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ON QUANTIFIER FLOAT IN JAPANESE

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1. Introduction

Quantifiers have been known to occur in a sentence-internal position as well as in the determiner position of NP in many languages. Observe the following examples from English and Japanese:

(1) a. [$_{NP}$ all the students] read the book.

b. [$_{NP}$ the students] all read the book.

(2) a. [$_{NP}$subete-no gakusei]-ga sono hon -o
all Gen student Nom that book Acc

yon-da
read-Past
'All the students read the book.'

b. [$_{NP}$ gakusei]-ga subete sono hon-o
student Nom all that book Acc

yon-da
read-Past
'The students all read the book.'

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The quantifiers all and subete 'all' are in the determiner position of the subject NP in (1a) and (2a), and in a sentence-internal position outside the NP in (1b) and (2b).

The prevalent explanation for this observation is that a transformational rule, which we refer to as Quantifier Float (henceforth, Q-Float), derives sentences, such as (1b) and (2b) from those, such as (1a) and (2a) by extracting a quantifier from the NP dominating it.

The purpose of this paper is to argue against this concept of Q-Float, and to propose an alternative analysis of this observation. The argument here is exclusively based on data from Japanese. The central idea in this alternative is that we do not need any rule or principle particular to Q-Float in Japanese. It will be shown that previous observations on Q-Float follow from interaction of a principle of UG and the properties of the grammar of Japanese, if we add the single assumption that a "floating" quantifier in Japanese is a secondary predicate in the sense of Rothstein (1983). In this paper, we will assume the general framework of GB theory as developed in Chomsky (1981; 1982; 1986a; 1986b). In section 2, we will present some arguments against the concept of Q-Float as an instance of Move α. Section 3 will provide some evidence that a floating quantifier is a secondary predicate. In section 4, we will show that previous observations on Q-Float simply follow without recourse to any rule or principle particular to Q-Float in the present analysis, given additional plausible assumptions independently motivated in the analysis of Japanese within the GB framework. Finally, section 5 will present two further consequences of the present analysis for the grammar of Japanese.

2. The Non-Transformational Nature of Q-Float

Suppose that the theory of movement allows two types of movement, i.e., substitution and adjunction, as assumed in Chomsky (1986b). In this section, we will show that Q-Float cannot be formulated as either type of movement in this restrictive theory of movement.

Let us first show that Q-Float is not an instance of substitution. Chomsky (1986b, 4) assumes that substitution has the following general properties:

(3) a. There is no movement to complement position.
b. Only X^0 can move to the head position.
c. Only a maximal projection can move to the specifier position. [The specifier position is roughly the subject position of S and NP and the pre-complementizer position of COMP, which is now assumed to be a maximal projection of a complementizer/M.U.]
d. Only minimal and maximal projections (X^0 and X") are "visible" for the rule Move α.

First, we must determine whether a floating quantifier is a maximal projection or X^0. As noted in Kamio (1977), there is a piece of evidence that a floating quantifier is not X^0, but a maximal projection. Observe that it can take its own modifier or specifier, as shown in (4):[1]

(4) a. gakusei -ga [awasete gonin] ki-ta
student Nom in all five come-Past
'Five students came in all.'

b. onnanoko -ga [yaku gonin] sono heya ni
girls Nom about five that room in

i-ta
be-Past
'There were about five girls in that room.'

It follows from this that a floating quantifier must have its own maximal projection. This conclusion in turn requires that Q-Float must move a quantifier to the specifier position, as stated in (3c), if it is substitution.

Suppose first that Q-Float is a rightward movement. Then, this is obviously *not* the case, since Q-Float is possible from the direct object NP, as shown in (5), and since there is no specifier position to the right of the direct object NP in VP:

(5) [$_S$ Asher-wa [$_{VP}$ [$_{NP}$ t_i e]-o [sanmai]$_i$
Top picture Acc three pieces
kai-ta]]
draw-Past
'Asher drew three pictures.'

Thus, Q-Float cannot be substitution under this assumption, since it lacks the property (3c).

Let us assume alternatively that Q-Float is a leftward movement. Under this alternative, Q-Float from the subject NP moves a quantifier to the specifier position of COMP (or C"). This is the only possible position, since the subject NP itself occupies the specifier position of S (or I"). In this analysis, sentences, such as (2b), where the subject NP precedes the floating quantifier, are derived only by movement of the subject NP over the quantifier in the specifier position of COMP. Thus, (2b) has the S-structure (2b'):

(2b') $[_{C''}[_{NP}\ \underline{t}_i$ gakusei$]_j$-ga $[_{C''}$ subete$_i$ $[_{C'}[_{I''}$

$\underline{t}_j$ $[_{VP}$ sono hon-o yon-da$]]]]]$

However, Saito (1983b) argues that there is an independent reason that the subject NP cannot be moved by scrambling.[2] Thus, under this alternative, there would be no way to accommodate sentences such as (2b), which is clearly grammatical. This shows that this alternative is not plausible, either. Therefore, it is simply impossible to formulate Q-Float as an instance of substitution under the theory of movement assumed in Chomsky (1986b).

Let us now turn to the other possibility that Q-Float is an instance of adjunction. Suppose first that Q-Float is a rightward movement. Under this conception, Q-Float might be formulated as an adjunction of a quantifier to some projection of V, as in (6):[3]

(6) Adjoin a quantifier to the left periphery of V^n. (where V^n = some projection of V)

(6) seems to be apparently viable, accounting for both cases of Q-Float from the subject NP as in (2) and the object NP as in (5).

However, there are at least two arguments against this formulation. First, Chomsky (1986b, 6) suggests that adjunction is governed by the following principle:

(7) Adjunction is possible only to a maximal projection (hence, X") that is a nonargument.

(6) obviously violates principle (7). (6), however, is inevitable, since a quantifier floated from the direct object NP must be adjoined to some intermediate projection of V.

Second, although we have good reason to assume instances of Move α in Japanese, there seems to be no instance of Move α which moves a category rightwards and adjoins it to the left periphery of a maximal projection.[4] It is highly undesirable to assume the rule with such a property against the general uniformity of the other instances of Move α.

Retaining the assumption that Q-Float is adjunction, let us now take it as a leftward movement. In this formulation, we will have exactly the same problem we noted in regard to the formulation of Q-Float as substitution: it cannot accommodate sentences, such as (2b), due to the principle which prohibits scrambling of the subject NP.

Finally let us present a piece of empirical evidence against any formulation of Q-Float as Move α. Williams (1982, 284) observes that floating quantifiers "do not show scope interactions that the determiner-dominated quantifiers do", as shown in the following English examples:

(8) a. Some student thinks that each of the professors is incompetent.

b. Some student thinks that the professors are each incompetent (in a different way).

In (8a), the prenominal each has wide scope over some student, while in (8b), each, in the floated position, does not participate in scope interaction with some student. Williams claims on this basis that floating quantifiers are adverbs.[5]

A similar observation obtains in Japanese, as shown in (9):

(9) a. minna -ga issatu -no hon -o yon-da
everyone Nom one copy Gen book Acc read-Past
'Everyone read a book.'

b. minna -ga hon -o issatu yon-da
everyone Nom book Acc one copy read-Past

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(9a) is ambiguous with either of the quantifiers minna 'everyone' or issatu 'a copy' taking wide scope over the other. In (9b), on the other hand, the floating quantifier issatu never takes wide scope over minna.[6] This contrast suggests that a floating quantifier is functionally different from a quantifier in the determiner position. It seems impossible to account for this observation in the movement analysis of Q-Float unless an additional stipulation is introduced into the grammar, since that analysis predicts that the nature of a floating quantifier is essentially the same as that of a prenominal quantifier. This observation, however, is expected in our analysis to be presented below, since a floating quantifier is assumed to be of the different origin from a prenominal one. Thus, this observation favors our analysis over the movement analysis of Q-Float. Summarizing, the above discussion shows that it is impossible to formulate Q-Float as either substitution or adjunction, i.e., as an instance of Move α.

The dismissal of the concept of Q-Float as an instance of Move α immediately raises the following three questions:

(10) a. What is the origin of a floating quantifier?
b. What is the categorial status of it?
c. What is the functional status of it?

As for the first and second questions, we will simply assume as the null hypotheses that a floating quantifier is "base-generated" in its D-structure position,[7] and that it is simply a maximal projection of the category "quantifier", i.e., QP or Q". Under these assumptions, we will turn to the third question in the next section.

3. The Nature of Floating Quantifiers

One possibility is to assume that a floating quantifier is an adverb, as suggested in Inoue (1978). However, an obvious problem with this assumption is that the observed relatedness between a floating quantifier and its host NP cannot be appropriately accounted for under this assumption, unless a new subcategory of adverb is set up. In this section, we argue that a floating quantifier in Japanese is a secondary predicate

in the sense of Rothstein (1983). Let us first present a theoretical background for this notion.

3.1. The Rule of Predicate-Linking

Rothstein (1983) reformulates the rule of predication, which was originally proposed by Williams (1980), as the rule of predicate-linking within GB theory. This rule may be stated as follows:

(11) The Rule of Predicate-Linking

a. A maximal projection not in a (potential) theta-position, or a trace it is coindexed with must be linked at S-structure to an argument which it c-commands and which c-commands it.
b. Linking is from right to left (i.e., a subject precedes its predicate). (for English)

The rule of predicate-linking consists of the universal part (11a), which constitutes a principle of UG, and the language-specific part (11b). (11a) expresses the mutual c-command restriction holding between a maximal projection not in a (potential) theta-position and the argument which it is predicated of.[8] The former is referred to as a "predicate" and the latter the "subject" of the predicate. Thus, the sentences with the following structures are ruled ungrammatical by (11a):

(12) a. *$[_S$ John $[_{VP}$ ate $[_{NP}$the meat$]_i]$ $[_{AP}$ raw$]_i]$

b.*$[_S[_{NP}$ Mary$]_i$ $[_{VP}$ drove her car $[_{AP}$ drunk$]_i]]$

(11b), on the other hand, is assumed to follow from the properties of a particular language. We tentatively assume here that there is no "directionality constraint" in Japanese, predicate-linking being possible from either direction.[9]

Rothstein claims that the rule of predicate-linking plays a role complementary to the theta criterion in that it determines the distribution of a maximal projection which is not an argument, i.e., not assigned any theta role. In addition, she distinguishes

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two types of predicates on the basis of their distributional properties. They are referred to as primary predicates and secondary predicates. A primary predicate can roughly be defined as the predicate which constitutes an S together with its subject, and a secondary predicate as the one which doesn't.[10] In (12), for example, the VPs are primary predicates and the APs secondary predicates, though the latter are not properly linked to their subjects in these cases.

3.2. Floating Quantifiers as Secondary Predicates

We will first present three arguments against the adverbial status of a floating quantifier, and then two arguments for its status as a secondary predicate.

As is well known, a floating quantifier may be "object-oriented" as well as "subject-oriented", as shown in (13):

(13) a. gakusei-ga sannin John-o nagut-ta
student Nom three Acc hit-Past
'Three students hit John.'

b. John-ga gakusei-o sannin nagut-ta
Nom student Acc three hit-Past
'John hit three students.'

Adverbs are also known to be capable of orientation. There is a class of seemingly "subject-oriented" adverbs. Observe the following examples:

(14) a. John-wa Mary-o awate-te sono heya-ni
Top Acc in a hurry that room to
ture-te ki-ta
bring-Past
'John brought Mary to that room in a hurry.'

b. John-wa Mary-o nessin-ni settokusi-ta
Top Acc eagerly persuade-Past
'John persuaded Mary eagerly.'

Moreover, some adverbs seem to be able to be "object-oriented" as well as "subject-oriented", as shown in (15):[11]

(15) a. Taroo-wa Ziroo-o hadaka-de tukamae-ta.
Top Acc naked catch-Past
'Taro caught Jiro naked.'

b. karera-wa John to Mary-o betubetuni
they Top and Acc separately

sikat-ta
scold-Past
'They scolded John and Mary separately.'

In (15), the adverbs hadaka-de 'naked' and betubetuni 'separately' can be oriented to both the subject NP and the object NP. The above observations might be taken to be evidence for the contention that floating quantifiers are adverbs. However, there are at least two notable differences between them, and these differences provide evidence to the contrary.

First, both types of adverbs can be oriented to the agentive phrase of direct passives, as pointed out to us by Yukinori Takubo (personal communication):

(16) a. ?Mary-wa John-ni awate-te sono heya-ni
Top by in a hurry that room to

tureteko-rare-ta
bring-Pass-Past
'Mary was brought to that room by John in a hurry.'

b. ?Mary-wa John-ni nessin-ni settokus-are-ta
Top by eagerly persuade-Pass-Past
'Mary was persuaded by John eagerly.'

(17) a. Ziroo-wa Taroo-ni hadaka-de tukamae-rare-ta.
Top by naked catch-Pass-Past
'Jiro was caught by Taro naked.'

b. John to Mary-wa karera-ni betubetuni sika-
and Top they by separately scold-

rare-ta
Pass-Past
'John and Mary were scolded by them separately.'

Thus, it seems that they should be more properly called

"agent-oriented" and "agent/patient-oriented" adverbs, respectively. Note incidentally that the agent-oriented adverbs in (16) can only be associated with the agentive phrase, whereas the agent/patient-oriented adverbs in (17) can be associated with both the subject NP and the agentive phrase, as expected.

Turning now to floating quantifiers, they are never associated with the agentive phrase of direct passives, as shown in (18):

(18) a. *John-ga gakusei-ni sannin nagur-are-ta
Nom student by three hit-Pass-Past
'John was hit by three students.'

b. *John-ga keikan -ni sannin oikake-rare-ta
Nom policeman by three chase-Pass-Past
'John was chased by three policemen.'

This clearly shows that floating quantifiers differ in nature of orientation from adverbs, indicating the dubious status of floating quantifiers as adverbs.

Second, a floating quantifier must be sufficiently close to its host NP, so that it cannot cross another NP. Observe the ungrammaticality of the following sentence:[12]

(19) *gakusei-ga sono hon -o sannin yon-da
student Nom that book Acc three read-Past
'Three students read that book.'

An adverb does not share this property with a floating quantifier whether it is "agent-oriented" or "agent/patient-oriented", as is clear in (14) and (15). This indicates another difference between a floating quantifier and an adverb.

Finally, note that a floating quantifier has an "adverbial" counterpart. Observe the following examples:

(20) a. gakusei -ga sono ringo-o sannin-de
student Nom that apple Acc three in

tabe-ta
eat-Past
'Three students ate that apple.'

b. *John-ga otokonoko-o gonin-de nagut-ta
Nom boy Acc five in hit-Past
'John hit five boys.'

c. John-ga gakusei-ni gonin-de nagur-are-ta
Nom student by five in hit-Pass-Past
'John was hit by five students.'

The quantifiers suffixed with an adverb-forming suffix -de seem to be agent-oriented adverbs, as shown by the contrast between (20a) and (20b). The quantifiers in (20) do have the properties of agent-oriented adverbs. First, a quantifier of this type does not have to be adjacent to its host NP, as shown in (20a). Second, it can be oriented to the agentive phrase of direct passives, as in (20c). The existence of the adverbial counterpart suggests that a floating quantifier is not an adverb.

Let us now turn to two arguments that a floating quantifier is a secondary predicate. First, although the arguments presented above do not, by themselves, provide positive evidence for the claim that a floating quantifier is a secondary predicate, they do constitute an argument for it in the following way, given a particular theoretical framework. Suppose that a maximal projection in a sentence must be licensed in a fixed way by being identified as one of the following elements: an argument, an operator, or a predicate, as suggested in Chomsky (1986a, 101), then we must identify a floating quantifier as a predicate, since it is not in a theta position, nor binds any variable, as reflected in the fact that it does not show scope interaction with other quantifiers. One might still claim that a floating quantifier can be identified as an adverb. However, it is exactly this possibility that we refuted above. Thus, we are left with the only possibility that it is a predicate. It must be a secondary predicate, since it does not constitute an S together with the subject which it is predicated of.

Second, Rothstein (1983) notes two subtypes of secondary predicates distinguished on a semantic basis, i.e., depictives and resultatives. Observe the following examples from Rothstein. (21) contain instances of depictives and (22) those of resultatives:

(21) a. Bill ate carrots raw.

b. Tom met Mary drunk.

(22) a. John painted the car red.

b. John hammered the metal flat.

A depictive is semantically characterized as describing the state of the thing denoted by the subject, to which they are linked, "at the time when the action denoted by the verb is occurring." Thus, in (21a), raw describes the state of carrots when Bill ate them. A resultative, on the other hand, "describes the result of the action described by the verb, the effect that this action has on what is denoted by the direct-object." In (22 a), for example, red describes the color of the car which resulted from the action of painting.

If a floating quantifier is a secondary predicate, it is expected that the distinction between depictives and resultatives should also obtain among floating quantifiers, and this expectation is fulfilled. First of all, the semantic distinction seems to obtain in the case of floating quantifiers, though not so conspicuously as in the above cases. Observe the following examples:

(23) a. John-wa hon -o sansatu yon-da
Top book Acc three copies read-Past
'John read three books.'

b. John-wa tokei-o hutatu kowasi-ta
Top watch Acc two break-Past
'John broke two watches.'

Both (23a) and (23b) seem to be ambiguous, with the depictive and the resultative interpretations of sansatu 'three copies' and hutatu 'two'. When the quantifier is interpreted as a depictive in (23a), for example, the sentence means that John read books, and there were three members in the set of objects denoted by hon 'book' when the action denoted by the verb was occurring. When interpreted as a resultative, it means that John read books, and the numerical state of books which resulted from the action of reading is such that there are three members in the set of objects denoted by hon 'book'.

There are further differences between the two types of secondary predicates. First, as Rothstein notes, there is a close connection between the verb and a resultative. Thus, only a certain set of verbs can take a resultative. On the other hand, there is no comparable restriction on the occurrence of a depictive.

This seems to hold in the case of a floating quantifier. The interpretation of a floating quantifier as a resultative is available only when the verb belongs to the class of verbs which denote the action of affecting the object by moving it or changing its state. Observe the following examples in which the verbs are not of this class:

(24) a. sensei -wa seito-o sannin mat-ta
teacher Top pupil Acc three wait-Past
'The teacher waited for three pupils.'

b. Taroo-wa zyosei-o hutari aisi-ta
Top woman Acc two love-Past
'Taro loved two women.'

(24a,b) have only the depictive interpretation of a floating quantifier. (24a), for example, means that the teacher waited pupils, and there are three members in the set of objects denoted by the direct object seito 'pupil'. It seems totally implausible to assume that a change of the numerical state of the set denoted by the direct object is caused by the action of waiting. Note also that since a resultative is selected by the verb, it is always dominated by VP, and will never be linked to the subject NP due to (11a), as argued by Rothstein (1983). Thus, it is predicted that only a depictive is linked to the subject NP, and this prediction is borne out. Exactly the same holds true of a floating quantifier linked to the subject NP, as shown in (25):

(25) a. gakusei-ga sannin sono hon -o yon-da
student Nom three that book Acc read-Past
'three students read the book.'

b. onnanoko-ga sannin sara -o wat-ta
girl Nom three plate Acc break-Past
'Three girls broke plates.'

In (25), sannin 'three' is not interpreted as a resultative describing the numerical state of the

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subject NP which results from the action denoted by the VP, i.e., that of reading books or of breaking plates.[13,14]

Second, as Rothstein notes, the property described by a depictive must be a transitory one, as shown in the following contrast:

(26) a. John drank coffee hot.

b. *John met Mary tall.

(26b) is ungrammatical, since tall does not represent a transitory property in ordinary contexts. This also holds of a floating quantifier, as shown by the contrast between (27a) and (27b):

(27) a. John-wa kuruma-o sandai mot-te i-ru
Top car Acc three own-Prog-Pres
'John has three cars.'

b. *John-wa kuruma-o 2000cc mot-te i-ru
Top car Acc own-Prog-Pres
'John has a 2000cc car.'

c. John-wa 2000cc-no kuruma-o mot-te i-ru
Top Gen car Acc own-Prog-Pres
'John has a 2000cc car.'

Although the quantifier 2000cc can modify kuruma 'car' if it is in the determiner position, as shown in (27c), it cannot function as a secondary predicate, as shown in (27b), since it does not represent a transitory property as to kuruma 'car', exactly parallel to (26b).[15] Thus, this constitutes further evidence for the assumption that a floating quantifier is a secondary predicate.

Third, Chomsky (1986b, 81-83) notes another difference between depictives and resultatives with respect to movement of these categories:

(28) a. *how raw$_i$ did John [eat the meat t_i].

b. *how angry$_i$ did John [leave the room] t_i.

c. how red$_i$ did John [painted the house t_i].

The contrast between (28a,b) and (28c) clearly shows

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that depictives, whether subject-oriented or object-oriented, cannot undergo Wh-Movement, whereas resultatives can. Recently, Miyagawa (1986) independently made essentially the same observation concerning the possibility of scrambling floating quantifiers in Japanese, although he attempts to explain his observation in different terms. Observe the following contrast:

(29) a.*?hutari$_i$ [Taroo-ga [$_{VP}$tomodati-o t_i
two Nom friend

mat-te i-ru]]
wait-Prog-Pres
'Taro is waiting for two of his friends.'

b.*?hutari$_i$ [hon$_j$-o [gakusei -ga t_i [$_{VP}$ t_j
two book Acc student Nom

yon-da]]]
read-Past
'Two students read books.'

c. hutari$_i$ [Hanako-ga [$_{VP}$ borantia -o t_i
two Nom volunteers Acc

atume-ta]]
gather-Past
'Hanako gathered two volunteers.'

d. nisatu$_i$ [Hanako$_j$-ni [Taroo-ga [$_{VP}$ t_j
two to Nom

hon-o t_i watasi-ta]]]
hon Acc give-Past
'Taro gave Hanako two books.'

All of (29a-d) have floating quantifiers moved to the sentence-initial positions. In (29a), hutari 'two' is linked to the direct object, and it must be interpreted only as a depictive, since the verb mat-u 'wait' does not take a resultative. In (29b), hutari is linked to the subject NP, and it is necessarily a depictive. On the other hand, each of (29c, d) has as its main verb a verb which allows a resultative interpretation of a floating quantifier. Thus, the contrast between (29a,b) and (29c,d) is attributable to the principle governing the movement of secondary predicates whatever that

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principle turns out to be.[16] This fact shows that floating quantifiers behave exactly in the *same* way as secondary predicates in *English* under movement, providing a further support for the assumption that they are secondary predicates.

Summarizing, we have shown that there are fairly firm bases for assuming that a floating quantifier is a secondary predicate and is linked to its host NP by the rule of predicate-linking. This assumption is the only innovation we need in this paper, although there still remains the problem of how to implement it in the grammar. Leaving this problem open here, we will show in the next section how the set of previous observations on Q-Float is accounted for in the present analysis.

4. Conditions on Q-Float

The previous observations on Q-Float are concerned with the following three types of conditions on Q-Float:

(30) a. Conditions on the host NP.
b. Conditions on the application of Q-Float.
c. Conditions on a floating quantifier.

We will show that each of these observations will simply fall under the following theorem (31):

(31) A floating quantifier β and its host NP α may not be in either of the following structural relations, with γ a maximal projection.

(i) $\ldots [_{\gamma} \ldots \alpha \ldots] \ldots \beta \ldots$

(ii) $\ldots \alpha \ldots [_{\gamma} \ldots \beta \ldots] \ldots$

The theorem (31) follows from the rule of predicate-linking and the assumption that a floating quantifier is a secondary predicate in Japanese.

4.1. Conditions on the Host NP

The observations concerning the conditions of this type seem to be able to be subdivided into the core and the peripheral cases.[17] Assuming that this is correct, let us consider the core and the peripheral cases in turn.

4.1.1. The Core Case

A generalization on the core data may be formulated as (32) in terms of the notion "grammatical relation" (henceforth, GR)[18] or as (33) in terms of the notion "surface case":[19]

(32) Q-Float applies only to the subject and the direct object NPs.

(33) Q-Float applies only to the NPs in nominative or accusative case.

Note that the two formulations make virtually the same empirical predictions, since the subject and the direct object generally correspond to the NPs in nominative and accusative case, respectively. They both correctly predict the contrast between (34a-b) and (34c-d):

(34) a. gakusei-ga gonin ki-ta
student Nom five come-Past
'Five Students came.'

b. Hanako-ga hon -o sansatsu yon-da
Nom book Acc three read-Past
'Hanako read three books.'

c. *Hanako-ga e -o itoko -ni sannin
Nom picture Acc cousin Dat three

mise-ta
show-Past
'Hanako showed her three cousins a picture.'

d. *Hanako-ga hon -o tomodati kara sannin
Nom book Acc friend from three

kari-ta
borrow-Past
'Hanako borrowed some books from three of her friends.'

This contrast shows that only ga- and o-marked NPs allow a quantifier to float out of them, or to be linked to them in our terms.

We will show that principle (32) or (33) has no

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real status in the grammar and that they are simply subsumed under (31), given a reasonable assumption on particles independently motivated in the grammar of Japanese. Let us first present our assumption on particles in Japanese.

Particles have traditionally been distinguished into two types, i.e., such case particles as ga (Nominative), o (Accusative), and ni (Dative) and such postpositions as kara 'from', made 'up to' and so on.[20]

Recently, within the GB framework, Saito (1983b) argues that accusative Case is assigned to the object NP by the verb, and nominative Case is inherent in the subject NP in Japanese. Relying on Saito's conclusion, we assume that ga (Nom) and o (Acc) are morphological Case markers on NPs, which are realized in PF, while the other particles including ni (Dat) are postpositions which are present in D-structure, constituting the heads of Postpositional Phrases (PPs). There is an observation on particle deletion which supports our assumption. Observe that only ga and o delete when a quantifier-like particle such as wa (topic marker), and sae 'even' is attached to them, while the other particles resist deletion:

(35) a. *John-ga -wa ki-ta
Nom Top come-Past
'John came.'

b. John-Ø-wa ki-ta

(36) a. ?Mary-ga sono hon -o -sae yon-da
Nom that book Acc even read-Past
'Mary read even that book.'

b. Mary-ga sono hon-Ø-sae yon-da

(37) a. boku-wa Mary-ni-sae hana -o atae-ta
I Top Dat even flower Acc give-Past
'I gave flowers even to Mary.'

b.*?boku-wa Mary-Ø-sae hana-o atae-ta

(38) a. John-wa Mary-kara-sae tegami-o
Top from even letter Acc

uketot-ta
receive-Past
'John received a letter even from Mary.'

b. *John-wa Mary-Ø-sae tegami-o uketot-ta

(35)-(38) show that ga and o are insubstantial in the sense that their realization depends on the morphological contexts in which they occur. Our assumption above is certainly one of the plausible ways to express the insubstantial nature of case particles ga and o.

Under the assumption on particles presented above, the condition on the host NP is explained without introducing any additional rule or principle like (32) or (33). Under this assumption, ga and o are simply morphological Case markers on NPs, thus being "transparent" in Syntax and at LF while the NPs with other particles are dominated by PP, and may not c-command anything outside PP. Then, it follows that the ungrammatical cases (34c-d) contain the illicit structure (31i), but the grammatical cases (34a-b) don't, since the relevant NPs are dominated by PP only in the former. Thus, the observation simply falls under the theorem (31) in the present analysis.

4.1.2. Periphery

There are two further observations concerning the condition on the host NP, which might constitute the peripheral data of Q-Float. These are concerned with the ni- and no-marked subjects and sets of ni-marked objects. Let us consider these cases in turn.

4.1.2.1. The Ni- and No-Marked Subjects

Shibatani (1978, 797-805) observed that the ni-marked and no-marked subjects do not allow a quantifier to float out of them, as shown in (39):

(39) a. *gakusei ni sannin eigo -ga hanas-
student Dat three English Nom speak-

e-ru
can-Pres
'Three students can speak English.'

b. *[$_{NP}$[$_{S}$ yuumei-na sakka -no sannin
famous writer Gen three

tomat-ta] hoteru]
stay-Past hotel
'The hotel where three famous writers stayed.'

Shibatani claims that these observations support the formulation (33) over (32), indicating the irrelevance of the notion GR to Q-Float.

Putting (39a) aside for the moment, let us first discuss the case of the no-marked subject. It is well known that the subject of the clause dominated by NP can be optionally marked with no (genitive Case marker) in Japanese. Harada (1971; 1976a) notes that this process is constrained in such a way that a constituent may not intervene between the no-marked subject and the following verb.[21] Observe the following examples:

(40) a. [$_{NP}$ [$_{S}$ John-ga sono hon -o kat-ta]
Nom that book Acc buy-Past

mise]
shop
'The shop where John bought that book.'

b. *[[John -no sono hon-o kat-ta] mise]

(41) a. [$_{NP}$ [$_{S}$ John-ga kinoo yon-da] hon]
Nom yesterday read-Past book
'The book John read yesterday.'

b.*?[[John -no kinoo yon-da] hon]

Given this, the explanation for the ungrammaticality of (39b) is rather straightforward in the present analysis. (39b) simply violates the above-mentioned restriction on genitivization of the embedded subject, since it has a base-generated quantifier in a prohibited position.[22]

Let us now turn to the case of the ni-marked subject. First, note that the subject is optionally marked with ni only when the main verb is a certain type of stative verb. Second, this "quirky" use of case is not peculiar to Japanese. Similar phenomena are observed

in such languages as Icelandic, and English, as noted in Andrews (1982), and Williams (1984).

Noting that virtually any category appears in the subject position of a copular sentence in English, Williams (1984, 663) proposes to compound categorial specifications, and formulates the following general rule:[23]

(42) NP ⟶ X, for all X

We will assume that this approach to the problem is basically correct, and adopt the following restricted version of (42) to account for the quirky subject in Japanese:

(43) NP ⟶ PP

This rule blatantly violates X-bar theory. Its use, however, is rather restricted, being only allowed as an expansion of the subject of a certain set of stative verbs.[24]

Under this analysis of the ni-marked subject, the explanation for the inapplicability of Q-Float is straightforward. The ni-marked subject cannot be linked to a floating quantifier, since it is a PP, and such a linking would result in the illicit structure (31i).[25] Thus, the observation simply falls under (31) again.

4.1.2.2. The Ni-Marked Objects

Harada (1976b) observes that a certain set of ni-marked objects allow a quantifier to float out of them. Observe the following examples from Harada (1976b, 47-48):

(44) a. Taroo-wa [tikara no tuyo soo-na hito]-ni
Top force strong look man Dat

hutari ki-te morat-ta
two come receive-Past
'Taro had two tough-looking men come.'

b. [Eigo no deki-ru hito] -ni hitori ki-te
English competent man Dat one come

hosi-i
want
'I want one person competent in English (to come).'

c. Ziroo-wa kodomo -ni sannin sin-are-ta
Top children Dat three die-Passive
'Jiro had three (of his) children die.'

d. Kantoku -ga sensyu-ni zenin aka-i
head coach Nom player Dat all red

herumetto-o kabur-ase-ta
helmet Acc wear-cause-Past
'The head coach had all the players put on a red helmet.'

Although (44) all seem apparently to be simplex sentences, there is some evidence that they are complex in Syntax and at LF.[26] Thus, we assume that the simplex nature of (44) is due to a rule of restructuring in PF, and that (44), probably except for the indirect passive (44c), have a control structure like (45) in Syntax and at LF:[27]

(45) $[_S$ NP-ga $[_{VP}$ NP_i-ni $[_{S'}[_S$ PRO_i VP]] V]]

If this analysis of (44) is correct, the grammaticality of (44) naturally follows without introducing any ad hoc stipulations. The floating quantifiers in (44) are not linked to the ni-marked objects but to the PRO subjects of the sentential complements. The correctness of this explanation is indirectly supported by the possibility of a quantifier being linked to the ni-marked object in a control construction which retains the clausehood of the complement sentence throughout derivation:

(46) a. Kanako-wa gakusei -ni sannin soko e
Topstudent Dat three there to

ku-ru yooni tanon-da
come-Past COMP ask-Past
'Kanako asked three students to come there.'

b. Kanako-wa $[_{VP}$ gakusei$_i$-ni $[_{S'}[_S$ PRO_i sannin

$[_{VP}$ soko e ku-ru]] yooni] tanon-da

(46a) has the structure (46b) where the floating quantifier sannin is linked to the PRO subject of the embedded complement. Thus, this case of ni-marked objects is generally not problematic in the present analysis.[28]

Let us now turn to another set of ni-marked objects which allow a quantifier to float out of them, to which the above explanation is not applicable. Inoue (1978) observes that a certain set of transitive verbs mark their objects with the particle ni, and that a quantifier floats from the ni-marked object of these verbs. Observe the following examples from Inoue (1978, 173):

(47) a.?Kato-san-wa [ryokoo-ni sankasu-ru gakusei]
Mr. Kato Top tour in join-Pres student

-ni suunin denwasi-ta
to several call-Past
'Mr. Kato has called the several students who join the tour.'

b. watasi-wa [dantaikyaku-o tome-ru yadoya]
I Top group Acc accept-Pres inn

-ni ni-san-gen atat-te mi-ta[29]
to two or three contact try-Past
'I tried making inquiries at two or three inns which accept groups.'

Haig (1980) further elaborates this observation. He notes that even a ni-marked (indirect) object for which a ditransitive verb is subcategorized allows a quantifier to float out of it:

(48) a.??Kanako-wa tomodati-ni hutari tegami-o
Top friend to two letter Acc

kai-ta
write-Past
'Kanako wrote letters to two of her friends.'

b.??Kanako-wa gakusei-ni sannin tomodati-o
Top student to three friend Acc

syookaisi-ta
introduce-Past
'Kanako introduced her friends to three students.'

He also notes that such sentences as (48) deteriorates when the positions of the direct object and the indirect object NPs are interchanged, as shown in (49):[30]

(49) a. *Kanako-wa tegami-o tomodati-ni sannin kai-ta

b. *Kanako-wa tomodati-o gakusei-ni sannin syookaisi-ta

This set of observations constitutes a genuine problem for our analysis.

Recall first that we assume ni-marked objects are all PPs headed by the postposition ni, as stated in 4.1. There seem to be a few possible approaches to this problem. The intuitive idea of the approach we adopt here is that the postposition ni degenerates to a Case-marker when a certain condition is satisfied. This is not so ad hoc, considering the fact that the English preposition to, the English counterpart of ni in many contexts, for example, seems to degenerate to a Case-marker in some cases, as shown in (50):

(50) John talked to $Mary_i$ about $herself_i$.

In (50), Mary is supposed to be dominated by the PP headed by the preposition to, but it can c-command the reflexive herself. Thus, we tentatively assume that, as a marked option, a semantically empty preposition or postposition may universally degenerate to a Case-marker under certain conditions. Under this general assumption, we may informally state the condition under which ni degenerates to a Case-marker in Japanese as follows:

(51) ni degenerates to a Case-marker when the PP headed by it is the only subcategorized constituent of the head of VP.

In (47), the ni-marked NPs are the only subcategorized constitutents of the verbs, and satisfy (51). Thus, ni degenerates to a Case-marker, and floating quantifiers can be linked to the ni-marked NPs. Note that a floating

quantifier cannot be linked to the ni-marked NP which is not a subcategorized constituent of the verb, even if it is the only non-subject constituent of a sentence, as shown in (52):

(52) *inseki -ga mizuumi-ni mittu oti-ta
meteorite Nom lake in three fall-Past
'Meteorites fell in three lakes.'

The constituent mizuumi-ni 'in lakes' is not subcategorized by the verb and the floating quantifier mittu cannot be linked to mizuumi. As for (48), we assume that the direct object NP and the verb may be reanalyzed into a lexical category V, and that the ni-marked NP is the only subcategorized constituent of this composite lexical category V. Under this assumption, the grammaticality of (48) is accounted for in the same way as (47). The marginal status of (48) may be attributed to the fact that reanalysis itself is a marked option. (49) is derived by scrambling the direct object NP out of the reanalyzed lexical category V, and ungrammatical due to a violation of the requirement of lexical integrity.[31]

4.2. Conditions on the Application of Q-Float

Kamio (1977) observes that Q-Float obeys the Coordinate Structure Constraint (CSC) and the Subjacency Condition (SC), arguing that these observations indicate the transformational status of Q-Float. Observe the following examples:

(53) a. *boku-ga [$_{NP}$[$_{NP}$ orenji]-to [$_{NP}$ sannko no
I Nom orange and three Gen

ringo]]-o hatiko kat-ta
apple Acc eight buy-Past
'I bought eight oranges and three apples.'

b. *[$_{NP}$[$_{NP}$ gakusei]-no [$_{NP}$ hon]]-ga sannin
student Gen book Nomthree

nusum-are-ta
rob-Pass-Past
'Three students were robbed of their books.'

(53a,b) violate the CSC and the SC, respectively, and they are ungrammatical.

The cases of CSC and SC violations both contain the illicit structure (31i), since they represent a configuration where the host NP is dominated by another maximal projection, i.e., NP in the above cases. Thus, Kamio's observation also falls under the theorem (31), and it is not necessary to have recourse to such conditions as the CSC and the SC in this case, although these conditions might be independently motivated in the grammar of Japanese.[32]

4.3. A Condition on a Floating Quantifier

Haig (1980) presents an interesting observation that a quantifier floated from the subject NP may cross adverbs and oblique NPs but not object NPs. Compare (14) (repeated here as (54)) with (55):

(54) *gakusei-ga hon -o gonin yon-da
student Nom book Acc five read-Past
'Five students read books.'

(55) a. gakusei -ga kinoo sannin sin-da
student Nom yesterday three die-Past
'Three students died yesterday.'

b. ?gakusei-ga tosyokan de gonin hon -o
student Nom library in five book Acc

yon-da
read-Past
'Five students read books in the library.'

The contrast between (54) and (55) shows that time adverbs and locatives, but not direct objects, can intervene between a floating quantifier and its host NP.

Haig's observation, however, is not accurate. It must be replaced with such a statement as (56):

(56) A floating quantifier and its host NP may not be separated by the direct or the indirect object NP or a certain set of oblique NPs whose exact extension is to be defined in some way.

(56) properly covers cases, such as (57), where the intervention of the indirect object NP and the oblique NP is prohibited, as well as (54) and (55):

(57) a.*?tomodati-ga Kanako-ni hutari tegami-o
friend Nom to two letter Acc

kai-ta
write-Past
'Two of her friends wrote letters to Kanako.'

b.*?gakusei-ga Kanako kara sannin hon -o
student Nom from three book Acc

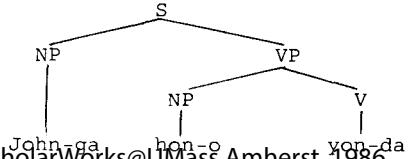
kari-ta
borrow-Past
'Three students borrowed books from Kanako.'

It is apparently necessary to refer to such GRs as "direct and indirect object" and "oblique NP" to formulate the statement (56) in the grammar. Within the present framework, however, it is not even necessary to formulate an independent principle to account for the observed generalization (56). (56) simply falls under the theorem (31), if we add an assumption independently motivated in the analysis of Japanese, i.e., the presence of VP in configurational structures.

It has been generally assumed that there is no VP at least in configurational structures in such non-configurational languages as Japanese. However, Saito (1983a; 1985) recently argues for the existence of VP in Japanese and provides some supporting evidence for it. Under this assumption, putting INFL aside, (58), for example, will be represented as (59) at D- and S-structure, and at LF:

(58) John-ga hon -o yon-da
Nom book Acc read-Past
'John read a book.'

(59)



Let us reproduce one of Saito's arguments for this assumption. Observe the following example from Saito (1985, 129):

(60) [$_S$ John$_i$-no hahaoya-ga [$_{VP}$ kare$_i$-o aisi-
Gen mother Nom he Acc love-

te i-ru]]
Prog-Pres
'John's mother loves him.'

Suppose that we have the general condition (61).

(61) A pronoun cannot c-command its antecedent.

Then, (60) will be wrongly predicted to be ungrammatical unless there is VP in Japanese, since kare 'he' will otherwise c-command John. This provides a piece of evidence for the existence of VP in Japanese.

Given this assumption, it is obvious that a floating quantifier is dominated by VP in (54) and (57), since it is preceded by the constituents which are naturally assumed to be dominated by VP, i.e., the direct object, the indirect object, and the oblique NP with the theta role "source". Then, it follows that (54) and (57) contain the illicit structure (31ii), a base-generated quantifier being protected by the maximal projection VP in them.

The grammatical case (55) is explained as follows. We assume that a certain set of adverbs and oblique NPs are dominated by S. Suppose that the adverb and the oblique NP in (55) are dominated by S. Then, (55) contain neither of the illicit structures in (31), and are well-formed. This assumption, however, raises another question of how to define the set of constituents which are dominated by S. An immediate possibility is to exploit the notion "theta-government".[33] By definition, a constituent which is theta-governed by the verb is dominated by the VP of which it is the head. Then, we may state that a constituent which is not theta-governed by the verb may be dominated by S. This explanation must be made more precise by supplementing it with additional assumptions to see if it is plausible.[34] Although this seems to be the right direction in which to proceed, we will not undertake a discussion of this issue here, but will leave it open for further study.

5. Further Consequences

5.1. Scrambling

Kuroda (1980; 1983) and Haig (1980) note that there is an asymmetry between the quantifiers floated from the subject and the object NPs with respect to the "crossing" constraint discussed in section 4.3. Observe the following contrast:

(62) a. *gakusei-ga hon -o gonin yon-da
student Nom book Acc five read-Past
'Five students read books.'

b. hon -o gakusei-ga gosatu yon-da
book Acc five Nom five read-Past
'The students read five books.'

(62a) is ungrammatical, since the quantifier floated from the subject NP "crosses" the direct object, violating the crossing constraint. On the other hand, (62b) seems to suggest that the quantifier floated from the fronted object may cross the subject NP.

On the basis of this observation, Saito (1985, 51-53) argues that the grammaticality of (62b) shows that hon-o is moved to the sentence-initial position by Move α, so that no crossing is involved here. However, since Saito does not commit himself to any particular analysis of Q-Float, his argument does not decisively argue for the presence of the trace in S-structure, although it may follow from the Projection Principle. For example, under the movement analysis of Q-Float, it is possible to argue that what is relevant here is the ordering between Scrambling and Q-Float, as suggested in Haig (1980). In that case, it is not necessarily the case that the NP moved by scrambling leaves its trace behind.

In our analysis, this ambiguity disappears. Since a floating quantifier is a secondary predicate, and it must be linked to an argument at S-structure in our analysis, the sentence like (62b) must contain the trace of the moved object, to which the floating quantifier is linked by the rule of predicate-linking. Thus, the present analysis of Q-Float makes it possible to constitute a more decisive argument for the analysis of scrambling in terms of Move α.

5.2. Direct Passives

Saito (1983a) argues for a movement analysis of the so-called direct passive in Japanese. One of the advantageous aspects of his analysis is that we do not have to make any language-particular stipulations in this analysis. The function of passive morphology in Japanese is assumed to be exactly the same as that of English, i.e., it absorbs accusative Case and suppresses the assignment of a theta role to the subject NP. Thus, the object NP must move to the subject position to take nominative Case. Observe the following instance of the direct passive:

(63) a. sono hon -ga kinoo Mary-ni atae-rare-ta
that book Top yesterday to give-Pass-Past
'That book was given to Mary yesterday.'

b. [$_{NP}$ e] kinoo [$_{VP}$ Mary-ni sono hon-o atae-rare-ta]

c. sono hon$_i$ -ga kinoo [$_{VP}$ Mary-ni t_i atae-rare-ga]

(63a) is derived from the D-structure (63b) by NP-movement and has the S-structure (63c).

Our analysis of Q-Float provides an argument for this analysis of the direct passive in Japanese.[35] Observe the following contrast:

(64) a. *gakusei-ga kinoo Mary-ni sannin sono
student Nom yesterday to three that
hon -o atae-ta
book Acc give-Past
'Three students gave books to Mary yesterday.'

b. hon -ga kinoo Mary-ni gosatsu atae-
book Nom yesterday to five give-
rare-ta
pass-Past
'Five books were given to Mary yesterday.'

(64a) shows that the phrase Mary-ni 'to Mary' is dominated by VP, and the floating quantifier in VP cannot be linked to the subject NP, since the mutual c-command condition is not met here. In (64b), the floating quantifier gosatsu 'five copies' should also be dominated by VP, since it is located to the right of the phrase Mary-ni which is assumed to be dominated by VP, but it can apparently be linked to the subject NP. This contrast can be explained by assuming that the trace of the subject NP is present in VP, as analogous to the case of scrambling. The floating quantifier is linked to the trace in VP. This contrast seems to constitute a piece of evidence for Saito's analysis of the direct passive even under the movement analysis of Q-Float. However, it may not, by itself, say anything decisive about the presence of the trace, the contrast being able to be explained by simply setting up an extrinsic ordering between Q-Float and NP-Movement. The present analysis, on the other hand, provides a direct support for Saito's analysis of the direct passive, since it necessitates the presence of the trace at S-structure.

6. Conclusion

We have argued in this paper that a floating quantifier is a secondary predicate in Japanese and that the set of observations presented in the previous literature can be given a unified account in the present analysis. We have also noted two further consequences of the present analysis of Q-Float for the analyses of scrambling and the direct passive in Japanese.

FOOTNOTES

This paper is a considerably revised and extended verion of Ueda (1986). I would like to thank Nobuko Hasegawa, Yukinori Takubo, and UMOP reviewers for insightful comments and suggestions. My thanks are also due to Yasuhiko kato, Kimihiro Ohno, Katsuhide Sonoda, and the participants at the third meeting of Doyoo Kotobanokai held at Kyoto University, where part of the material in this paper was presented. I have to note here that Miyagawa (1986) independently developed a similar analysis of Quantifier Float in Japanese along slightly different lines. Since I came to know of the existence of that paper at the final stage of the revision of this paper, I could not include a discussion of it here.

[1]It seems possible to separate the modifiers awase-te 'in all' and yaku 'about' from the quantifier gonin, as shown in (i):

(i) a. ?awase-te, gakusei-ga gonin ki-ta

b. ?yaku, onnanoko-ga gonin sono heya-ni i-ru

This might be taken as evidence that these two words do not form a single constituent. However, it seems to be marginally possible to take the specifier (or modifier) out of a maximal projection, adjoining it to S, as shown in (ii):

(ii) a.*?siro-i, Kanako-wa natu-fuku -o ki-
white Top summer dress Acc wear-

te i-ta
Prog-Past
'Kanako was in her white summer dress.'

b.*?Kanako-no, boku-wa titioya-ni at-ta
Gen I Top father Dat meet-Past
'I met Kanako's father.'

Thus, we assume that (i) and (ii) are derived by scrambling of the specifier. This assumption predicts that the specifier cannot be moved to the right of the head, since scrambling adjoins a category to the left of S (or VP) and this prediction is borne out, as shown in (i') and (ii').

(i') a. *gakusei-ga gonin awase-te ki-ta

b. *onnanoko-ga gonin yaku sono heya ni i-ta

(ii') a. *Kanako-wa natu-fuku-o siro-i ki-te i-ru

b. *boku-wa titioya-ni Kanako-no at-ta

Although some speakers find (ii) worse than marginal, they also agree that there is a clear difference in grammaticality between (ii) and (ii'). Thus, we tentatively assume that the grammaticality difference between (i) and (ii) is insignificant, though clearly perceived, being effected by some independent factors, while the contrast between (i) and (ii) on the one hand and (i') and (ii") on the other is significant. Note also that scrambling of a possessive NP may be prohibited by the principle assumed in Saito (1983), which we will present in footnote 2. However, if this principle is to be replaced with another principle presented in footnote 33, the problem may not arise.

[2] Saito (1983b, 254), assuming principle (i),

(i) Variables must have Case.

argues that since nominative Case is not assigned to the subject NP, but inherent in that NP, the variable left by scrambling will not be Case-marked, if the subject is moved to A'-position by scrambling, and that (i) will be violated. Note also that in (2b') the trace left in the determiner position by Q-Float is not properly A'-bound by the quantifier in the specifier position of COMP. Cf. May (1977).

[3] A UMOP reviewer pointed out to us that although (6) allows Chomsky-adjunction of a quantifier to a lexical category V, the resultant structure is definitely counter-intuitive, so that (6) is not viable. This observation could be refined into an independent argument against the formulation (6). However, let us assume here that (6) is viable, suspending a discussion of this observation. Note also that under the assumption that S is a projection of INFL, (6) must be trivially reformulated as (i):

(i) Adjoin a quantifier to the left periphery of X^n where X^n is some projection of INFL for

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the quantifier floated from the subject, and of V for the one floated from the direct object.

The arguments in the text, however, will work just as well, with the reformulation (i).

[4]It has been claimed recently that there are instances of Move α both in Syntax and at LF in Japanese. Saito (1983a, 1985), for example, argues that scrambling is an instance of Move α which moves a category leftwards and adjoins it to the left periphery of S or VP. In addition to scrambling, it is also assumed that Japanese has LF Wh-Movement and QR. These rules might be formulated as either a rightward or leftward movement of a (quasi-) operator. If it is assumed to be a rightward movement, the operator is adjoined to the right periphery of S (or S'), and if otherwise, it is adjoined to the left periphery of S (or S'). Note that these instances of Move α follow the same patterns in the sense that they choose the same side as to the direction of movement and the adjunction cite. It is clear that (6) does not have this property.

[5]Although this might be the correct assumption about the nature of a floating quantifier in English, we will show that this is not the case in Japanese.

[6]The wide scope reading of issatu 'a copy' is marginal even in (9a). That reading, however, is definitely obtainable for some speakers, while it is absolutely impossible in (9b). Cf. Hoji (1985) for a discussion of a general principle determining scope interaction of quantifiers in Japanese.

[7]We assume that a floating quantifier and an adjunct in general can occur virtually in any position in a sentence unless its presence leads to a violation of a principle of the grammar. For example, an adjunct cannot be adjoined to an argument, since it leads to a violation of the theta criterion. Cf. Chomsky (1986b).

[8]Rothstein assumes Aoun and Sportiche's (1982/1983) definition of "c-command", which she states as follows (p. 34):

(i) α c-commands β if and only if every maximal projection dominating α also dominates β.

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We assume this definition of "c-command" throughout this paper.

[9]See Miyagawa (1986) for an argument for this assumption.

[10]This is a somewhat simplified characterization of the distinction between primary and secondary predicates, although it suffices for the present purposes. Rothstein's (1983, 161-162) characterizations of primary and secondary predicates are as follows:

(i) X is a primary predicate of Y if and only if X and Y form a constitute which is either theta-marked or [+INFL].

(ii) X is a secondary predicate of Y if and only if Y is an NP theta-marked by a lexical head other than X.

[11]This observation was pointed out to us by both Nobuko Hasegawa and Yukinori Takubo (personal communication). See Jackendoff (1972) for a discussion on the notion of "orientation" of adverbs.

[12]We will return to a discussion of this observation later in section 4.3.

[13]The following sentence might be taken as an exception to the above generalization on a depictive linked to the subject NP:

(i) The river froze solid.

Here, solid describes the resultant state of the river, even though it is linked to the subject of the sentence. Rothstein (1983, 92-93) argues that a verb of this type is an "ergative verb", and that such a sentence as (i) is derived from the D-structure (iia) by Move α, and has the S-structure (iib):

(ii) a. $[_S\ [_{NP}\ e\ ]\ [_{VP}$ froze the river solid$]]$

b. $[_S$ the river$_i\ [_{VP}$ froze t_i solid$]]$

An analogous problem may arise in Japanese. Observe the following sentence:

(iii) otokonoko-ga sannin atumat-ta
boys Nom three gather-Past
'Three boys gathered.'

sannin definitely has a resultative interpretation. Following Rothstein, we assume that atumar-u is an ergative verb, and that (iii) is derived from the D-structure (iva), and has the S-structure (ivb):

(iv) a. [$_{NP}$ e] [$_{VP}$ otokonoko sannin atumat-ta]

b. otokonoko$_i$-ga [$_{VP}$ t_i sannin atumat-ta]

See Rothstein (1983) for a more detailed discussion.

[14]There seems to be a pseudo-resultative interpretation of a floating quantifier. For example, (25a) could mean that students read that book in turn, and the number of students amounts to three due to the repeated action of reading. However, there is an intuitively clear semantic distinction between the pseudo-resultative and the "true" resultative interpretations. We leave a precise characterization of these two interpretations open here.

[15]See Kamio (1977) for a different explanation for the ungrammaticality of this type of sentence under the movement analysis of Q-Float. Note also that 2000cc can be predicated of mizu 'water', as in (i):

(i) boku-wa mizu -o 2000cc taru -ni ire-ta
I Top water Acc barrel to put-Past
'I put 2000ccs of water into the barrel.'

The reason for this is that 2000cc is a transitory property with respect to mizu 'water'. The presence of this example is pointed out to us by a UMOP reviewer.

[16]We will argue in Ueda (in preparation) that the ungrammaticality of (28a,b) and (29a,b) is reducible to an ECP violation. Cf. Chomsky (1986b).

[17]This distinction seems arbitrary at first. However, it should be clear from the discussions in section 4.1.2 that the peripheral nature of the data of Q-Float presented in that section is attributable to the peripheral nature of the processes in the grammar of Japanese which yield the peripheral data of Q-Float.

[18](32) is a simplified version of Kamio's (1973) conditon. Cf. Kamio (1973).

[19]Cf. Shibatani (1977).

[20]For example, see Kuno (1973).

[21]Harada (1971; 1976a) incorporates the constraint into the formulation of the rule ga/no conversion. He also observed that there are two groups of people distinguished on the basis of the presence or absence of this constraint in their grammar, and formulated the two versions of the rule of ga/no conversion. See Shibatani (1975) for a different view.

[22]We essentially follow Masuoka's (1978) approach to this problem.

[23]Cf. Williams (1984) for further details.

[24]An obvious problem is that the postposition of an oblique subject is restricted to ni 'to'. We have no explanation for this fact. We simply leave this problem open here.

[25]Shibatani (1978) notes that an oblique subject triggers the processes which are triggered by the NP bearing the GR "Subject", i.e., Reflexivization and Subject Honorification, and argues that the oblique subject must bear the GR "subject". We tentatively assume that a constituent which triggers these processes should not be defined in terms of GR, but of the notion "subject" in the sense of predication, and that the whole NP dominating PP works as a trigger of these processes in the case of an oblique subject.

[26]Let us take just one observation which supports the assumption of a bi-clausal structure for (44). As Oshima (1979) observes within the pre-OB framework, the Binding Theory (B), which we state as (i), holds in Japanese, as shown in (ii):

(i) The Binding Theory (B)

A pronominal is free in its governing category.

(ii) a. *Taroo$_i$-ga kare$_i$-o sinyoosi-te i-ru
Nom he Acc believe-Prog-Pres
'*Taro believes him.'

b. Ziroo$_i$-wa [$_S$ Taroo-ga kare$_i$-o sinyoosi-
Top Nom he Acc believe-

te i-ru] to omot-ta
Prog-Pres COMP think-Past
'Jiro thought that Taro believed him.'

The Binding Theory (B) expresses the intuitive idea that a pronominal may not have its antecedent in the same S or NP, if we roughly understand the governing category to be a minimal S or NP dominating the pronominal, as shown in the contrast between (iia) and (iib). Thus, if a pronominal can take an NP as its antecedent, then it follows that there exists an S or NP which dominates the pronominal but not its antecedent. Now observe that in a type of sentence, such as (44), it is possible for a pronominal in the object position to have the subject NP as its antecedent, as shown in (iii):

(iii) a. Taroo$_i$-wa Bill-ni kare$_i$-o tosyokan-ni
Top Dat he Acc library to

ture-te it-te morat-ta
bring receive-past
'Taro had Bill take him to the library.'

b. Taroo$_i$-wa Bill-ni kare$_i$-o mitome-te
Top Dat he Acc recognize

hosikat-ta
want-Past
'Taro wanted Bill to recognize him.

c. Taroo$_i$-wa Bill-ni kare$_i$-o sinyoos-
Top Dat he Acc believe-

ase-ta
cause-Past
'Taro made Bill believe him.

d.*Taroo$_i$-wa Bill-ni kare$_i$-o nagur-are-ta
Top Dat he Acc hit-Pass-Past
'Taro had Bill hit him.

This observation shows that this type of sentence has a bi-clausal structure. Note in passing that it seems impossible to find a relevant example in the case of

indirect passives, as the ungrammaticality of (iiid) indicates. We have no explanation for this fact. But there is other evidence for the bi-clausal nature of indirect passives, such as reflexivization. We leave this problem open here.

[27]There is a piece of evidence for this assumption. Tonoike (1978) argues that there is a generalization on an object-control construction, which we may restate as follows:

(i) In an object-control construction, the complement verb must be self-controllable.

Observe that a non-self-controllable verb such as kizetusu-ru 'faint' cannot occur in an object-control construction due to (i):

(ii) *Taroo-wa Mary$_i$-ni [PRO$_i$ kizetusu-ru]
Top Dat faint-Pres

yooni tanon-da
COMP ask-Past
'*Taro asked Mary to faint.'

The generalization (i) also holds true of such sentences as (44). Observe, for example, the following causative sentence:

(iii) *Taroo-wa Mary-ni kizetus-ase-ta
Top Dat faint-cause-Past
'*Taro made Mary faint.'

This fact suggests that sentences such as (44) are object-control constructions. Note also that (i) does not hold of an indirect passive, as shown in (iv):

(iv) Taroo-wa ame -ni hur-are-ta
Top rain Dat fall-Pass-Past
'It rained on Taro.'

In (iv), the verb hur-u 'fall' is clearly not self-controllable, but the sentence is grammatical. This indicates a structural difference between an indirect passive and other constructions in (44). We leave this problem open here.

[28]A remaining problem is the marginal nature of

(44) and (46a). Note first that a subject-control construction, such as (i) is more marginal than (44) and (46a):

(i)???gakusei$_i$-ga Mary-ni [PRO$_i$ sannin ku-ru]
student Nom Dat three come-Past

koto -o yakusokusi-ta
COMP Acc promise-Past
'Three students promised Mary to come.'

What is involved here seems to be a semantic identity of gakusei and PRO. While the expression gakusei is not specific about the number of the students except that it is plural, the number of the objects denoted by PRO is specified by the secondary predicate sannin. Thus, a semantic incongruity may arise. Another factor seems to be the "closeness" of the controller and the controllee, as reflected in the difference in marginality between (44),(46a) on the one hand and (i) on the other. See Hasegawa (1985, footnote 15) for a discussion.

[29]Inoue notes that this sentence is perfectly grammatical. This might be due to some pragmatic factors. As Haig (1980) notes, a quantifier more easily floats out of ni-marked NPs when it is an "approximate", as in (47b). We assume here that this type of sentence generally has a marginal status in the grammar.

[30]The grammaticality judgments of (48) and (49) are ours. There seem to be considerable variations as to the grammaticality of such sentences as (48), as Haig (1980) points out. Haig would put (?) to (48) and (??) to (49).

[31]In connection with this, Haig (1980) notes the presence of the following sentences, the observation of which he attributes to Kuno (1978):

(i) a.(?)tomodati-ni sigonin tegami-o kai-ta
friend to 4 or 5 letter Acc write-Past
'I wrote letters to four or five of my friends.'

b. *tomodati -ni tegami -o sigonin kai-ta

The ungrammaticality of (ib) can be attributed to the failure of reanalysis due to the presence of the

quantifier intervening between the direct object NP and the verb. Another possibility is to allow free application of reanalysis and to attribute the ungrammaticality of (i) to a violation of the mutual c-command requirement by adding a stipulation to the definition of "c-command", to the effect that any constituent dominated by a zero-level category cannot c-command a constituent outside that category. Cf. Hornstein and Weinberg (1981) and Stowell (1982) for a possible formulation of reanalysis and conditions on it.

[32]This explanation is essentially along the same lines as Inoue's (1978, 182-3). See, for example, Nishigauchi (1984) for the relevance of the Subjacency Condition to Japanese.

[33]Chomsky (1986b, 13, 15) defines this notion and the notion "sister" in terms of which it is defined as:

(i) α theta-governs β if α is a zero-level category that theta-marks β, and α, β are sisters.

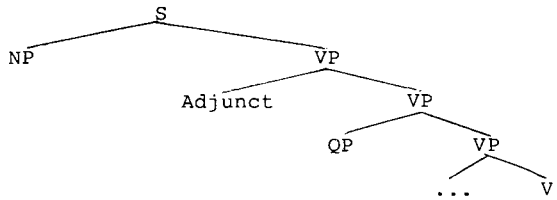
(ii) α and β are sisters (in the relevant sense) if they are dominated by the same lexical projection.

[34]Suppose that we adopt Chomsky's (1986b, 7) assumption concerning adjunction structures:

(i) α is dominated by β only if it is dominated by every segment of β.

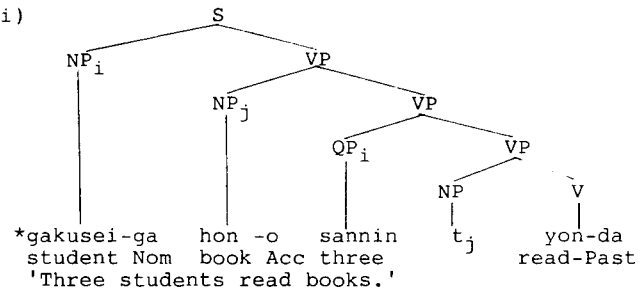
Then, we may assume that a floating quantifier can be adjoined to VP, even if it is linked to the subject NP, since the floating quantifier is in the mutual c-command relation to the subject NP, not being dominatd by VP under Aoun and Sportiche's definition of "c-command" we assume in this paper (This was pointed out to us by Kimihiro Ohno (personal communication)). The assumption of (i) has some other interesting consequences. For example, we may now assume that a non-theta-governed constituent (an adjunct) is adjoined to VP along with a floating quantifier QP linked to the subject NP, as in (ii):

(ii)



In (ii), QP can be linked to the subject NP, since they share every maximal projection, QP not being dominated by VP. However, this raises a problem. Observe (iii):

(iii)



Although (iii) is ungrammatical, as discussed in the text, (i) predicts (iii) to be grammatical, allowing QP to be linked to the subject NP in (iii). One possible way to solve this problem is to stipulate a condition on adjunction. Hoji (1985, 352) proposes such a condition on adjunction on independent grounds:

(iv) A syntactic adjunction operation cannot apply if it does not change the order of the overt lexical string.

(iv) seems to properly cover the case discussed above, if it is slightly extended, and restated as follows:

(v) A syntactic adjunction operation cannot apply if it does not change the order of the overt string or if it leads to the overt string which can be base-generated.

Recall that we assume that a floating quantifier can occur virtually in any position in a sentence. (Cf. footnote 7) Therefore, a floating quantifier may occur to the right of the object NP in VP in (iii), although it cannot be properly linked to the subject NP in this case. Then, scrambling of the object as observed in (iii) is prohibited by (v), since the outcome is an overt string which can be base-generated. Note that principle (i) mentioned in footnote 2 may be partly subsumed under (v). Although there are some other consequences concerning the phenomenon discussed in footnote 1, we do not discuss them here.

[35] Miyagawa (1986) independently proposed essentially the same argument for this analysis of the direct passive.

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