined as an antecedent government (Lasnik and Saito 1992).

18) A stage-level be is a lexical V. Assume T to be morphologically poor universally, namely, T is opaque for θ-role transmission. A stage-level be, being a lexical V with θ-roles to discharge, cannot adjoin to T. An individual-level be, on the other hand, is an auxiliary like have, which does not have any θ-roles to discharge, can move and adjoin to T. See Pollock (1989) and Chomsky (1989) for French-English contrast with respect to V-movement. We also propose that these semantic features are [-interpretable] like Case features; these are different from ϕ-features (number, person, gender) in that their interpretations are not inherently specified. It follows that these semantic features are checked and erased.

19) TP may be an internal argument of AGRs (subject agreement phrase). In this case, the subject DP further raises AGRsP Spec and it leaves its copy in ZP-ev Spec.

20) Last Resort is defined in Chomsky (1995; 280) as follows.

(i) Move F raises F to target K only if F enters into a checking relation with a sublabel of K.

F is a feature of an element that moves, K is the landing site, and a sublabel is a feature of the landing site. In our context, there is a feature of V (stage-level in nature) that must be checked only at Z-ev when the past-shifted reading is forced.

21) The domain of a chain CH=(α_1, ..., α_n), D (CH), is the set of nodes contained in MAX (α_1) and not containing any α_i. X contains Y if some segment of X dominates Y. The minimal domain of CH MD (CH) is the smallest subset of D (CH) such that no member of MD (CH) is dominated by a member of D (CH), namely, the highest categories. If X and Y are in the same minimal domain, they are equidistant from Z (Chomsky 1992).

22) MLC requires movement to proceed through every possible landing site (Chomsky and Lasnik 1993).

23) The matrix Op is exempted from such restriction.

24) But see Koizumi (1995) and Miyagawa (1997) among many others for AGR-based approach for Japanese.

25) Movement of α to form XP Spec is an sdjunction of α to X', followed by Spec-Head agreement between α and X, and X' closes off as X^{max}", a maximal projection (Saito and Fukui 1996).

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Tense, Subject, and Derivation

Koji Arikawa

The central issue of this study is the semantics and the syntax of temporal interpretations of the clausal complement of a verb. Based mainly on English examples, theories of tense hitherto have distinguished three types of the complement-clause-tense interpretation: simultaneous, past-shifted, and double-access. In the simultaneous construal, the denotation of embedded clause tense (‖Te‖) overlaps with the denotation of matrix clause tense (‖Tm‖). In past-shifted, ‖Te‖ precedes ‖Tm‖. In double-access, ‖Te‖ overlaps with both ‖Tm‖ and the utterance time (‖UT‖).

A consideration of Japanese examples adds two more: past-double-access and triple-access. Past-double-access is a combination of simultaneous and past-shifted, i.e. ‖Te‖ includes both ‖Tm‖ and some prior time (‖PT‖). Triple-access is a combination of past-shifted and double-access, i.e. ‖Te‖ includes ‖PT‖, ‖Tm‖, and ‖UT‖.

This article will attempt to answer the following questions: (i) Why is past-shifted more marked than simultaneous in English ?; (ii) Why is past-shifted natural in Japanese ?; (iii) How are the multiple-accesses explained ?; (iv) Why does English lack past-double access and triple-access ?; (v) Why is simultaneous possible in Japanese only when

the embedded clause tense is nonpast ?; and (vi) Why does stativity matter with simultaneous and multiple-accesses in both languages ?

We adopt a hypothesis in which temporal-argument phrases of the functional category T^0 interact with various principles and constraints of the generative grammar that have been found to motivate independent phenomena other than tense. [Areas of interest: semantics, syntax]