English *Tough* Sentence Analysis of Japanese "Intransitivized" Verbal Gerund + *Ar* ('be') Sentences[1]

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Abstract

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 adverbial 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 and 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*.

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$_k$ are in the state of someone having invited them$_k$ 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.

(3) *danseekyaku$_k$ ga karera$_k$ o paatii ni yob ite ar u.

male guest-NOM they-ACC party-to invite-GER be-NONPERF

Example (3) also shows that there is no *pro* of NP-*o* in (1).[2] [3] 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.

Section 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).

(4) *ar* ('be') <THEME, STATE>

Ite (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.'[4]

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

(5) *aru* <THEME, STATE>

yob <(AGENT), LOCATIVE, (PATIENT)>

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.

Section 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 ar u.

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$_i$ (a noun phrase)	
bread-NOM	*buy-GER*	*be-PERF*	*bakery*	
(11) *[$_{RC}$ pan ga	**[$_{VP}$** t_i **[$_{VP}$**	kaw**]]** ite	ar ita]	panya$_i$[11]
bread-NOM		*buy-GER*	*be-PERF*	*bakery*

Lit., (Intended Meaning) 'the bakery$_i$ where someone bought bread at the store$_i$ 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_i **[$_{VP}$**	kaw ite	ar**]]** ita]	panya$_i$
bread-NOM		*buy-GER*	*be-PERF*	*bakery*

'the bakery$_i$ where bread was at there$_i$ 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 *sono 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 “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] panya

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 **[$_{VP}$** t_i **[$_{VP}$** 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$_i$ [$_{CP}$ {whom, *Op*}$_i$ [$_{IP}$ John invited t_i]]

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) $[_{CP}\ Op_i\ [_{IP}$ 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

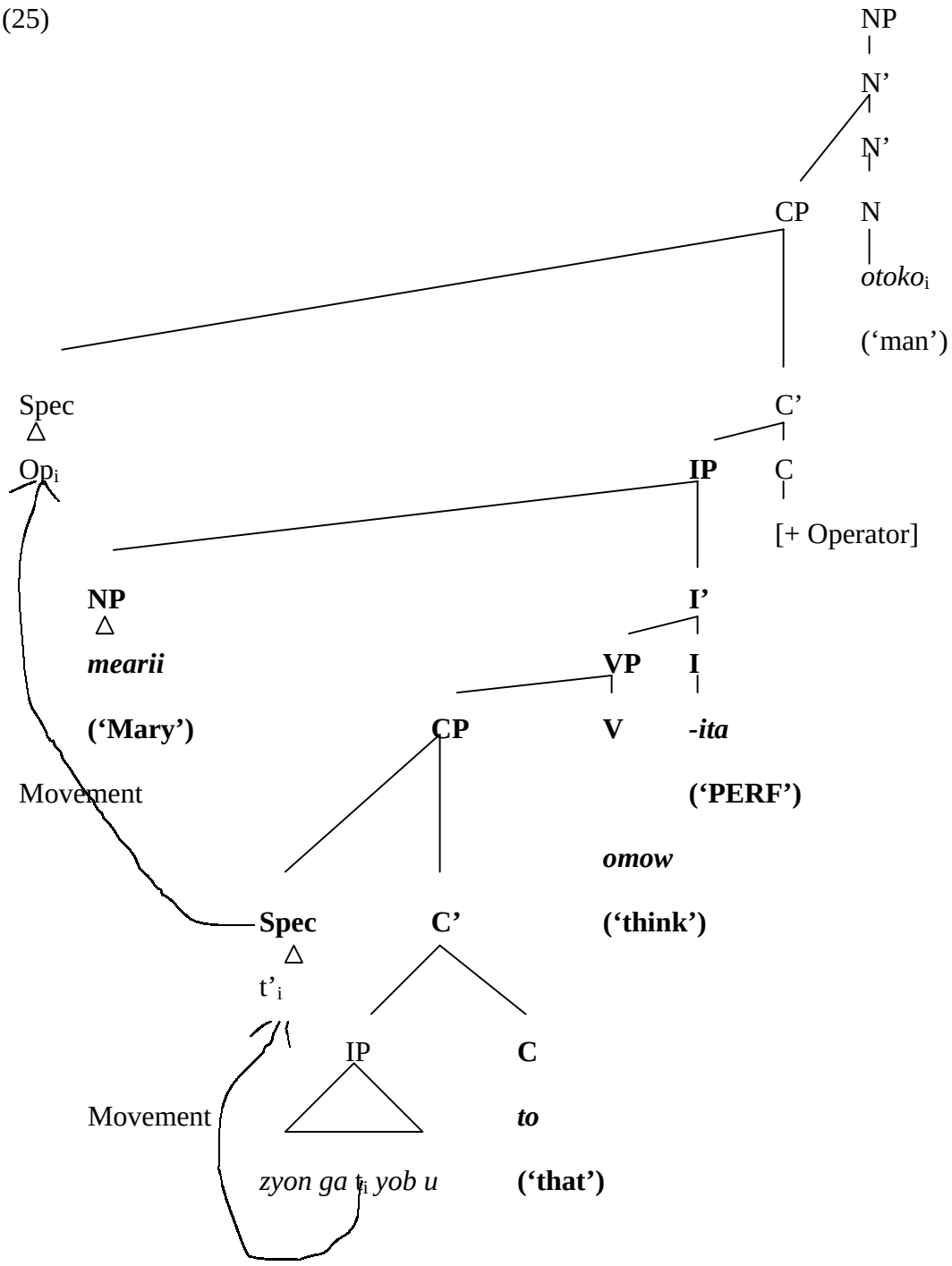
(a noun phrase)

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 and 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.)

(25)



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) *[$_{CP}$ *Op*$_i$ [pan$_k$ ga**[$_{VP}$** *t*$_i$ **[$_{VP}$** **#**$_k$ kaw**]]** ite **ar** ita]] panya$_i$

bread-NOM *buy-GER* *be-PER* *bakery*

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.

(27) [$_{CP}$ *Op*$_i$ [zyon ga mama ni **[$_{VP}$** *t*$_i$ **[$_{VP}$** **pan o** kaw**]]** ite

John-NOM *mom DAT* *bread-ACC* *buy-GER*

moraw ita]] panya$_i$

receive-PERF *bakery*

'the bakery where John received from his mother the favor of buying bread'

The relationship between the relative clause operator Op$_i$ and the adjunct trace t_i is intervened by no co-index relationship such as above. The details, i.e., the prediction of

the proposal together with this analysis of relative clauses, will be given in the next section.

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) John_k is easy $[_{CP}\ Op_k\ [_{IP}\ PRO_{arb}$ to $[_{VP}$ please $t_k]]]$

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) PRO_{arb} is located at the [NP, IP] of the CP.

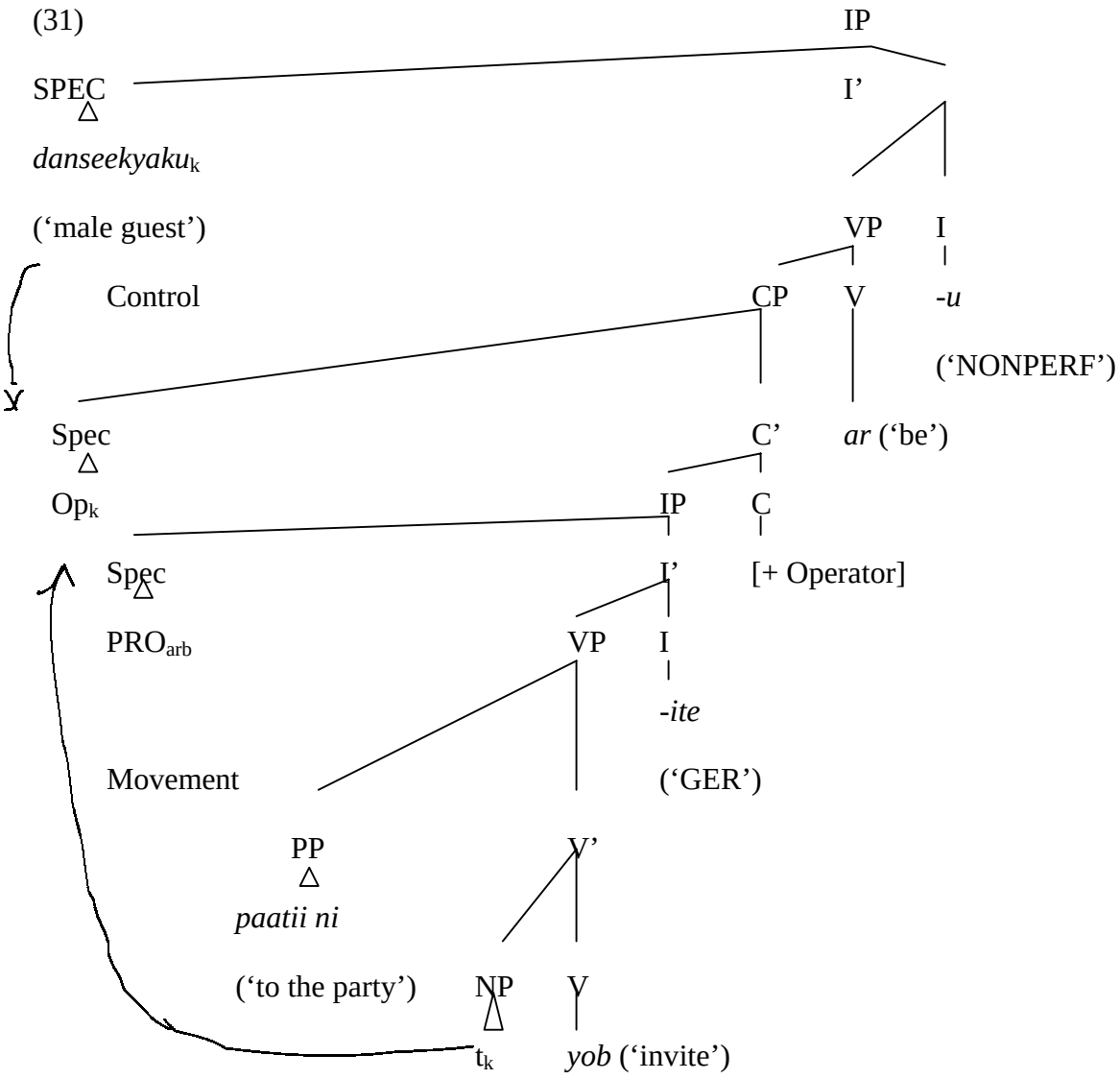
(It is not clear how Chomsky (1981; 1993: 21) treats the subject, and the copula in (29).)

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.

(30) 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.’



An empty operator is base-generated at the object position (i.e., [NP, V']) of the *ite*-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 *dansei-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:

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).

Section 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)[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*$_i$ [*does John love* t_i]?, *John*$_i$ *seems* [t_i *to go*], must <u>either</u> i) be in a certain position <u>or</u> ii) have a relationship with some other co-indexed form in a certain position, as below from Chomsky (1986: 88).

(32a) "The ECP[19] requires that trace be <u>properly</u> governed—that is, not only governed but also antecedent-governed or, perhaps, theta-governed."

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

(32c) "A head α theta-governs its complements, which it theta-marks; if lexical, α L-marks its complements (and their heads)." [Brackets are mine]

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*] $_i$, *I wonder whether he will* t_i.[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.

(32d) "α governs β if α m-commands β and no barriers for β exclude α."

(32e) "Barriers are determined in two ways: (i) on the basis of L-marking, and (ii) by the Minimality Condition." "Under (i), an X^{max} γ is a barrier by inheritance or inherently. γ is a barrier by inheritance if the X^{max} it most closely dominates is a blocking category (BC); it is a barrier inherently if it is a BC itself. An X^{max} is a BC [for β] if it is not L-marked [and X^{max} dominates β]. Under (ii), a category γ is a barrier for β if it is <u>the immediate projection (alternatively, a projection)</u> of a zero-level category $\delta \neq \beta$. In either case β is not governed by α if α is excluded by a barrier for β. The I-projection system is 'defective' in that I' and IP are barriers only by inheritance (so that, in particular, IP is not a barrier for antecedent government and I' is excluded from the Minimality Condition)." [Underline and bracket are mine]

Note that, as given, VP is not a barrier on the above assumption that is used within this paper. For the underlined 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., *An X^{max} is a BC [for β] if it is not L-marked [and X^{max} dominates β]*, following Chomsky's (1986: 14) 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).

(33) How$_i$ did John want to [fix the car t_i]? (Chomsky 1986)

(34) How$_i$ did John want [$_{CP}$ t'_i [to [fix the car t_i]]]?

The initial adjunct trace t_i is antecedent-governed by the intermediate trace t'_i, and so properly governed.[21] The intermediate trace t'_i is antecedent-governed by the *wh*-phrase *how*, and so properly governed. Note that the embedded CP cannot be a barrier for *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 *wh*-phrase does antecedent-govern the intermediate trace, as in *how did you fix the car* in Chomsky (1986: 19). This is because the matrix CP is not a barrier for the *wh*-phrase to antecedent-govern the intermediate trace. The matrix CP is not excluded by the *wh*-phrase, by (32d). On the other hand, example (35) violates the ECP. Example (35) is analyzed as in (36).

(35) *How$_i$ did John know which car$_m$ to [[fix t_m] t_i] (Chomsky 1986: 11)

(36) *How$_i$ did John know which 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 *which 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, *which car* occupies the [Spec, CP] in the embedded clause.[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$_i$ do you think that John [left t_i]? (Lasnik and Saito 1992: 29)

(38) Why$_i$ 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 *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$_i$ 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 *wh*-phrase *how* to antecedent-govern the intermediate trace. If the [Spec, CP] in the embedded clause is not occupied by a *wh*-phrase, *who* in this case, another intermediate trace t''_i, being there, could antecedent-govern the intermediate trace t'_i, with itself antecedent-governed by *how*.

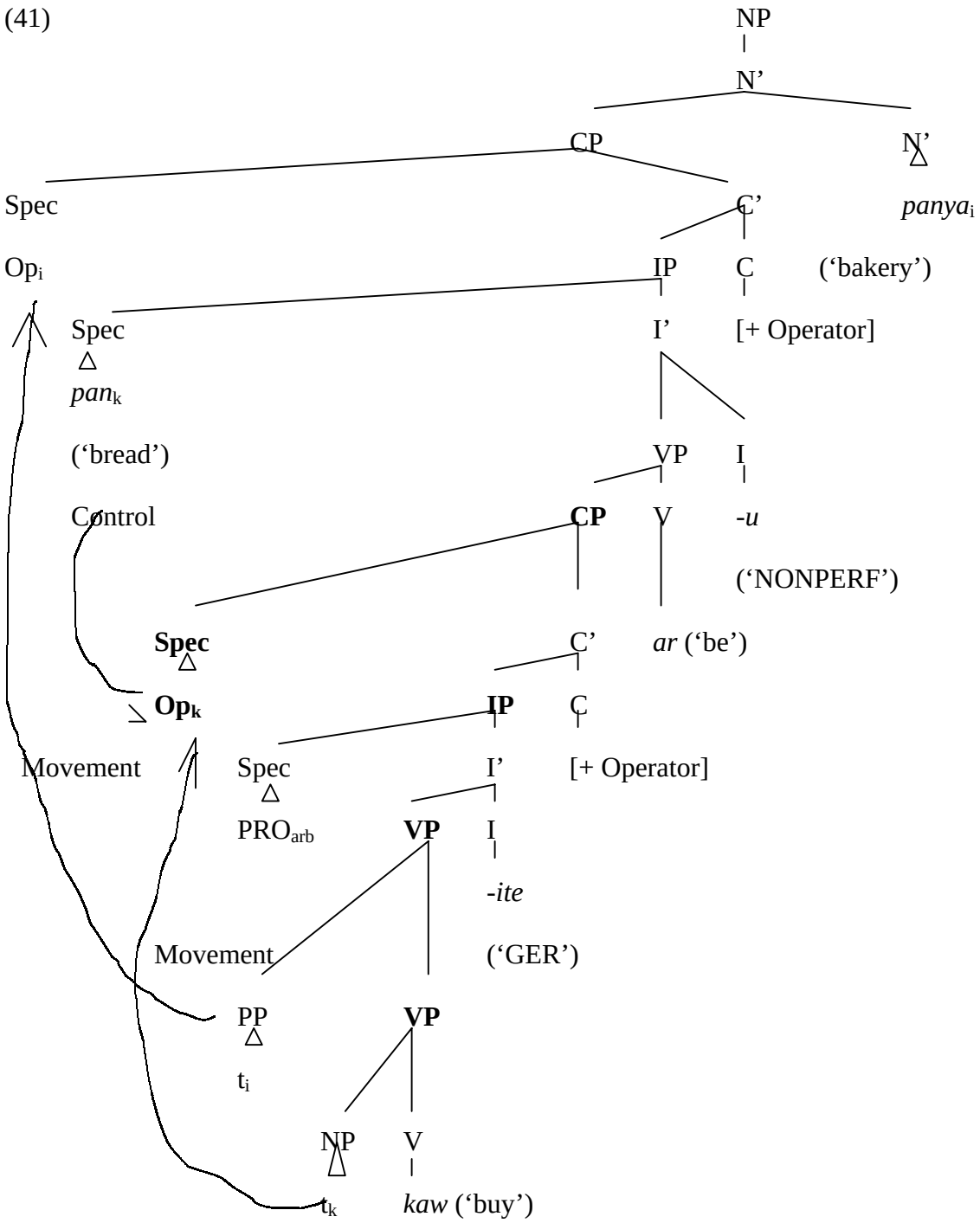
Given the ECP, the contrast between example (11) (= (26)) and example (16) (= (27)) is explained in the following way.

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

Example (11) violates the ECP. The operator of the intransitivized *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_i, 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_i 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)

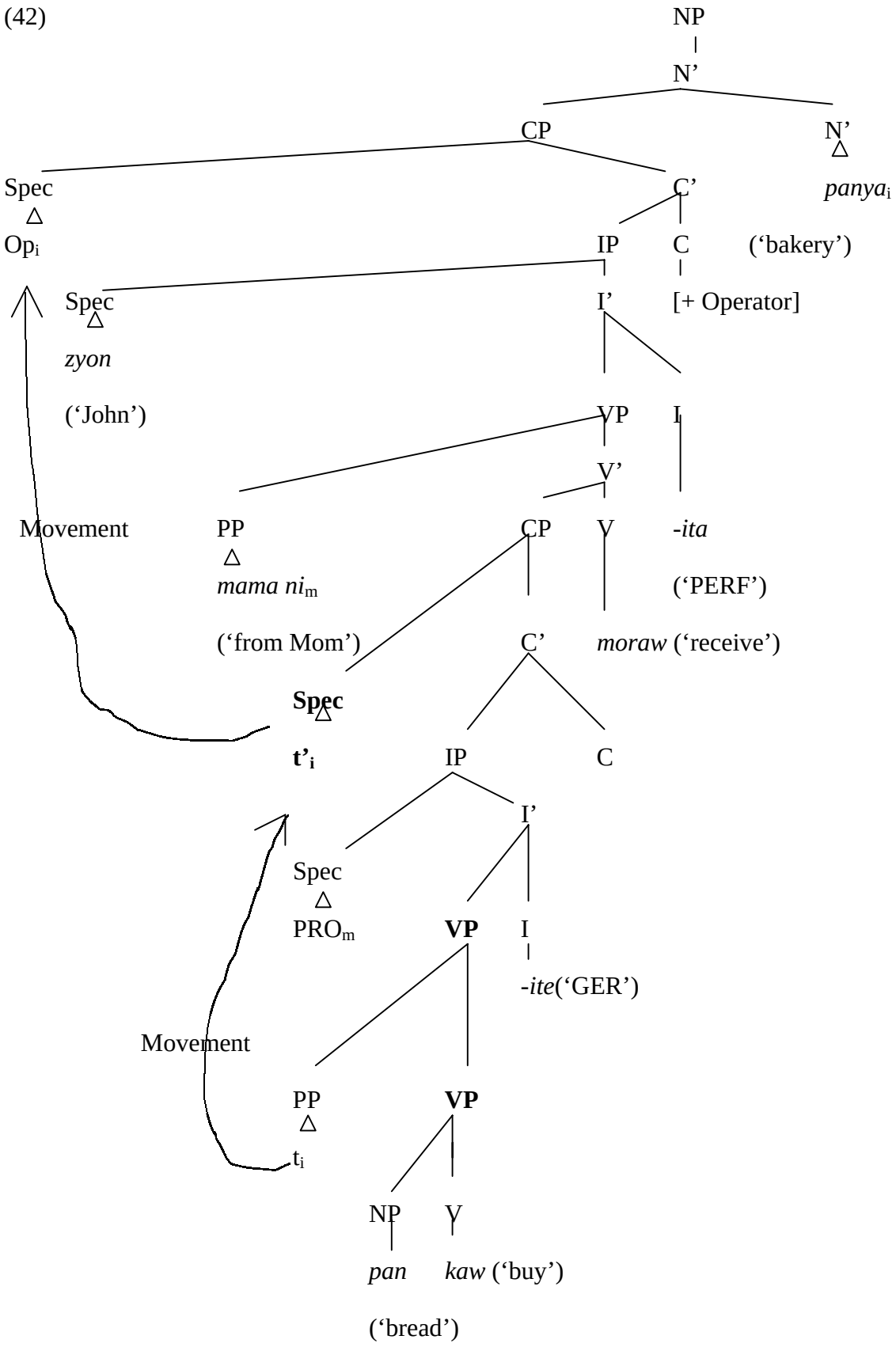


Of Example (16) (= (27)):

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.[23] The adjunct trace here is properly governed. See the tree diagram (42). There is an intermediate trace t'_i at the embedded [Spec, CP]. The adjunct trace, although it is not theta-governed, is antecedent governed by the intermediate trace t'_i. The intermediate trace is also antecedent-governed by the operator. Thus, the two traces in example (16) satisfy the ECP.[24]

(42)


NP
N'
CP
N'
Spec
C'
*panya*i
Opi
IP
C
('bakery')
Spec
I'
[+ Operator]
zyon
('John')
VP
I
V'
Movement
PP
CP
V
-ita
*mama ni*m
('PERF')
('from Mom')
C'
moraw ('receive')
Spec
t'i
IP
C
I'
Spec
PROm
VP
I
-ite('GER')
Movement
PP
VP
ti
NP
V
pan
kaw ('buy')
('bread')

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 <u>I think</u> <u>Mary thinks</u> <u>Tom thinks</u> 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 moraw ite ar u.

male guest-NOM (Mary by) party-LOC invite-GER receive-GER be-NONPERF

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

(44) zyon ga (mearii ni) danseekyaku o paatii ni yob ite moraw u.

John NOM (Mary by) male guest ACC party-LOC invite-GER receive-NONPERF

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

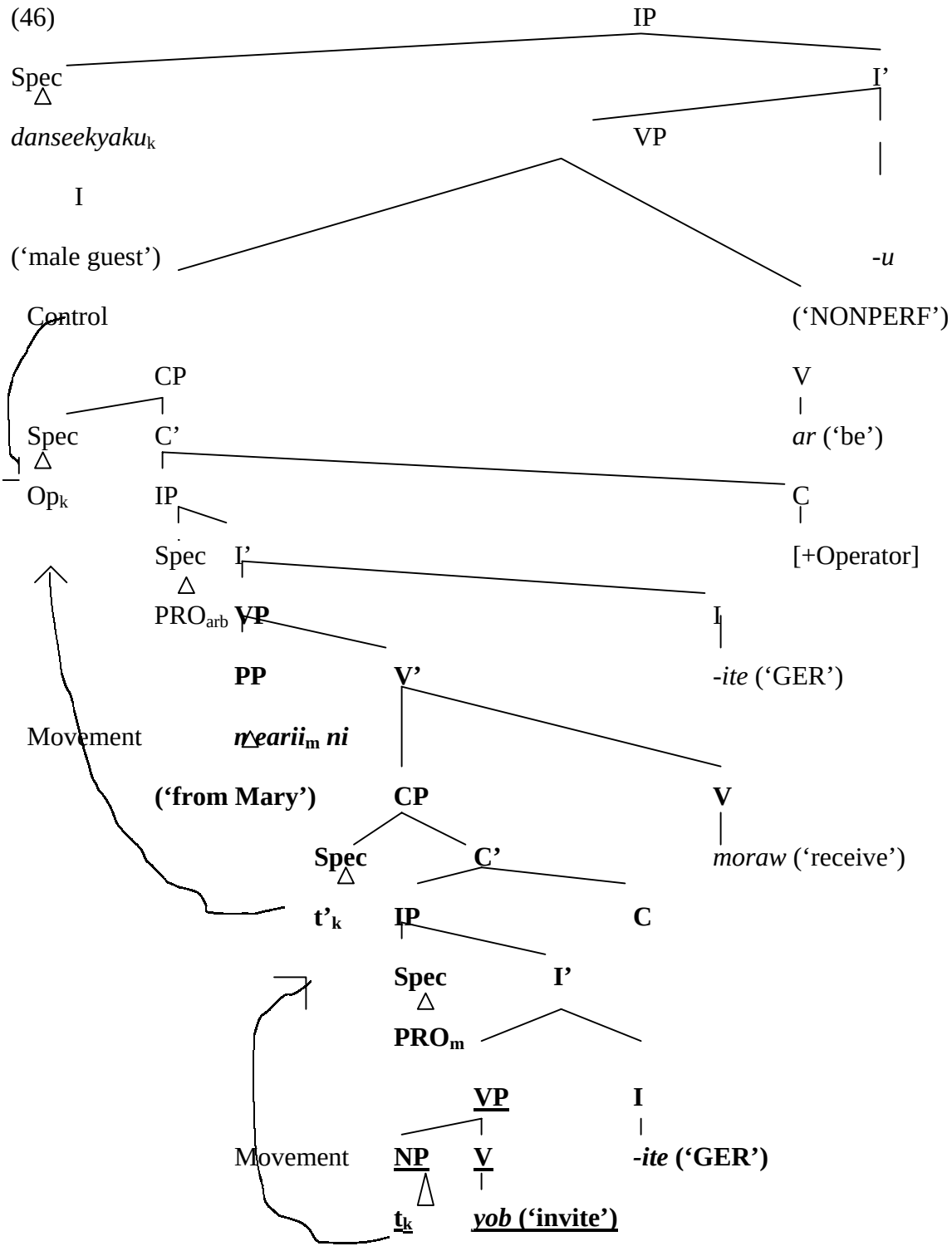
Here Clause c) in the proposal given in Section 3, i.e., 'An empty operator is base-generated at [NP, V'] of the CP complement,' is replaced with (45).

(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 clauase 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[*infinitive*]. Note that the CP as object here, which is the object of *moraw* ('receive')[26], 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* ('receve') is PRO_{arb}, 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 satisfy 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.

(46)


IP
Spec
I’
*danseekyaku*k
VP
I
(‘male guest’)
-u
Control
(‘NONPERF’)
CP
V
Spec
C’
ar (‘be’)
Opk
IP
C
Spec
I’
[+Operator]
PROarb
VP
I
PP
V’
-ite (‘GER’)
Movement
*mearii*m *ni*
(‘from Mary’)
CP
V
Spec
C’
moraw (‘receive’)
t’k
IP
C
Spec
I’
PROm
VP
I
Movement
NP
V
-ite (‘GER’)
tk
yob (‘invite’)

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 $t'_k \ldots \ t''^{\cdots}{}_k$ 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.

Section 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 {forget to}^{n} please, where {*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.

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[1] I submitted the second version of this paper in 1995 to a syntax course instructed by Prof. James Yoon at the University of Illinois at Urbana-Champaign. Prof. Christopher Collins let me to audit his syntax courses at Cornell University from Fall in 1994 to Spring in 1995, and the lectures motivated me to write the first version to him. I appreciate Prof. Collins for the class lectures, the comments on the second version from Prof. Yoon, the comments on the third and fourth versions from two unanimous reviewers of *SLS*. These comments helped me to improve the paper significantly. I also thank Kunio Nishiyama for an informal discussion. Yet, I am responsible for all on 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).

(ia) mearii ga karera o paatii ni yob u.

Mary-NOM they-ACC party-to invite-NONPERF

(ib) mearii ga paatii ni yob u.

Mary-NOM party-to invite-NONPERF

(iia) Mary invites them to the party.

(iib) *Mary invites to the party.

[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.

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[4] Matsumoto (1990) proposes this as a general condition that must be satisfied in other complex predicate verbs than the "intansitivized" *-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.

(i) zi ga kesi te ar u

letter-NOM erase-GER be-NONPERF

'Letters have been erased.'

(ii) zi ga ar u

letter-NOM be-NONPERF

'There are letters.'

[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).

(i) Mary nearly hit John.

(ii) Mary hit John.

[9] Inoue (1976) proposes that matrix V *ar* ('be') subcategorizes for CP <u>with unspecified subject</u>. 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
S1		*(te) aru*
		(GER) (‘be’)
NP	NP	Pred
dareka-ga	*gohan-o*	*tak-*
(‘somone’)	*(‘rice’)*	*(‘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).

	S2		
gohan-o-ga	S2		
	S1		*(te) aru*
	Pred		
	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* phonetically realizes as *katte*.

(i) *omocha ga	taroo ni	**[**$_{VP}$ t_i **[**$_{VP}$ kaw**]]** ite	ar u	mise$_i$
toy-NOM	*Taroo-to*	*buy-GER*	*be-NONPERF*	*store*

(i) cannot be understood as meaning the store where someone bought a toy for Taroo at the store, and he or she keeps it, e.g., at home.

[12] See Chomsky (1981: 312-314) for his second suggestion. It assumes that a reanalysis 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 similar to English, there is a piece of evidence that supports that the empty operator, as similar to *wh*-phrase, is postulated.

(i) *?zyuubunna ki ga mawari no hito ni
sufficient consideration NOM surrounding GEN people DAT
tsukaw ite ar ita.
use-GER be-NONPERF
Lit., 'Sufficient consideration is done toward the people around there.'

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

sufficient consideration ACC

'John was sufficiently considerate to the people around him.'

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

[16] Future research is needed to figure out 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 and Saito's (1992) ECP analysis and Chomsky's idea that non-lexical I(nflection) and C(mplementizer) 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 and 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.

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[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 discussions.

[22] 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?*

[23] If the *moraw* ('receive') is assumed to subcategorize for infinitive IP instead of CP, all the discussions on this paper hold the same regarding the ECP.

[24] Witness that the proposed analysis together with ECP also makes a correct prediction of (i) in contrast with (ii), similarly.

(i) nyuugaku ga	yakusokus ite	ar ita hitobito	(a noun phrase)
admission-NOM	*promise-GER*	*be-PERF people*	

'those people who has been promised admission to'

(ii) gakubu ga	nyuugaku o	sono hitobito ni	yaskusokus 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 *yakusokusur* ('promise') subcategorizes for NP and PP[DAT *ni* ('to')]. Thus, ECP is satisfied.

[25] This section is an answer to a question that Christopher Collins and James Yoon made to the previous versions of this paper.

[26] Shibatani (1978) proposes an analysis of the *-ite moraw* sentence. My analysis of *ite moraw* ('receive') sentence basically follows his analysis, especially the claim that the

ite-marked VP is the object of *moraw*. As he pointed out, the analysis parallels the typical sentence that contains *moraw*, as below.

(i) zyon 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).

[27] 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.