The Quantifier Float Construction in Japanese

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0. Introduction

Numeral quantifiers in Japanese usually occur inside an NP with the structure [Quantifier-Classifier no Noun]NP but they can also occur outside an NP. Consider the following pairs of sentences:

(1) a. [San-nin no kodomo]NP ga kita.
   3-classifier Gen children Nom came.
   ‘(The) three children came.’
   b. [Kodomo]NP ga san-nin kita.

(2) a. John ga [san-bon no biiru]NP o nonda.
   Nom 3-cl Gen beer Acc drank
   ‘John drank three bottles of beer.’

It seems obvious that the (a) sentences are related to the (b) sentences both in meaning and in structure. The pairs of sentences in (1) and (2) appear to have the same meanings. In terms of structure, the (b) sentences seem to be derived by moving the quantifiers (san-nin, and san-bon, respectively) out of the ga-marked nominative NP and o-marked accusative, NP, respectively, postposing them after these NPs. The transformational rule which operates on sentences of type (a) and derives sentences of type (b) has been called Quantifier Float (QF hereafter). The phenomena involving QF, however, are not as simple and clear-cut as they appear to be at first glance. In fact, many controversies have been raised in recent years (cf. Okutsu (1969, 1974), Shibatani
The Quantifier Float Construction in Japanese


These controversies seem to be concerned with two major issues. The first issue is concerned with specifying the conditions on QF, assuming that there exists a transformational rule of QF. The question asked is under what conditions QF is allowed to take place. The second issue is concerned with the question of whether QF is to be treated as a transformational rule or rather as a rule of interpretation. In other words, the question is whether pairs of sentences like those given above are to be transformationally related or rather base-generated independently of each other.

This paper focuses on the first issue concerning QF based on the assumption that QF is operative in Japanese. Section 1 gives a brief survey of the literature on the controversy concerning how to define NPs which allow QF, that is, whether they are to be defined on the basis of grammatical relations or surface cases. Section 2 discusses the problems with QF from dative NPs, which constitutes one of the “fuzzy” areas in this phenomenon. Section 3 briefly introduces Haig’s (1980) treatment of QF and rules of scrambling, where what we call the Word Order Condition on QF from dative NPs is discussed. Section 4 examines QF from oblique-case NPs which constitute case frames subcategorized for verbs. Section 5 examines the possibility of QF from dative NPs which involves the movement of a quantifier across adverbials. The Adjacency Condition will be introduced to overcome the inadequacy of the Word Order Condition. Some statistical evidence will be provided to support our claim. Section 6 discusses whether the Adjacency Condition is also applicable to QF from nominative and accusative NPs. A study of this kind is important because the conditions on QF must be incorporated in some way or other no matter which approach (i.e. transformational or interpretive) is to be adopted.
1. Grammatical Relations vs. Surface Cases

QF applies only to a certain set of NPs. One of the controversies is concerned with the question as to how this set of NPs should be defined, namely in terms of grammatical relations or in terms of surface cases, or both. Okutsu (1969, 1974) attempts to define the conditions on QF in terms of grammatical relations and claims that QF applies only to subject and direct object NPs. This formulation of the conditions on QF accounts for the great majority of cases involving QF, thus correctly predicting the contrast between the acceptability of (3b) and (4b), which involve QF from an accusative NP and a nominative NP, on the one hand, and the unacceptability of (5b) and (6b), which involve QF from NPs with oblique cases on the other:

(3) a. John wa san-satsu no hon o katta
   Top 3-cl Gen book Acc bought
   ‘John bought three books.’

   b. John wa hon o san-satsu katta.

(4) a. Go-nin no gakusei ga sake o nonda.
   5-cl Gen student Nom sake Acc drank
   ‘(The) five students drank sake.’

   b. Gakusei ga go-nin sake o nonda.

(5) a. John wa go-hon no empitsu de e o kaita.
   Top 5-cl Gen pencils with picture Acc drew
   ‘John drew a picture with five pencils.’

   b. *John wa empitsu de go-hon e o kaita.

(6) a. John wa san-nin no tomodachi kara kane o karita.
   Top 3-cl Gen friends from money Acc borrowed
   ‘John borrowed money from three of his friends.’

   b. *John wa tomodachi kara san-nin kane o karita.

This formulation of the conditions on QF based on grammatical relations, however, was challenged by Shibatani (1977, 1978a,
who claimed that QF is constrained not by grammatical relations but by surface cases; i.e. quantifiers can float from nominative and accusative NPs. His argument is based on the fact that subjects case-marked by dative *ni* do not permit QF. First, Shibatani argues that a dative NP is considered to be the subject if it triggers subject-referring rules such as Reflexivization and Subject Honorification illustrated in (7) and (8):

(7) Sensei ni zibun ga wakaru. 
   teacher Dat self Nom understand 
   ‘The teacher understands himself.’

(8) a. Sensei ni eigo ga wakaru. 
   teacher Dat English Nom understand 
   ‘The teacher understands English.’

b. Sensei ni eigo ga owakari-ni-naru. 
   understand (honorific)

Despite the fact that the dative NP as shown above is considered to be the subject, the quantifier is not allowed to float out of the subject NP, as is clear from the unacceptability of (9b):

(9) a. San-nin no kodomotachi ni eigo ga wakaru. 
   3-cl Gen children Dat English Nom understand 
   ‘(The) three children understand English.’

b. *Kodomotachi ni san-nin eigo ga wakaru.

Shibatani further strengthens his position by showing that once dative subjects undergo Nominativization\(^1\), which converts dative *ni* to nominative *ga*, the *ga*-marked subjects now allow QF, as in (10b):

(10) a. San-nin no kodomotachi ga eigo ga wakaru. 
   3-cl Gen children Nom English Nom understand 
   ‘(The) three children understand English.’

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1) Kuno (1978) calls this phenomenon Subjectivization, and puts forward some arguments for this terminology in the section “Case Marking and Relational Grammar”.
b. kodomotachi ga san-nin eigo ga wakaru.

Thus, Shibatani reaches a generalization that QF is governed by surface case marking, which does not always reflect grammatical relations.

Kuno (1978), however, argues against this generalization by providing some counterexamples. He observes that quantifiers can float rather freely from no-marked subjects of adjectival clauses, as in (11)\(^2\).

(11) a. [[Suu-dai no kuruma] no tomatte iru] michi
    several-cl Gen car Subj parked street
    ‘The street on which were parked several cars’

b. [[Kuruma] no suu-dai tomatte iru] michi

Kuno further argues that the difference in the degree of acceptability between (12) and (13) cannot be accounted for by Shibatani’s generalization, which is solely based upon surface cases:

(12) a. Shigo-nin no tomodachi ni tegami o kaita.
    4-or-5-cl Gen friend Dat letter Acc wrote
    ‘I wrote letters to several friends of mine.’

b. *Tomodachi ni shigo-nin tegami o kaita.

(13) a. Shigo-nin no tomodachi ni furansugo ga wakaru.
    4-or-5-cl Gen friend Dat French Nom understand.
    ‘Several friends of mine understand French.’

b. *Tomodachi ni shigo-nin furansugo ga wakaru.

Based on these observations, Kuno (1978:255) concludes that “conditions for quantifier floating cannot be stated purely on the basis of grammatical relations, or purely on the basis of surface cases, but require reference to both: namely quantifiers can float

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2) Note, however, that quantifiers cannot float out of no-marked NPs when no does not mark the subject, as in (i):

(i) a. [San-nin no gakusei] no geshuku ni itta.
    3-cl Gen student Gen lodging to went
    ‘I went to the lodgings of the three students.’

b. *[Gakusei] no san-nin geshuku ni itta.
more easily from NPs in the dative cases which function as indirect objects than NPs in the same case which function as Subjects.”

To sum up, the conditions on QF can be specified by surface cases as far as NPs with nominative and accusative case markers are concerned. The problem arises, however, when dealing with (i) no-marked subject NPs of adjectival clauses, and (ii) NPs marked by dative ni, functioning either as indirect objects or as subjects in a certain construction. As Kuno argues, these grammatical relations are relevant to the variation in grammaticality of QF from NPs with dative ni. To this extent grammatical relations are necessary to determine the condition on QF in Japanese.

2. Quantifier Float from Dative NPs

We are now in a position to examine in more detail under what conditions QF applies to NPs marked by dative ni. Inoue (1978) observes that not all ni-marked indirect objects permit QF. Compare (14) and (15), where both involve QF from dative NPs, but only the latter results in a grammatical sentence:

(14) *Watakushi wa kono jisho o shoonentachi ni suu-nin purezentoshita.

'I gave this dictionary (these dictionaries) to several boys.'

3) Kuno (personal communication) points out that (15) is much better than other sentences involving QF from ni-marked NPs. He speculates that this might be due to the fact that the verb ataru ‘try, check’ takes NP-o, as well as NP-ni:

(15) Kuno (personal communication) points out that (15) is much better than other sentences involving QF from ni-marked NPs. He speculates that this might be due to the fact that the verb ataru ‘try, check’ takes NP-o, as well as NP-ni:

(i) a. Yadoya o nisan-gen atatte mita.
   inn Acc 2-or-3-cl try at
   ‘I tried at two or three inns.’

b. Ano yadoya o atatte mimashoo.
   that inn Acc try at
   ‘Let’s try at that inn.’
Watakushi wa dantaikyaku o tomeru yadoya ni
I Top group-travellers Acc put-up inn Dat
nisan-gen atatte-mita.
2-or-3-cl try at
'I tried at several inns that put up group travellers.'

Inoue notes further that the accusative o used as a locative (co-
occurring with verbs of motion) allows QF:

(16) a. Watakushi wa futatsu ka mittsu no hashi o
I Top 2-cl or 3-cl Gen bridge Acc
watatta to kiokushite iru.
crossed Comp remember
'I remember having crossed two or three bridges.'

b. Watakushi wa hashi o futatsu ka mittsu watatta to
kiokushite iru.

From these observations, Inoue argues that it is necessary to
distinguish between (i) *ni*-marked NPs which are considered
genuine indirect objects which co-occur with direct objects, as in
(14), and (ii) those *ni*-marked NPs and *o*-marked NPs which are
considered to occupy obligatory case frames for their verbs, as in
(15) and (16)⁴. She concludes that quantifiers can float out of
(ii) as well as from NPs marked by nominative and accusative
cases, but not from (i)⁵.

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4) The term *obligatory* is not clearly defined in Inoue (1978) nor in
Haig (1980). In this paper, this term will be used in the sense of
Teramura's (1982) *primary complement* which will be discussed later.

5) *Ni*-marked NPs in the passive construction function as agents, and
not as indirect objects. Therefore it is impossible to rule out sen-
tences such as (i-b) given in Shibatani (1978: 353) on the ground that
it involves an indirect object:

(i) a. Boku wa nisan-nin no kodomo ni tasukerareta.
I Top 2-or-3-cl Gen children Dat was rescued
'I was rescued by two or three children.'

b. *Boku wa kodomo ni nisan-nin tasukerareta.
If we assume, however, that the passive construction has a deep
structure represented as follows (cf. Kuno 1973: 345-349), then this

Inoue's position with regard to the impossibility of QF from *ni*-marked NPs which function as genuine indirect objects (cf. (14)) is apparently in contradiction with Kuno's position according to which quantifiers may float out of such NPs (cf. (12b)):

(12b) トモダチにしご-nin tegami o kaita.
friend Dat 4-or-5-cl letter Acc wrote
'I wrote letters to several friends of mine.'

(14) *ワタクシー wa kono jisho o shoonentachi ni
I Top this dictionary Acc boys Dat
sreu-nin purezentoshita.
several-cl presented
'I gave this dictionary (these dictionaries) to several boys.'

This apparent contradiction, however, immediately dissolves when we take a closer look at these sentences. Although both (12b) and (14) involve QF from *ni*-marked NPs functioning as genuine indirect objects, they are crucially different in word order. In (12b) the indirect object precedes the direct object, whereas in (14) the direct object precedes the indirect object. The acceptability of dative NP can be considered the subject of the verb *tasukeru*. This enables us to rule out this sentence because, as we already discussed, QF does not apply to the subject NP case-marked by *ni*. 

![Diagram](attachment:diagram.png)
improves considerably when the word order is changed in such a way that the indirect object precedes the direct object, as shown in (17):

(17) ?Watakushi wa shoonentachi ni suu-nin kono jisho o purezentoshita.

It is impossible, therefore, to maintain Inoue’s generalization that QF does not apply to the dative NPs functioning as indirect objects. The correct generalization seems to be that a quantifier is allowed to float out of a dative NP functioning as an indirect object only when it precedes the direct object. This generalization also accounts for the contrast between (12b), repeated here as (18a), and (18b):

(18) a. ?Tomodachi ni shigo-nin tegami o kaita.

    friend Dat 4-or-5-cl letter Acc wrote

    ‘I wrote letters to several friends of mine.’

b. ??Tegami o tomodachi ni shigo-nin kaita.

Haig (1980: 1067) tries to capture this fact by stating that “floating from non-subject, non-object NPs is most acceptable when the source NPs remain in their basic word order position, i.e. SIO X OV, where X indicates oblique case NPs.” Let us call this restriction “the Word Order Condition” in this paper.

3. Scrambling and Quantifier Float

Haig (1980: 1078–9), incorporating the observations discussed above, gives the following formulation of QF together with the conditions on the application of this rule:

(19) SD: X [Q no NP]NP part]NP X Y

    1 2 3 4 5 6 7 8 9

    SC: 1 0 0 4 5 6 7 2 8 9
Restrictions:
1. 6 is a case marking particles representing an obligatory argument as determined by the subcategorization of 9.
2. if 6 is not ga (nominative) or o (accusative), then 7 must occupy its basic word order position.
3. if 6 is ni (dative) then 7 cannot be the subject of the sentence.
4. obligatory if 2 is partitive.

Haig further proposes a restriction on the operation of scrambling as follows:

The noun phrase output from QF (7 in (19)) may be moved away from its quantifier (2 in (19)) through scrambling rules, leaving them separated by one or more primary (subject, object, or indirect object) or oblique NPs, but no primary NPs may be inserted between a noun and its quantifier.

Thus, according to Haig (20a–c) are possible orders, but (20d, e) are not:

\[(20)\]
\[
a. \ O \ S \ X \ Q \\
b. \ S \ O \ X \ Q \\
c. \ S \ X \ Q \ O \\
d. \ *S \ X \ O \ Q \\
e. \ *S \ IO \ X \ Q \ O
\]

(The italics indicate the association between the quantifier and quantified NP.)

There are two important points made by Haig. One of them is concerned with the asymmetry between subject NPs and object NPs, which is also noted by Kuroda (1982) and Saito (1985). That is, the object NP can be related with the quantifier when the subject NP intervenes between them, whereas the subject NP cannot

\[\text{Footnote 6}\] For discussion on the obligatory application of QF on the partitive construction, refer to Haig (1980: 1073-1076, and footnote 12). We shall not deal with this problem in this paper.
be related with the quantifier when the object NP intervenes between them (cf. (20a) as opposed to (20d, e)). This asymmetry accounts for the contrast between (21) and (22):

(21) Hon o gakusei ga san-satsu katta.
book Acc student Nom 3-cl bought
'(The) students bought three books.'

(22) *Kodomo ga kabin o san-nin watta.
child Nom vase Acc 3-cl broke
'Three children broke the vase.'

The second point is that quantifiers from both subject and object NPs float rather freely across adverbs and oblique NPs. Consider (23b) and (24b), which are both acceptable even though the oblique NP kooen de ('in the park') and the adverb totsuzen ('suddenly'), respectively, intervene between the quantifiers and the quantified NPs:

(23) a. Shichi-nin no kodomo ga kooen de asonde iru.
   7-cl Gen child Nom park in playing
   'Seven children are playing in the park.'
   b. Kodomo ga kooen de shichi-nin asonde iru.

(24) a. Inu ga futari no kodomo o totsuzen osotta.
   dog Nom 2-cl Gen child Acc suddenly attacked
   'The dog suddenly attacked two children.'
   b. Inu ga kodomo o totsuzen futari osotta.

Haig's treatment of QF as discussed above clarified certain important properties of QF in Japanese. Nevertheless, Haig failed to raise two important questions. The first is concerned with his Restriction 1 given in (19), which specifies that QF applies to obligatory argument NPs subcategorized by verbs. This restriction is set up in order to deal with cases treated by Inoue, such as (15) and (16). The question is: how about QF from NPs

7) As will be shown in section 6, this generalization must be at least partially modified.
marked by oblique cases which are nevertheless subcategorized by verbs? The second question is concerned with the floatability of quantifiers from dative NPs functioning as indirect objects across adverbs and oblique NPs. The next two sections will deal with these questions.

4. Quantifier Float from Oblique NPs

Particles are usually classified into two sets: the first includes those “case particles” such as ga (nominative), o (accusative), and ni (dative), and the second set includes “postpositions” (or oblique case particles) such as kara (‘from’), made (‘till’, ‘up to’), etc8).

The problem with Haig’s formulation of Restriction 1 is that he offers no explicit account of what he meant by “case marking particles”. Do they refer only to ga, o and ni, to the exclusion of oblique case particles? Or do they include oblique case particles under the condition that they represent obligatory arguments as determined by the subcategorization of verbs? There seems to be little question about QF applying to NPs case-marked by either ga, o, or ni which constitute obligatory case frames, or complements, of verbs. The question is whether QF applies to NPs with oblique case particles, which notwithstanding constitute obligatory case frames of verbs9).

Teramura (1982) attempts to classify verbs according to what kind of complements they take. He proposes that complements fall into three types: (i) primary complements (equivalent to

8) Kuno (1973: 327–350) demonstrates that the “case particles” such as ga, o, and ni are inserted by transformations through the process of derivation, whereas the “postpositions” are base-generated in the deep structure.
9) We have already noted that QF from NPs with oblique cases is prohibited as exemplified by (5) and (6). These examples, however, are ruled out anyway because they involve oblique-case NPs which do not constitute obligatory case frames for the verbs.
our obligatory case frames), (ii) secondary complements (equivalent to optional case frames, or adjuncts), and (iii) those complements which are of an intermediate status between (i) and (ii).

For our purposes here, it would not be necessary to go into detailed discussion on Teramura’s classification of verbs. It would be sufficient to consider a couple of oblique NPs which constitute obligatory case frames of verbs to see whether they permit QF.

Now consider the following examples:

(25) a. John wa ni-hiki no raion to tatakatta.

   Top 2-cl Gen lion with fought

   ‘John fought with two lions.’

b. *John wa raion to ni-hiki tatakatta.

(26) a. Daitooryoo ga hoomonsaki no mittsu no kuni

   president Nom visiting-place Gen 3-cl Gen country

   kara modotta.

   from returned

   ‘The president returned from the three countries he had visited.’

b. *Daitooryoo ga hoomonsaki no kuni kara mittsu modotta.

According to Teramura, the verbs *tatakatta (tatakau ‘fight’) and

modotta (modoru ‘return’) are subcategorized to take the complements case-marked by to and kara, respectively. The (b) sentences, however, turn out to be unacceptable, suggesting that QF does not operate on NPs with oblique case markers even if they may constitute obligatory case frames. This seems to be a correct generalization when we examine the verbs *butsukaru (‘bump into’) and

au (‘to meet’), which are subcategorized as taking either NP-to or NP-ni obligatorily.

(27) a. Ni-dai no kuruma ni/to butsukatta.

   2-cl Dat car Dat/Obl bumped into

   ‘(His car) bumped into two cars.’
b. Kuruma ni/*to ni-dai butsukatta.

(28) a. San-nin no sensei ni/to atta.
    3-cl Dat teachers Dat/Obl met
    ‘(I) met three teachers.’

b. Sensei ni/*to san-nin atta.

Note that QF only applies to NPs case-marked by dative *ni; NPs with oblique to do not permit the quantifier to float out even if they constitute obligatory case frames. The above observations suggest that Haig’s Restriction 1 on QF should be made more explicit by stating that NPs which are case-marked by particles other than *ga, o, and *ni do not permit QF even if they may constitute obligatory case frames of the verb.

5. Quantifier Float from Dative NPs across Adverbials

Acceptability judgements involving QF from dative NPs functioning as indirect objects are extremely subtle and varies slightly from one individual to another\(^{11}\). The problem becomes more serious because we shall be concerned with two interacting factors which both contribute to acceptability judgements in a subtle way: namely, (i) word order (cf. section 2), and (ii) the position of

10) A possible counterexample to this generalization may be found in Shibatani (1978: 369), who calls attention to a very interesting case which involves QF from e-marked NPs. His example is:

(i) Konkai no ryokoo de wa, shiranai toki/*e
    this time Gen trip Loc Top unknown place to
    san-kasho itte-kita.
    3-cl went.
    ‘I visited three new places on my present trip.’

We shall not deal with the particle *e in this paper, but it certainly deserves further study.

11) By “QF from dative NPs”, we shall hereafter refer to *ni-marked NPs which are functioning as indirect objects. Therefore, unless otherwise specified, we exclude *ni-marked NPs functioning as subjects in the rest of this paper.
adverbials in relation to quantifiers. In order to avoid subjective acceptability judgements, a small-scale field study was conducted. Fifteen native speakers of Japanese were asked to make acceptability judgements on the total of 37 sentences given in the appendix¹²). The subjects were asked to choose a number on a scale from zero to three: totally unacceptable (0), very awkward (1), slightly awkward but acceptable (2), and perfectly acceptable (3). In the rest of this section, judgements for each sentence will be indicated not by the familiar asterisk and question marks but by the mean obtained for each sentence. Although we shall not go into a full statistical analysis of the results, the numerical representation of acceptability judgements will serve well for our present purposes.

In section 2, we discussed QF from dative NPs and concluded that dative NPs functioning as indirect objects must precede direct objects, thus fulfilling the Word Order Condition. Our data support this conclusion. Notice that the sentences in (29), which satisfy the Word Order Condition, are consistently higher in degree of acceptability than the corresponding sentences in (30), which do not satisfy this condition:

(29)  
<table>
<thead>
<tr>
<th>Sentence</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Tomodachi $ni$ shigo-nin tegami o kaita.</td>
<td>1.63</td>
</tr>
<tr>
<td>b. Tomodachi $ni$ shigo-nin kinoo tegami o kaita.</td>
<td>1.67</td>
</tr>
<tr>
<td>c. Tomodachi $ni$ shigo-nin tegami o kinoo kaita.</td>
<td>1.53</td>
</tr>
<tr>
<td>d. Tomodachi $ni$ kinoo shigo-nin tegami o kaita.</td>
<td>1.13</td>
</tr>
</tbody>
</table>

(30)  
<table>
<thead>
<tr>
<th>Sentence</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Tegami o tomodachi $ni$ shigo-nin kaita.</td>
<td>1.03</td>
</tr>
<tr>
<td>b. Tegami o kinoo tomodachi $ni$ shigo-nin kaita.</td>
<td>1.13</td>
</tr>
</tbody>
</table>

¹²) The sentences given in the appendix are rearranged in order for ease of reference. These sentences were presented in random order to the subjects.
c. (1.27) Tegami o tomodachi ni shigo-nin kinoo kaita.
d. (0.91) Tegami o tomodachi ni kinoo shigo-nin kaita.

Now the scrambling rule may apply to the sentences given above and prepose the quantifier to a position preceding the quantified NP. The resultant sentences are given in (31) and (32). Here again the sentences in (31) are more acceptable than the corresponding sentences in (32), supporting the Word Order Condition.

(31) a. (1.87) Shigo-nin tomodachi ni tegami o kaita.
b. (1.67) Shigo-nin tomodachi ni kinoo tegami o kaita.
c. (1.53) Shigo-nin tomodachi ni tegami o kinoo kaita.
d. (1.13) Shigo-nin kinoo tomodachi ni tegami o kaita.

(32) a. (0.87) Tegami o shigo-nin tomodachi ni kaita.
b. (1.06) Tegami o kinoo shigo-nin tomodachi ni kaita.
c. (0.87) Tegami o shigo-nin tomodachi ni kinoo kaita.
d. (0.53) Tegami o shigo-nin kinoo tomodachi ni kaita.

Figure 1 shows the contrast between (29) and (30), on the one hand, and the contrast between (31) and (32), on the other:

![Figure 1](image-url)
Notice that the acceptability of (29) and (31), which satisfy the Word Order Condition, is consistently higher than that of (30) and (32), respectively, which do not satisfy this condition. The Word Order Condition, therefore, is valid to the extent that it accounts for this contrast in acceptability judgements.

This condition, however, fails to account for the acceptability judgements of (29d) and (30b), which are repeated here:

(29d) (1.13) Tomodachi ni kinoo shigo-nin tegami o kaita.
friend Dat yesterday 4-or-5-cl letter Acc wrote
‘I wrote letters to several friends of mine yesterday.’

(30b) (1.13) Tegami o kinoo tomodachi ni shigo-nin kaita.
Note that both of these sentences are equally marginally acceptable. This is against our expectations because (29d) should be more acceptable than (30b) because only the former fulfills the Word Order Condition.

Secondly, the Word Order Condition makes a wrong prediction for the contrast between (29d) and (30c), which are repeated below. Notice that (29d) is lower in the degree of acceptability than (30c) in spite of the fact that only the former satisfies this condition:

(29d) (1.13) Tomodachi ni kinoo shigo-nin tegami o kaita.
friend Dat yesterday 4-or-5-cl letter Acc wrote
‘I wrote letters to several friends of mine yesterday.’

(30c) (1.27) Tegami o tomodachi ni shigo-nin kinoo kaita.
Now, if we replace the adverb *kinoo* (‘yesterday’) with an adverbial expression *kinoo no asa kara ban made* (‘from morning till night yesterday’), the acceptability drops sharply for each of these sentences. However, the contrast remains the same: (33a), which satisfies the Word Order Condition, is lower in acceptability than (33b), which does not satisfy this condition:

(33) a. (0.73) Tomodachi ni kinoo no asa kara made
friend Dat yesterday Gen morning from
The Quantifier Float Construction in Japanese

ban made shigo-nin tegami o kaita.
evening till 4-or-5-cl letter Acc wrote
‘I wrote letters to several friends of mine from
morning till night yesterday.’

b. (0.87) Tegami o tomodachi ni kinoo no asa kara ban
made shigo-nin kaita.

Furthermore, the Word Order Condition cannot account for
the sudden drop in acceptability for all the (d) sentences as shown
in Figure 1. These observations suggest that Haig’s Word Order
Condition on QF is a necessary but not a sufficient condition on
QF. Obviously, the variation in acceptability shown above cannot
be accounted for by the relative precedence of indirect object NPs
as opposed to direct object NPs. The above data suggest that the
existence of adverbials within a sentence is also relevant to the
acceptability judgement. Or more correctly, it is not only whether
or not some adverbial phrase occurs in the sentence, but also its
relative position in the sentence that is relevant to the variation
in acceptability. Let us now pursue this matter in more detail.

Needless to say, the mere presence of an adverbial does not
make the QF construction less acceptable\textsuperscript{13}). Consider the follow-
ing:

\textsuperscript{13} Theoretically, the presence of adverbials in a sentence should not
affect its acceptability because they are allowed to occur in any pre-
verbal position in a sentence in Japanese. However, our data show
that acceptability increases when the adverbial \textit{kinoo} occurs sentence-
initially, as shown below. I know no plausible reason for this in-
creased acceptability. This fact, however, does not affect our argu-
ment.

(i) a. (1.03) Tegami o tomodachi ni shigo-nin kaita,
b. (1.20) \textit{Kinoo} tegami o tomodachi ni shigo-nin kaita.
(ii) a. (0.87) Tegami o shigo-nin tomodachi ni kaita.
b. (1.33) \textit{Kinoo} tegami o shigo-nin tomodachi ni kaita.
(iii) a. (0.23) Tomodachi ni tegami o shigo-nin kaita.
b. (0.47) \textit{Kinoo} tomodachi ni tegami o shigo-nin kaita.
(iv) a. (1.63) Tomodachi ni shigo-nin tegami o kaita.
b. (1.80) \textit{Kinoo} tomodachi ni shigo-nin tegami o kaita.
(34)  a. (1.03) Tegami o tomodachi ni shigo-nin kaita.
      b. (1.20) *Kinoo* tegami o tomodachi ni shigo-nin kaita.

Although both sentences in (34) are only marginally acceptable, (34b), where the adverb *kinoo* is attached at the sentence-initial position, is slightly more acceptable than (34a) for some reason we cannot determine.

Adverbials do lower acceptability, however, when they occur in a certain position relative to the quantifier and the quantified NP. Consider the following, where the (a) and (b) sentences contrast sharply in degree of acceptability:

(35)  a. (1.63) Tomodachi ni shigo-nin tegami o kaita.
      b. (1.13) Tomodachi ni *kinoo* shigo-nin tegami o kaita.

(36)  a. (1.03) Tegami o tomodachi ni shigo-nin kaita.
      b. (0.91) Tegami o tomodachi ni *kinoo* shigo-nin kaita.

(37)  a. (0.87) Tegami o shigo-nin tomodachi ni kaita.
      b. (0.53) Tegami o shigo-nin *kinoo* tomodachi ni kaita.

The contrast between the (a) sentences and the (b) sentences is graphically represented in Figure 2:

Figure 2.
Note that in the (a) sentences, the quantifier \textit{shigo-nin} (‘four or five persons’) is placed adjacent to the quantified NP \textit{tomodachi} (‘friend’), whereas in the (b) sentences, the adverb \textit{kinoo} (‘yesterday’) intervenes between the quantified NP and its quantifier. This fact leads us to postulate what we might call the Adjacency Condition: namely, a higher degree of acceptability obtains when the quantified NP and its quantifier occur in adjacent positions in the sentence\textsuperscript{14),15).

Furthermore, there is evidence that suggests that the Adjacency Condition is sensitive not only to the presence of an adverbial in between the quantified NP and the quantifier but also to the length of the intervening adverbial. Compare the following (c) sentences, where the adverb \textit{kinoo} (‘yesterday’) is replaced by

\begin{displaymath}
\text{(i) Tomodachi ni kinoo shigo-nin, kyoo shichihachi-nin, letter Acc wrote}
\end{displaymath}

\begin{displaymath}
\text{friend Dat yesterday 4-or-5-cl today 7-or-8-cl}
\end{displaymath}

\begin{displaymath}
te	ext{gami o kaita.}
\end{displaymath}

I wrote letters to four or five friends of mine yesterday, and to seven or eight friends today.'

Kuno claims, therefore, that in this kind of contrastive context, \textit{kinoo shigo-nin} and \textit{kyoo shichihachi-nin} form semantic units, thus accounting for the greater acceptability of (i).

This fact, however, can be dealt with in our framework by assuming that the Adjacency Condition is neutralized in this kind of contrastive context.
the longer adverbial expression *kinoo no asa kara ban made* ('from morning till night yesterday'), with the corresponding (a) and (b) sentences in (34)-(37) given above:

(34c) (1.20) *Kinoo no asa kara ban made* tegami o tomodachi ni shigo-nin kaita.

(35c) (0.73) Tomodachi ni *kinoo no asa kara ban made* shigo-nin tegami o kaita.

(36c) (0.87) Tegami o tomodachi ni *kinoo no asa kara ban made* shigo-nin kaita.

(37c) (0.20) Tegami o shigo-nin *kinoo no asa kara ban made* tomodachi ni kaita.

As shown in Figure 3 below, there is a sharp contrast between (35), (36) and (37) on the one hand, where the degree of acceptability declines gradually, and (34) on the other, where there is no such decline. This fact can be easily accounted for by assuming that the Adjacency Condition is sensitive not only to the existence of an adverbial but also to the relative length of the adverbial which intervenes between a quantifier and a quantified

Figure 3.
NP. Thus, as far as (35)-(37) are concerned, the (b) sentences are less acceptable than the corresponding (a) sentences because the former violate the Adjacency Condition, and the (c) sentences are even less acceptable than the (b) sentences because they violate this condition more seriously. On the other hand, no sentence in (34) violates the Adjacency Condition, thus showing no such decline in acceptability.

To sum up, we have seen above that the Word Order Condition cannot by itself account for the variation in acceptability judgement of our data which involve QF from dative NPs. It was proposed that the Adjacency Condition, together with the Word Order Condition, better explains the linguistic facts in question. Let us now examine whether this condition also applies to QF from nominative and accusative NPs.

6. The Adjacency Condition and QF from Nominative and Accusative NPs

We have seen in sections 1 and 2 that a quantifier can easily float out of nominative NPs, while floating out of dative NPs functioning as indirect objects is not as easy, if not totally impossible. Let us begin by substantiating this claim by our data. In the following examples, the (a) sentences represent QF from nominative NPs, and the (b) sentences QF from dative NPs functioning as indirect objects:

(38) a. (2.53) Gakusei ga shigo-nin tegami o kaita.
   student Nom 4-or-5-cl letters Acc wrote
   'Four or five students wrote letters.'

   b. (1.63) Tomodachi ni shigo-nin tegami o kaita.
   friend Dat 4-or-5-cl letter Acc wrote
   'I wrote letters to four or five friends of mine.'

(39) a. (2.60) Gakusei ga shigo-nin tegami o kinoo kaita.
   student Nom 4-or-5-cl letters Acc wrote
   'Four or five students wrote letters.'

   b. (1.53) Tomodachi ni shigo-nin tegami o kinoo kaita.
Figure 4 clearly shows the variation in acceptability between the (a) sentences and the (b) sentences:

![Graph showing acceptability scores]

Figure 4 clearly shows that the (a) sentences which involve QF from ga-marked NPs are consistently higher in degree of acceptability than their counterparts in (b) involving QF from ni-marked NPs in spite of the fact that the latter satisfy the Word Order Condition. This substantiates our observation that quantifiers can float out of nominative NPs more freely than out of dative NPs. Figure 4 also shows that the Adjacency Condition applies to QF not only from dative NPs but also from nominative NPs. Note
that both for the (a) and (b) sentences, (38), (39), and (40), which do not violate this condition, are more acceptable than (41) and (42), which do violate this condition. Furthermore, if we compare (41) with (42), we notice that (42) is far less acceptable than (41). This fact suggests that the Adjacency Condition is also sensitive to the length of the intervening adverbial in QF from nominative NPs as well as from dative NPs. Thus far, we have shown that QF from dative NPs and nominative NPs share the same property in that they are both subject to the Adjacency Condition.

Let us now turn to the question of whether or not the Adjacency Condition also applies to QF from accusative (i.e. o-marked) NPs. Consider the following sentences:

(43) a. Tomodachi ni *kinoo* shigo-tsuu tegami o kaita.
   friend Dat yesterday 5-or-6-cl letter Acc wrote
   ‘I wrote five or six letters to my friends yesterday.’

   b. Tomodachi ni *kinoo no asa kara ban made* shigo-tsuu
tegami o kaita. (2.27)
   ‘I wrote five or six letters to my friends from morning
till night yesterday.’

(44) a. Tegami o shigo-tsuu *kinoo* tomodachi ni kaita.
   *kinoo no asa kara ban made* tomodachi ni kaita. (2.27)

(45) a. Tegami o tomodachi ni *kinoo shigo-tsuu* kaita.
   *kinoo no asa kara ban made* shigo tsuu kaita. (2.60)

Note that in the above sentences the quantifier *shigo-tsuu* has floated out of the accusative NPs. Although we lack statistical data for the (a) sentences above, we can safely assume that they are perfectly acceptable sentences. The acceptability judgements for the (b) sentences, given at the end of the sentences, show that they are also acceptable. This fact suggests that the Adja-
cency Condition is restricted to QF from nominative and dative NPs, and irrelevant to QF from accusative NPs. This presents a rather interesting asymmetry between QF from nominative and dative NPs on the one hand, and the QF from accusative NPs on the other\(^{16}\).

Based on the observations thus far made in this paper, the following hierarchy of particles may be proposed in terms of the floatability of quantifiers:

\[\text{(46) Hierarchy of Particles}^{17}]:\]

<table>
<thead>
<tr>
<th>Complements (Obligatory case frame)</th>
<th>Adjuncts (Optional case frame)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. (o) (accusative)</td>
<td>----</td>
</tr>
<tr>
<td>2. (ga) (nominative)</td>
<td>----</td>
</tr>
<tr>
<td>3. (ni) (dative), (no?, e?)</td>
<td>(ni) (dative)</td>
</tr>
<tr>
<td>4. (de, kara, to, etc.)</td>
<td>(de, kara, to, etc.)</td>
</tr>
</tbody>
</table>

The accusative \(o\) is the highest in the hierarchy, because NPs marked by \(o\) always allow QF. Furthermore, it retains a special status in that it is not subject to the Adjacency Condition. The nominative \(ga\) is the second highest, because it generally permits QF but is subject to the Adjacency Condition. The dative \(ni\) comes next. It may be classified into three types: (i) \(ni\)-marked NPs functioning as subjects, which do not allow QF at all, (ii) \(ni\)-marked NPs which constitute obligatory case frames of verbs, which do allow QF, and (iii) \(ni\)-marked NPs which are

\(^{16}\) It is interesting to note that (45b) is more acceptable than (43b) and (44b). If the Adjacency Condition were applicable here, (45b) should be less acceptable than (43b) and (44b), but this is contrary to the fact. Assuming that this condition is not operative in QF from accusative NPs, I have no plausible reason for the greater acceptability of (45b) as compared with (43b) and (44b).

\(^{17}\) Shibatani (1978: 369) proposes a similar hierarchy of cases in order to account for the applicability of certain grammatical rules including QF:

\( (i) \ ga > o > ni, \ e > \text{other cases} \)
functioning as indirect objects, which allow QF under the condition that they satisfy both the Word Order Condition and the Adjacency Condition. Yet the resultant sentences for (iii) are not generally as acceptable as those involving QF from nominative and accusative NPs. NPs with the genitive case marker \textit{no} permit QF only if they occur as subjects of adjectival clauses (cf. (11)). NPs marked by the particle \textit{e} only rarely allow QF, the conditions for which, however, are yet to be clarified. Those particles in category 4 above do not generally permit QF, regardless of whether or not they constitute obligatory case frames.

7. Conclusion

This paper attempted to define the conditions on QF in Japanese. In particular, we focused on QF from NPs case-marked by dative \textit{ni}. Based on the statistical evidence, we have shown that the Word Order Condition as proposed by Haig is a necessary, but not a sufficient, condition on QF from dative NPs. This condition, together with the Adjacency Condition, gives a more satisfactory account for the statistical data we examined. Furthermore, we suggested that the Adjacency Condition is operative on QF not only from dative NPs but also from nominative NPs. This condition, however, does not apply to QF from accusative NPs marked by \textit{o}, which presents a rather interesting asymmetry between accusative NPs, on the one hand, and the nominative and dative NPs, on the other.

One of the important assumptions in this paper is that acceptability is a matter of degree, as evidenced by our data. We have shown, for instance, that sentences which involve QF from dative NPs are relatively less acceptable than those which involve QF from nominative and accusative NPs. It is not the case, however, that all the sentences involving QF from dative NPs are equally
Some of them are more acceptable than others. This fact, clearly shown by statistical evidence, must somehow be accounted for in the theory of language. A study based upon this kind of treatment of acceptability seems to be fruitful because it reveals that there are certain principles at work which determine different degrees of acceptability.

**Appendix**

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<table>
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<tbody>
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<td>12</td>
<td>0.47</td>
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<td>13</td>
<td>0.53</td>
<td>Tegami o shigo-nin kinoo tomodachi ni kaita.</td>
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<tr>
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<td>0.87</td>
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<td>1.67</td>
<td>Tomodachi ni shigo-nin kinoo tegami o kaita.</td>
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<tr>
<td>17</td>
<td>1.53</td>
<td>Tomodachi ni shigo-nin tegami o kinoo kaita.</td>
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<tr>
<td>18</td>
<td>1.13</td>
<td>Shigo-nin kinoo tomodachi ni tegami o kaita.</td>
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<td>25</td>
<td>1.20</td>
<td>Kinoo no asa kara ban made tegami o tomodachi ni kaita.</td>
</tr>
</tbody>
</table>
The Quantifier Float Construction in Japanese

(26) (0.87) Tegami o tomodachi ni kinoo no asa kara ban made shigo-nin kaita.
(27) (2.73) Kinoo no asa kara ban made tegami o tomodachi ni shigo-tsuu kaita.
(28) (2.60) Tegami o tomodachi ni kinoo no asa kara ban made shigo-tsuu kaita.
(29) (0.20) Tegami o shigo-nin kinoo no asa kara ban made tomodachi ni kaita.
(30) (2.73) Tegami o shigo-tsuu kinoo no asa kara ban made tomodachi ni kaita.
(31) (0.73) Tomodachi ni kinoo no asa kara ban made shigo-nin tegami o kaita.
(32) (2.73) Tomodachi ni kinoo no asa kara ban made shigo-tsuu tegami o kaita.
(33) (2.53) Gakusei ga shigo-nin tegami o kaita.
(34) (1.93) Gakusei ga kinoo shigo-nin tegami o kaita.
(35) (2.87) Gakusei ga shigo-nin kinoo tegami o kaita.
(36) (2.60) Gakusei ga shigo-nin tegami o kinoo kaita.
(37) (1.20) Gakusei ga kinoo no asa kara ban made shigo-nin tegami o kaita.

References


要  旨

本稿は日本語における数量詞の移動の条件に関する問題を取り扱う。これまでの研究で、「に」の付いた与格の名詞句からの移動の条件がとりわけ複雑であることが分かっている。ここでは、従来から提案されている語順に関する条件（即ち、対格の名詞句に先行する与格の名詞句からの数量詞の移動は許されるが、対格の名詞句に後続する与格の名詞句からの移動は許容されない）は、必要条件ではあるが、充分条件ではないことを指摘する。特に、名詞句とそこから移動した数量詞間の両側に副詞類が介在する場合における文の適格性の判断を充分に説明するためには、これに加えて、隣接性の条件が必要とされることを、統計資料に基づいて明らかにする。さらに、この条件は与格の名詞句のみならず、主格の名詞句からの数量詞の移動については適用されるが、対格の名詞句からの移動には適用されないことを指摘する。

（論文受理日　昭和63年6月28日）