ENGLISH TOUGH SENTENCE ANALYSIS OF JAPANESE
‘INTRANSITIVIZED’ VERBAL GERUND + AR (‘BE’) SENTENCES

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The current paper proposes an analysis similar to Chomsky’s (1981:308) analysis of the English tough sentence for analyzing intransitivized verbal gerund + ar (‘be’) sentences in Japanese. It will be shown that Matsumoto’s 1990 Argument Sharing Analysis is not adequate enough to explain the fact that it is impossible to wh-extract an adverbal adjunct to the verbal gerund over the matrix verb ar (‘be’) for forming a relative clause. The proposed analysis, together with i) ECP in Lasnik & Saito 1992 and Chomsky 1986, and ii) an Empty Operator Analysis of Japanese relative clauses, explains the wh-extraction phenomenon. The proposed analysis predicts an unbounded dependency phenomenon, as in the English counterpart John is easy to forget to ... forget to please with an unbounded recursion of forget to.

0. Introduction

Japanese has ‘intransitivized’ verbal gerund + ar (‘be’) sentences, as in (1), where yob ite phonetically realizes as yonde.

(1) danseekyaku ga paatii ni yob ite ar u.
   male guest-NOM party-to invite-GER be-NONPERF
   ‘Male guests have been invited to the party.’
   Lit., ‘Male guests are in the state of someone having invited them to the party.’

The verb yob (‘invite’) in (1) is a transitive verb, which subcategorizes for an accusative-marked NP, as shown in (2).

(2) mearii ga danseekyaku o paatii ni yob u.
   Mary-NOM male guest-ACC party-to invite-NONPERF
   ‘Mary invites male guests to the party.’

On the other hand, if the transitive verb yob (‘invite’) combines with -ite (GERUND-MARKER) + ar (‘be’), then the NP-o of the verb yob (‘invite’) is not expressed, as in sentence (1). The ungrammaticality of example (3) with the intended meaning that male guests have been invited to the party shows that the NP-o of the ite-marked V in the ‘intransitivized’ -ite ar sentence, here yob (‘invite’), as in (1), must not be expressed in the sentence.
Example (3) also shows that there is no pro of NP-o in (1). Note that the nominative-marked NP in the ‘intransitivized’ verbal gerund + ar (‘be’) sentence, e.g., *danseekyaku (‘male guest’), is understood as coreferential with the unexpressed NP-o of the ite-marked V, yob (‘invite’) in (1), in terms of interpretation.

1. Argument sharing analysis by Matsumoto 1990

1.1 The argument structure of the ar (‘be’)

Matsumoto 1990 proposes that the verb ar of the ‘intransitivized’ -ite ar sentence has two arguments, theme and state, as represented in (4).

\[ \text{ar (‘be’)} \langle \text{theme, state} \rangle \]

The (GER)-marked VP realizes the state argument of ar (‘be’). For example, VP paatii ni yob (‘party to invite’) realizes the state argument in (1). The ga-marked NP realizes the theme argument; e.g., in (1), danseekyaku (‘male guest’) realizes the theme argument. As entailed by Matsumoto’s 1990 analysis, it will be argued later that the ite (GER)-marked VP is not an adjunct.

1.2. Argument sharing between the Ite (GER)-marked V and the ar (‘be’)

Then, Matsumoto 1990 proposes:
1) the ite-marked V has an argument structure that contains a patient argument,
2) the theme argument of matrix V ar (‘be’ is shared with the patient argument of the ite-marked V, and
3) the association of ‘subjecthood’ in a sentence as a whole to an argument of the secondary predicate (e.g., yob (‘invite’) in sentence (1)) is prohibited in the presence of an argument of a primary predicate (e.g., ar (‘be’) in (1)) that is associated with ‘subject.’

Thus, for example, the argument structures of ar (‘be’) and yob (‘invite’) in example (1) can be represented in (5).

\[ \text{aru} \langle \text{theme, state} \rangle \]
\[ \quad \text{yob} \langle \text{agent, locative, patient} \rangle \]

The agent argument of the ite-marked V is implicit, by the clause for the association of subjecthood. The theme argument of ar (‘be’) and the patient argument of the ite-marked V are associated. If my understanding is correct, Matsumoto 1990 assumes that since the theme argument of matrix V ar (‘be’ is shared with the patient argument of the ite-marked V, the ga-marked NP realizes both of the theme and patient arguments. Thus, no NP-o is expressed to realize the patient argument. This explains, e.g., the fact in example (1) that the ga-marked NP danseekyaku is understood as coreferential with the unexpressed NP-o of verb yob (‘invite’), in terms of interpretation, and that the NP-o must not be expressed.
2. Problems and an argument for Matsumoto 1990

2.1 An argument for the *ite*-marked phrase as a complement

It will be argued in this section in favor that the *ite*-marked phrase of the -*ite ar\ sentence in question is NOT an adjunct, but a complement.\(^5\)

Native speakers find that sentence (6) does not entail sentence (7), while sentence (8) entails sentence (9).

(6) sake ga nomihos ite ar u.\(^6\)
    *rice wine-NOM drink up-GER be-NONPERF*
    ‘The rice wine has been drunk up.’

(7) sake ga ar u.
    *rice wine-NOM be-NONPERF*
    ‘There is rice wine.’

If the rice wine has been drunk up, the rice wine is no more there. Thus, sentence (6) does not entail sentence (7).

(8) sake ga atatamerar ete tukue no ue ni
    *rice wine-NOM be made hot-GER desk-GEN-top-LOC-
    be- NONPERF*
    ‘The rice wine is on the desk, having been made hot.’

(9) sake ga tukue no ue ni ar u.
    *rice wine-NOM desk-GEN-top-LOC be-NONPERF*
    ‘There is rice wine on the desk.’

If there is rice wine on the desk, having been made hot, then it is necessarily the case that there is rice wine on the desk. Thus, sentence (8) entails sentence (9).

Suppose that the *ite*-marked phrase of the ‘intransitivized’ -*ite ar\ sentence, as in example (6) and example (1), is not an adjunct, but a complement. Suppose further that such an *ite*-marked phrase as in example (8) is analyzed as an adjunct.\(^7\) (Sentence (8) does not have the properties of the ‘intransitivized’ -*ite ar\ sentence that were given in the introduction of this paper). These two assumptions explain the contrast between the non-entailment from (6) to (7) and the entailment from (8) to (9) in the following way.\(^8\) Since the *ite*-marked phrase in example (6) and example (1) is a complement, sentence (6) does not entail sentence (7), which does not have the *ite*-marked phrase.\(^9\) Every constituent of NP-ga, *ite*-marked VP, and *ar* (‘be’) in sentence (6) and sentence (1) is a necessary part for the sentence to describe an event. Since the *ite*-marked phrase in (8) is an adjunct to matrix verb phrase *tsukue no ue ni ar* (‘be on the desk’), sentence (8) entails sentence (9), which does not have the *ite*-marked phrase. The *ite*-marked VP in (8) describes an event which the event described by the sentence without the *ite*-marked VP co-occurs with. Thus, the contrast between those entailments supports that the *ite*-marked phrase in the ‘intransitivized’ *ite ar\ sentence is a complement, i.e., is not an adjunct. In other words, the content of the *ite*-marked
phrase in the ‘intransitivized’ *ite ar sentence is an argument, as entailed by Matsumoto’s 1990 analysis.

2.2. Problems for Matsumoto’s 1990 analysis

There are phenomena that Matsumoto’s 1990 Argument Sharing Analysis cannot make correct predictions of. For example, in a noun phrase, a head noun with a relative clause cannot be understood as an adverbial adjunct to the *ite-marked VP in the ‘intransitivized’ *ite ar sentence.10 Noun phrase (10), where kaw *ite phonetically realizes as katte and ar ita phonetically realizes as atta, which has a relative clause adjoined, cannot be understood as meaning (11).

(10) [RC pan ga kaw ite ar ita] panya, (a noun phrase)

bread-NOM buy-GER be-PERF bakery

(11) *[RC pan ga [VP t, [VP kaw]] ite ar ita] panya,11

bread-NOM buy-GER be-PERF bakery

Lit., (Intended Meaning) ‘the bakery, where someone bought bread at the store, and he or she keeps the bread, e.g., at home, for a future use.

Rather, the head noun is understood as an adverbial adjunct to the MATRIX VP that contains ar, as shown by (12).

(12) [RC pan ga [VP t, [VP kaw ite ar]] ita] panya,

bread-NOM buy-GER be-PERF bakery

‘the bakery, where bread was at there, after it had been bought at some other store’

Nothing in Matsumoto 1990 prevents the noun phrase (10) from being understood as (11). According to Matsumoto 1990, the argument structure of the relative clause in (10) is represented as below.

(13) ar <THEME, STATE>

kaw <(AGENT), (PATIENT)>

As Matsumoto 1990 argues, an adverbial adjunct can adjoin to the *ite-marked phrase in the sentence, which realizes the STATE argument of the ar (‘be’), as in (14).

(14) pan ga sono panya de kaw ite ar ita.

bread-NOM that bakery-LOC buy-GER be-PERF

‘Bread had been bought at that bakery, and was, e.g., AT THE SPEAKER’S HOUSE.’

The adverbial adjunct *ono panya de (‘at that bakery’) does not adjoin to the matrix verb ar (‘be’), but adjoins to the *ite-marked VP, as given in (14). The location where the bread was at last is the speaker’s house, which may be different from that bakery.

Then, the head noun in the noun phrase (10) should be able to be understood as meaning that it is adjoined to the *ite-marked phrase in the
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‘intransitivized’ -ite ar sentence, as in other sentences containing a complex predicate. For example, noun phrase (15), where kaw ite phonetically realizes as katte and moraw ita phonetically realizes as moratta, contains V-ite moraw (‘receive’) in place of the V-ite ar (‘be’).

(15) [RC zyon ga mama ni pan o kaw ite moraw ita] 
   John-NOM mom-DAT bread-ACC buy-GER receive-PERF 
   bakery 
   ‘the bakery where John received from his mother the favor of buying bread

In (15), the head noun panya (‘bakery’) is understood as the adjunct to the ite-marked phrase, as represented in (16).

(16) [RC zyon ga mama ni [VP de pan o kaw]] ite moraw ita] panya_i 

It is also the case that the PP adjunct is adjoined to the ite-marked V in the base-generated position, as shown in (17), where kaw ite phonetically realizes as katte and moraw ita as moratta as in the previous example.

(17) zyon ga mama ni sono panya de pan o kaw ite moraw ita. 
   that-bakery-LOC 
   ‘John received from his mother the favor of buying bread at that bakery.’

The contrast between the ungrammaticality of (11) and the grammaticality of (16) shows that the ‘intransitivizing’ -ite ar (‘be’) sentence is different from the typical complex predicate sentences in Japanese, e.g., the V-ite moraw (‘V-GER receive’) sentence as in (15). Matsumoto’s 1990 Argument Sharing Analysis is thus not adequate to explain the ungrammaticality of (11).

2.3 A clarification of example (11) with an analysis of Japanese relative clauses

An analysis of relative clauses clarifies the contrast between example (11) and example (16). Noun phrase (18) in English contains a relative clause counterpart of sentence (19).

(18) the man (whom) John invited (a noun phrase)
(19) John invited the man.

The noun with such a relative clause as (18) is analyzed as in (20) in English (Chomsky 1993:529).

(20) the man, [CP {whom, Op}, [VP John invited τ_j]]

Whom or an empty operator Op moves to the [Spec, CP] from the base-generated position, in this case, from the object position of V invite. The operator at the head of the CP triggers the movement of the empty operator, by the SPEC-head relationship. The N, in this case, man, obligatorily controls the wh-phrase or the empty operator at the [Spec, CP].
I assume that Japanese relative clause is analyzed the same way as in English. Noun phrase (21) contains a relative-clause counterpart of sentence (22).

(21) *zyon ga yob u otoko* (a noun phrase)  
    John-NOM invite-NONPERF man  
    ‘the man John invites’  

(22) *zyon ga otoko o yob u.*  
    John-NOM man-ACC invite-NONPERF  
    ‘John invites a man.’

Since Japanese is a head-final language, the head noun is final in the noun phrase, as shown in (21). Noun phrase (21) is analyzed as in (23).

(23) \[ [\text{CP } Op_i [\text{IP } zyon ga t_i (-o) yob u]] \] otoko \_i  

The empty operator moves to [Spec, CP] from the base-generated position, in this case from the object position, triggered by [+ Operator] as C. The head noun obligatorily controls the empty operator, as coindexed.

The Empty-Operator-Movement analysis of a relative clause is independently motivated, for example, to explain the unbounded dependency between a head N’ and a relative clause in Japanese. For example, a noun phrase (24), where *omow ita* phonetically realizes as *omotta*, is analyzed as in (25).

(24) *zyon ga yob u to mearii ga omow ita otoko* (a noun phrase)  
    John-NOM invite-NONPERF-COMP Mary-NOM think-PERF man  
    ‘the man Mary thought John would invite.’

It is assumed that [Spec, CP] with the head *to* (‘that’) is available for an empty operator or wh-phrase to move through (Chomksy 1986; Lasnik & Saito 1992). Then, the empty operator, base-generated at the object position of verb *yob* (‘invite’), moves through the [Spec, CP] of the head *to* (‘that’) to the [Spec, CP] of the head [+ Operator] (for a relative clause formation). (As will be discussed later, the ECP (Empty Category Principle) for the trace is satisfied because the trace is theta-governed by verb *yob* (‘invite’). The trace is also antecedent-governed, as will be seen later.) It is possible to multiply the boldfaced configuration in the tree diagram arbitrarily, with a [Spec, CP] for each configuration of NP-*ga to omow* (‘NP-NOM COMP-think’) and the same number of [Spec, CP]s. All the [Spec, CP]s are occupied by the intermediate traces, which are antecedent-governed. Thus, the unboundedness phenomenon is explained.
The analysis of relative clauses as above may clarify the contrast between example (11) and example (16), to some extent, in the following way. In (11) (= (26)), the matrix verb is the ar (‘be’). As discussed, there must be no implicit accusative NP in the te arita clause in (26), and the sentence is understood as if the nominative NP is co-referential with the unexpressed NP-o, as coindexed with k.

(26) *[\_CP O_p [\_pan_k ga [\_VP t_i [\_VP \#_k kaw]] ite ar ital]] panya

The relationship between the relative clause operator Op_i and the adjunct trace t_i is intervened by the co-index relationship between the nominative NP and the unexpressed accusative NP. On the other hand, in (16) (= (27)), the matrix verb is the moraw (‘receive’), by which the NP-o pan o (or maybe as a pro of NP-o) is expressed in the clausal complement.
The relationship between the relative clause operator Op, and the adjunct trace ti is intervened by no co-index relationship such as in (26). The details, i.e., the prediction of the proposal together with this analysis of relative clauses, will be given in the next section.

3. A proposal

My proposal is that the Japanese ‘intransitivized’ verbal gerund + ar (‘be’) sentence is analyzed as similar to that of the tough construction in English by the first suggestion in Chomsky (1981:308).12

Chomsky (1981:308) analyzes the complex-adjectival sentence (or the tough sentence), such as sentence (28), as in (29).

(28) John is easy to please.

(29) Johnk is easy \[[_{cp} Opk [_{lp} PROarb to \[_{vp} please tk]]\]

The empty operator moves from the object position of the embedded V to the \[Spec, CP\] in the clausal complement.13 The matrix subject obligatorily controls the empty operator, as coindexed. The adjective easy subcategorizes for a CP complement with the following properties:
a) The head of CP is the null [+ Operator],
b) The head of INFL in the CP is infinitive, i.e., to,
c) An empty operator is at \[NP, V’\] of the CP, and
d) PROarb is located at the \[NP, IP\] of the CP.
(It is not clear how Chomsky (1981; 1993:21) treats the subject, and the copula in (29).)

I propose that the ‘intransitivized’ -ite ar sentence (1), repeated here as (30), is analyzed as in tree diagram (31), similar to Chomsky’s 1981 tough analysis.

An empty operator is base-generated at the object position (i.e., \[NP, V’\]) of the i-te-marked verb, in this case, yob (‘invite’),14 leaving a trace co-indexed, and then moves to the embedded \[Spec, CP\] position.15 The NP at the matrix \[Spec, IP\] obligatorily controls the empty operator at the embedded \[Spec, CP\]. NP dan-sei-kyaku (‘male guests’) is base-generated at \[Spec, IP\], and the NP-ga is a complement of the ar (‘be’).16 In other words, the ar (‘be’) subcategorizes for NP, and CP with the following properties:

(30) danseekyaku ga paatii ni yob ite ar u.

‘Male guests have been invited to the party.’
a) The head of the CP of the CP complement is the null [+ Operator],
b) The head of INFL in the CP complement is infinitive, i.e., -ite (GERUND MARKER) in Japanese,
c) An empty operator is base-generated at [NP, V'] of the CP complement, and
d) PRO_{arb} is located at the [NP, IP] of the CP complement.

Property c) presupposes that the ite-marked V is a transitive verb. Clause c) will be revised in the next section, as a new fact is provided. I_{0} is -ite, which makes the preceding V a gerund.\(^{17}\) PRO_{arb} at the [NP, IP] of the embedded clause is interpreted as someone, as in Inoue (1976).

4. Predictions

For example, the proposed analysis makes several predictions, as follows.

4.1 Of the contrast between examples (11) (= (26)) and (16) (= (27))

I will examine how the proposed analysis together with the empty category principle (ECP) explains the contrast between example (11) (= (26)) and example (16) (= (27)).
An explanation of the ECP (Empty Category Principle) in Lasnik and Saito 1992 and Chomsky 1986\textsuperscript{18} is in order before the examination. A trace, i.e., an invisible syntactic form in a governed position with its semantic correlate existent, e.g., the trace \( t_i \) in *Who*, [does John love \( t_i \) ?], *John* seems [\( t_i \), to go], must \textbf{either} (i) be in a certain position \textbf{or} (ii) have a relationship with some other co-indexed form in a certain position, as below from Chomsky (1986:88).

\begin{enumerate}
\item[(32a)] The ECP\textsuperscript{19} requires that trace be PROPERLY governed — that is, not only governed but also antecedent-governed or, perhaps, theta-governed.’
\end{enumerate}

This ensures that an adjunct trace as well as intermediate traces must be antecedent-governed, in addition to being governed.

\begin{enumerate}
\item[(32b)] A head \( \alpha \) theta-governs its complements, which it theta-marks; if lexical, \( \alpha \) L-marks its complements [and their heads].’ [Brackets are mine]
\end{enumerate}

If Infl is assumed to be not lexical, then VP is not L-marked, as in Chomsky 1986. If Infl is assumed to be lexical, then VP is L-marked, since VP is theta-marked as required by the grammaticality of [fix the car], I wonder whether he will \( t_i \).\textsuperscript{20}

Since all the discussions in this paper do not differ with regard to either of the assumptions, I will assume the latter one, which is simpler.

\begin{enumerate}
\item[(32c)] \( \alpha \) governs \( \beta \) if \( \alpha \) m-commands \( \beta \) and no barriers for \( \beta \) exclude \( \alpha \).’
\end{enumerate}

\begin{enumerate}
\item[(32d)] Barriers are determined in two ways: (i) on the basis of L-marking, and (ii) by the Minimality Condition.’ ‘Under (i), an \( X^{\text{max}} \gamma \) is a barrier by inheritance or inherently. \( \gamma \) is a barrier by inheritance if the \( X^{\text{max}} \) it most closely dominates is a blocking category (BC); it is a barrier inherently if it is a BC itself. An \( X^{\text{max}} \) is a BC [for \( \beta \)] if it is not L-marked [and \( X^{\text{max}} \) dominates \( \beta \)]. Under (ii), a category \( \gamma \) is a barrier for \( \beta \) if it is \textbf{the immediate projection (alternatively, a projection)} of a zero-level category \( \delta \neq \beta \). In either case \( \beta \) is not governed by \( \alpha \) if \( \alpha \) is excluded by a barrier for \( \beta \). The I-projection system is ‘defective’ in that \( \text{l'} \) and IP are barriers only by inheritance (so that, in particular, IP is not a barrier for antecedent government and \( \text{l'} \) is excluded from the Minimality Condition).’ [Bold and bracket are mine]
\end{enumerate}

Note that, as given, VP is not a barrier on the above assumption that is used within this paper. For the bolded part, I use ‘a projection’ since all the discussions in this paper do not rely on either of these assumptions. I changed the sentence without brackets in Chomsky (1986; 88) to the sentence above, i.e., \textit{An} \( X^{\text{max}} \) \textit{is a BC [for} \( \beta \text{]} \text{if it is not L-marked} \text{[and} X^{\text{max}} \text{dominates} \beta \text{]}, following Chomsky's} (1986:14) \textit{formulation of his (25)}.

What follows are two illustrative contrasts that the ECP can make correct predictions of. The contrast between example (33) and example (35) is explained by the ECP in the following way. Example (33) is analyzed as in (34).

\begin{enumerate}
\item[(33)] How, did John want to [fix the car \( t_i \)]? (Chomsky 1986)
\item[(34)] How, did John want \( [\text{cp} t_i \text{'}, [\text{to [fix the car} t_i \text{]}]] \)?
\end{enumerate}
The initial adjunct trace $t_i$ is antecedent-governed by the intermediate trace $t'_i$, and so properly governed.\textsuperscript{21} The intermediate trace $t'_i$ is antecedent-governed by the \textit{wh}-phrase \textit{how}, and so properly governed. Note that the embedded CP cannot be a barrier for \textit{how} to antecedent-govern the intermediate trace since the IP that it immediately dominates is not a blocking category for the intermediate trace. This is because the IP does not dominate the intermediate trace. Note also that the \textit{wh}-phrase does not antecedent-govern the intermediate trace, as in \textit{how did you fix the car} in Chomsky (1986:19). This is because the matrix CP is not a barrier for the \textit{wh}-phrase to antecedent-govern the intermediate trace. The matrix CP is not excluded by the \textit{wh}-phrase, by (32d). On the other hand, example (35) violates the ECP. Example (35) is analyzed as in (36).

(35) *How, did John know which \textit{car}$_m$ to [[fix $t_m$] $t_i$] (Chomsky 1986:11)

(36) *How, did John know which \textit{car}$_m$ to [[fix $t_m$] $t_i$]

The adjunct trace $t_i$ is not properly governed. It is not theta-governed since it is an adjunct. It is not antecedent-governed, either. In this case, the embedded CP is a barrier for the trace since the CP receives its barrierhood from the IP that it immediately dominates. The IP here is a blocking category since it is not L-marked. If \textit{which} \textit{car} did not occupy the [Spec, CP] in the embedded clause, then an intermediate trace as $t'_i$, being there, could antecedent-govern the trace $t_i$. Actually, \textit{which} \textit{car} occupies the [Spec, CP] in the embedded clause.\textsuperscript{22} Similarly, the contrast between example (37) and example (39) is explained by the ECP in the following way. Example (37) satisfies the ECP. Example (37) is analyzed as (38).

(37) Why, do you think that John [left $t_i$]? (Lasnik & Saito 1992:29)

(38) Why, do you think [CP $t'_i$ that [John [left $t_i$]]]?

The initial trace is antecedent-governed by the intermediate trace. The intermediate trace is also antecedent-governed by \textit{why}. Example (39) violates the ECP. Example (39) is analyzed as (40).

(39) *How did Bill wonder who wanted to [fix the car $t$]?

(40) *How, did Bill wonder [CP who wanted [$t'_i$ to [fix the car $t_i$]]]?

The intermediate trace $t'_i$ is not properly governed. It is not theta-governed since it is an adjunct. The intermediate trace $t'_i$ is not antecedent-governed, either. The embedded CP that immediately dominates the IP is a barrier for the \textit{wh}-phrase \textit{how} to antecedent-govern the intermediate trace. If the [Spec, CP] in the embedded clause is not occupied by a \textit{wh}-phrase, \textit{who} in this case, another intermediate trace $t''_i$, being there, could antecedent-govern the intermediate trace $t'_i$, with itself antecedent-governed by \textit{how}.

Given the ECP, the contrast between example (11) (= (26)) and example (16) (= (27)) is explained in the following way.

**Of Example (11) (= (26)):**

Example (11) violates the ECP. The operator of the intransitivized \textit{te aru} sentence within the relative clause prevents the relative clause operator from antecedent-
governing its adjunct trace. See the tree diagram (41). The adjunct trace of the empty operator for the relative clause in the embedded clause, i.e., $t_p$, does not satisfy the ECP. The adjunct trace is not properly governed. It is not theta-governed since it is an adjunct. It is not antecedent-governed since the embedded CP, which is bold-faced, is a barrier for the operator $Op_k$ to antecedent-govern the trace. The CP obtains the barrierhood from the IP that it immediately dominates. If the [Spec, CP] were not occupied by the operator $Op_k$, then there would be no violation of the ECP.

(41)

Of Example (16) (= (27)):

I assume that moraw (‘receive’) subcategorizes for PP[ni (‘DAT’)] and infinitive CP, and that PRO is located at the [NP, I’] in the clausal complement, obligatorily
controlled by the PP. The adjunct trace here is properly governed. See the tree diagram (42). There is an intermediate trace $t'$ at the embedded [Spec, CP]. The adjunct trace, although it is not theta-governed, is antecedent governed by the intermediate trace $t'$. The intermediate trace is also antecedent-governed by the operator. Thus, the two traces in example (16) satisfy the ECP.

(42)

See the tree diagram (42).
4.2 An unbounded-dependency phenomenon

Since it uses an empty operator movement, i.e., an instantiation of wh-movement for analyzing the ‘intransitivized’ _ite ar_ sentence, the proposed analysis predicts:25

The language should have a sentence that permits a new unbounded dependency between the empty operator at the [Spec, CP] the head of which the _ar_ (‘be’) subcategorizes for, and its trace.

This parallels the unbounded dependency, as in the bakery _WHERE I THINK MARY THINKS TOM THINKS his or her mom bought the bread at, with NP + think_ iterated. Actually, this is the case. For example, corresponding to sentence (44), where _yob _ite_ phonetically realizes as _yonde_, Japanese has such a sentence as (43), where _yob _ite_ phonetically realizes as _yonde_ and _moraw _ite_ phonetically realizes as _moratte_.

(43) danseekyaku ga (mearii ni) paatii ni yob _ite_.
    male guest- Monument _Mary_ party-Loc_ invite-GER
    moraw _ar_ u
    receive-GER be-NONPERF

Lit., ‘There are male guests that someone has received, from Mary, the favor of inviting them to the party.’

(44) _zyon_ ga (mearii ni) danseekyaku o paatii ni _yob _ite_.
    John-Nom _Mary_ male guest- Acc _party_ Loc_ invite-GER
    moraw u.
    receive-NONPERF

‘John receives the favor of inviting male guests to the party from Mary.’

Here Clause c) in the proposal given in Section 3, i.e., ‘An empty operator is base-generated at [NP, _V_] of the CP complement,’ is replaced with (45).

(45) Clause c‘) An empty operator is base-generated at [NP, _V_] of the CP complement. If infinitive clause is located at the immediate [NP, _V_] of the CP complement, then an empty operator is located at THE [NP, _V_] OF THE INFINITIVE CLAUSE. If infinitive clausal is located at the [NP, _V_] of the infinitive clause, then an empty operator is located at the [NP, _V_] of this infinitive clause. And, so on.

Given this, example (43) is analyzed as follows. See the tree diagram. (46). The _ite-marked V_ of the ‘intransitivized’ _ite ar_ sentence is a complex-predicate verb, here _moraw_ (‘receive’) and CP[_infinitei_]. Note that the CP as object here, which is the object of _moraw_ (‘receive’), is not the trace of an empty operator movement. The trace is located at the object position of the verb that is _ite-marked_ because of _moraw_ (‘receive’), i.e., the object position of verb _yob_ (‘invite’). The subject of the verb _moraw_ (‘receive’) is _PROarb_, i.e., is interpreted as _someone_. The initial trace is properly governed since it is theta-governed by the verb _yob_ (‘invite’). The operator governs the intermediate trace. Thus, the two traces sat-
isfy the ECP. The sentence means that there are male guests$_k$ that someone has received the favor of inviting them$_k$ to the party from Mary.

Then, if another occurrence of the bold-faced configuration is located in place of the BOLDFACED and UNDERLINED configuration, Japanese has such a sentence that it has two occurrences of mearii ni (‘from Mary’) and moraw (‘receive’), as below.
(47) danseekyaku ga mearii ni mearii ni paatii ni yob ite moraw ite moraw ite ar u.

The intermediate trace $t'_k$ and $t''_k$ are both antecedent-governed in the same way. In the same vein, Japanese possesses such a sentence as below.

(48) danseekyaku ga (mearii ni)$^n$ paatii ni yob ite (moraw ite)$^n$ ar u, where (mearii ni)$^n$, e.g., is the $n$-number of occurrences of mearii ni.

The intermediate traces $t'_k$... $t''_k$ are all antecedent-governed in the same way. Here mearii ni (‘by Mary’) and moraw ite (‘receive GER’) can be infinitely recursively iterated in the same number.

5. Implications

There are three implications for syntactic theories in general. First, an analysis of a sentence in a particular language can be similar to an analysis of a sentence in another language THAT HAS A DIFFERENT MEANING. The meaning of English ‘Male guests are easy to invite’ is different from that of Japanese danseekyaku ga yob ite ar u (‘Male guest have been invited’). The latter does not contain the Japanese equivalent of English easy. However, there is a similarity between their syntactic structures. They both use the empty operator movement. Next, the prediction that the analysis made for Japanese in the last section should be also found for English tough sentences as long as the analysis of English tough sentences uses an empty operator movement. Actually, this is the case, as shown below.

(49) John is easy to forget to please.

Suppose that the baby called John always looks peaceful to everyone. It is acceptable to utter the sentence in such a context as this. Or, suppose that the baby called John always looks restless. It is also acceptable to utter the sentence in such a context, too. Then, English further allows the following sentence.

(50) John is easy to forget to forget to please.

The sentence sounds odd, and is yet grammatical. 27 Thus, English allows the following sentence, abstracting away from the semantic oddness.

(51) John is easy to $\{\text{forget to}\}^n$ please, where $\{\text{forget to}\}^n$ is the concatenation of the $n$-number of occurrences of forget to, i.e., forget to forget to ... forget to with forget to iterated $n$-times.

Lastly, accordingly, such a revision as clause c’) in (45), in place of clause c) of the analysis that I proposed in Section 3, is also needed for the English tough sentence analysis if sentence (51) is grammatical in English.
NOTES

1 I wish to thank Professor Christopher Collins of Cornell University and Professor James Yoon and Professor Peter Lasersohn of the University of Illinois at Urbana-Champaign for helpful comments on various versions of this paper. I also thank Kunio Nishiyama for an informal discussion. Yet, I am responsible for any shortcomings in this paper.

2 Japanese is a pro-drop language, as shown by the contrast between (ia) and (ib). For example, if context can provide who Mary invites to the party, Japanese may allow the implicit pronominal form of NP-o, as in (ib), while pro(nominal) them must appear in English, i.e., a non pro-drop language, as shown by the contrast between (iia) and (iib).

3 Then, in GB, the implicit element must be a trace since PRO cannot be here because the position is governed by the lexical head yob (‘invite’). PRO must not be governed in GB.

4 Matsumoto 1990 proposes this as a general condition that must be satisfied in other complex predicate verbs than the ‘intransitivized’ -ite ar construction in question.

5 Inoue 1976 and Ono 1984 also agree with this point.

6 The failure of entailment from (i) to (ii) is another example.

7 See Shibatani (1978:103) for the same claim concerning the adjunct ite-phrase as in sentence (8).

8 There is another possibility. It may be assumed that the ite-phrase in the sentence in question is similar to, e.g., nearly, since sentence (i) does not entail sentence (ii).

9 Inoue 1976 proposes that matrix V ar (‘be’) subcategorizes for CP WITH UNSPECIFIED SUBJECT. Tree diagram (ii) is the D-structure of (i).
(i) gohan ga taki te ar u.
   rice-NOM boil (i.e., cook)-GER be-NONPERF
   'Rice has been cooked.'

(ii) S2
    NP
    Pred
    (te) aru (GER) ('be')

    S1
    NP
    NP
    Pred
    dareka-ga ('someone')
    gohan-o ('rice')
    tak- ('cook')

Only if the unspecified subject, realized by dareka ('someone'), is deleted, the object of the embedded V is raised and is adjoined to the matrix S, i.e., S2. The object of the embedded V eventually gets Case-marked with nominative. NP gohan ('rice') gets Case-marked with nominative, as shown in (iii).

(iii) gohan-o-ga S2
     S2
     S1
     Pred
     (te) aru
     taki-

Thus, the output gohan ga taki te ar u ('Rice has been cooked.') results. I will not discuss Inoue's 1976 analysis on this paper.

10 Another example is the unbounded dependency phenomenon given in Section 4 in this paper that Matsumoto's 1990 analysis cannot make a correct prediction of.

11 (i) is another example, where kaw ite is realized phonetically as katte.
(i) *omocha ga taroo ni [vp ite, [vp kaw]] ite ar u nise
   toy-NOM Taroo-to buy-GER be-NONPERF store
(i) cannot be understood as meaning the store in which someone bought a toy for Taroo, and he or she keeps it, e.g., at home.

12 See Chomsky (1981:312-314) for his second suggestion. It assumes that a re-analysis of [easy to V_i] as AP takes place with the empty element being another type of anaphor.

13 The stipulation that an empty operator is base-generated at the object position in the clausal complement is motivated by (i), where the verb take subcategorizes for NP care as a quasi-argument.
(i) *?Much care is easy to take of the orphans.
The *tough* sentence that contains a quasi-argument NP as subject cannot be formed, as not in a *wh*-question with a quasi-argument NP, as *wh*-phrase, as in (ii). (ii) *?What is easy to take of the orphans?*
See Chomsky (1981:311) for other motivations, e.g., *wh*-island effects.

14 As in English, there is a piece of evidence that supports the assumption that an empty operator is to be postulated as in a *wh*-phrase.

(i) *?zyuuubunna ki ga mawari no hito ni tsukaw ite ar ita.*

\[ \text{use-GER } \text{ be-NONPERF} \]

Lit., ‘Sufficient consideration is done toward the people around there.’

(ii) *?zyon ga mawari no hito ni nani o John-NOM surrounding-GEN-people-DAT what-ACC tsukaw ita ka.*

\[ \text{use-PERF-Question} \]

Lit., ‘What did John use for people around him?’

(iii) zyon ga mawari no hito ni zyuubun na ki o tsukaw ita.

\[ \text{sufficient consideration-ACC} \]

‘John was sufficiently considerate to the people around him.’

15 Evidence for the empty operator movement will be given later.

16 Future research is needed to determine what the syntactic status of this *ga*-marked NP is, as in the English *tough* construction.

17 This is motivated by the fact that nominative cannot appear when the VP is an *ite*-marked constituent, e.g., in sentences whose matrix verb is complex predicate *ite moraw* in Japanese.

18 Lasnik & Saito’s 1992 ECP analysis and Chomsky’s idea that non-lexical I(nflection) and C(omplementizer) also heads a maximal projection with Spec work together.

19 I assume here that the ECP is in effect determined at LF, differently from Chomsky’s 1986 analysis and Lasnik & Saito’s 1992 γ-marking analysis that the ECP is in effect determined at S-structure for A-positions, and at LF for adjuncts, perhaps as a consequence of the Projection Principle. Nothing in this paper motivates the assumption that intermediate traces for adjunct should be eliminated at LF, whereas intermediate traces for arguments should not be eliminated at LF.

20 This is an example from Chomsky (1986:20). Since the trace is not antecedent-governed, it must be theta-governed. In order for this to be possible, VP must be theta-governed by Infl.

21 If it is assumed that VP is not L-marked, then it can be a blocking category. However, in Chomsky 1986, VP-adjunction is used. In this case, another intermediate trace is postulated in the example in the text. See Chomsky 1986 for further discussion.
See Chomsky (1986:92) for the assumption that there is only one specifier position in CP, as required by *Who did John like her when? in contrast with *Who when did John like her?

If the moraw (‘receive’) is assumed to subcategorize for infinitive IP instead of CP, all the discussions in this paper hold the same for the ECP.

Note that the proposed analysis together with ECP also makes a correct prediction of (i) in contrast with (ii).

1. nyuugaku ga yokusokus ite arita hitobito (a noun phrase)
   admission-NOM promise-GER be-PERF people
   ‘those people who have been promised admission to’

2. gakubu ga nyuugaku o sono hitobito ni yokusokus ita.
   department-NOM admission-ACC those people-DAT promise-PERF
   ‘The department promised admission to those people.’

In (i), the trace is theta-governed since the verb yokusokusur (‘promise’) subcategorizes for NP and PP[DAT ni (‘to’)]. Thus, ECP is satisfied.

This section is an answer to a question put by Christopher Collins and James Yoon to previous versions of this paper.

Shibatani 1978 proposes an analysis of the -ite moraw sentence. My analysis of the ite moraw (‘receive’) sentence basically follows his analysis, especially the claim that the ite-marked VP is the object of moraw. As he points out, the analysis parallels the typical sentence that contains moraw, as below.

1. yon ga mearii ni hon o moraw.
   John-NOM Mary-LOC book-ACC receive-NONPERF
   ‘John receives a book from Mary.’

In the ite moraw sentence, ite-marked VP occurs in place of the accusative-marked NP in (i).

The sentence in the text may be hard to understand, and is yet grammatical, similar to The cat that the dog that the man hit hit hit fish. See Chomsky 1965 for such an example with his judgments.

REFERENCES


