On the positions of floated quantifiers*

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The stranding analysis of floated quantifiers (Sportiche 1988) predicts that quantifiers can be stranded in their base-generated positions. This is not, however, always the case (e.g., *The students were arrested all). This paper explores Boškovič’s (2001, 2004) generalization that quantifiers cannot be floated in theta-positions. I argue that (i) quantifiers are not base-generated in theta-positions, and (ii) ‘floated’ quantifiers are base-generated in Case-licensing positions (Spec-IP/Spec-

1. Introduction

Given the VP-internal subject hypothesis (Fukui and Speas 1986, Koopman and Sportiche 1991) and the general Case-licensing mechanism in which the accusative Case-licensing position is higher than the underlying subject position (Johnson 1991, Chomsky 1995), it is predicted, under the stranding analysis of floated quantifiers (Sportiche 1988), that quantifiers can be stranded in their base-generated positions. This is not always true, however. In this paper, we consider Boškovič’s Generalization in light of the behaviour of quantifiers in Japanese. Sections 1 and 2 support the generalization empirically. Initial observations on Japanese transitive sentences seem to show that while object-related quantifiers can be stranded in their base-generated positions, subject-related quantifiers cannot. This results in a problematic subject-object asymmetry. Section 3 argues that floated quantifiers are not base-generated in theta-positions; rather, they are base-generated in Case-licensing positions. Section 4 proposes an account for the observed subject-object asymmetry in Japanese. Under the proposed view of floated quantifiers it is shown that their distribution can be explained by a general locality condition, Relativized Minimality (RM).

2. Floated quantifiers related to the object

Given the stranding analysis of quantifier float (Sportiche 1988), it is predicted that quantifiers can be stranded in their base-generated position. In the case of unaccusative and

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passive verbs, however, this is not so. The sentences in (1) show that the quantifier cannot be stranded in a theta-position for these types of verbs.

(1)  a. *The students arrived all.
    b. *The students were arrested all.

It is a widely held view that accusative Case is licensed when an object is in a Spec-Head configuration with some maximal projection higher than VP. The sentence in (2), then, shows that the quantifier cannot be stranded in theta-position in sentences with transitive verbs either.

(2)  *Mary likes the students all.
     (Mary likes the students [VP tlikes all tthe students])

In (3a,b), the quantifier precedes the predicate. The quantifier precedes both the predicate and the NP in (4a,b). In (5), the quantifier precedes the NP it modifies. The object-related quantifier does not follow both the verb and the NP. Given the Case-licensing mechanism presented above, the data suggest the generalization given in (6), which we will call Bošković’s Generalization.

(3)  a. The students all arrived.
    b. The students were all arrested.

(4)  a. All the students arrived.
    b. All the students were arrested.

(5)  Mary likes all the students.

(6)  Quantifiers cannot be stranded in theta-positions.

The view in (6) is explicitly stated and seriously pursued by Bošković (2001, 2004). We observe that the quantifier occupies Spec-vP (or Spec-AgrOP) in (5), and it occupies Spec-IP in (4a,b). As for the position of the quantifier in (3a,b), we suggest that the position is Spec-vP. Consider the sentence in (7) below, where the NP appears in some position below IP but above VP.

(7)  There were three students, [VP arrested t].

The NP three students generated as the complement of V undergoes A-movement. Movement to Spec-IP is not possible, however, when an expletive occupies the position. Bošković’s Generalization is further supported by the contrast in (8) below. In (8a) the quantifier is stranded in its base-generated position, resulting in the ungrammaticality. (8b) is reported to be marginally acceptable. This is perhaps because the quantifier raises to a preverbal position and does not remain stranded in its base-generated position.
The books, which I will have to read all, are interesting. (Doetjes 1992)

The contrast in (9) also illustrates the same point. The stranding of a quantifier through relativization results in ungrammaticality, as illustrated in (9a).

(9) a. *the books that John read all
   b. ?the books that all were read by John
   c. the books that were all read by John (Bowers 1993)

In French, however, it seems as though object-related quantifiers can be stranded in their base-generated positions.

(10) Je les ai vus tous.
    I them(CL) have seen all
    ‘I have seen them all’ (Doetjes 1992)

It is not clear, though, whether (10) holds as a counterexample to Bošković’s Generalization. We could analyze tous as being stranded in a VP-adjoined position (right-adjoined position) by clitic movement on the way to its final landing site. Or, it may be that tous is located at a higher position than its base-generated position (e.g., Spec-AgrP), but the surface position of tous is obscured by the following clitic movement and overt movement of vus. In this view, it amounts to saying that tous is actually stranded in Spec of a functional projection higher than VP. We therefore assume that Bošković’s Generalization still holds in (10).

2. Floated quantifiers related to the subject

The stranding approach to quantifier float predicts that quantifiers related to the subject can be stranded in their base-generated positions.

(11) The students all failed the exam.

In (11), all is expected to be stranded at Spec-vP. However, this view is not compatible with the facts below (data from Bošković’s 2001, (9a-d)).

(12) a. These thieves could all completely crack this safe in 5 minutes flat.
   b. *These thieves could completely all crack this safe in 5 minutes flat.

(13) a. The thieves have certainly all been apprehended.
   b. The thieves have all certainly been apprehended.

If we suppose that the manner adverb completely is adjoined to vP, then the contrast in (12) shows that the quantifier related to the subject cannot be stranded in its base-generated position (12b). Compare (13), which contains the sentential adverb certainly. We assume that it is adjoined to IP. In (13b), the quantifier appears before certainly. In (13a), the quantifier appears in between certainly and been, which is assumed to be located above vP.
These show that the quantifier in (13a,b) is not stranded in its base-generated position, so the sentences are grammatical. Given the VP-internal subject hypothesis and the general Case-licensing mechanism according to which accusative Case is licensed at a higher Spec-position than the underlying subject position, as shown in (14), it is expected, under the stranding analysis, that the object can appear in between the A-moved subject and the stranded subject-related quantifier in situ. But (15) shows that this is not the case in Japanese. (The underlining indicates which NP the numeral is understood to quantify over.)

(14) … [ Obj [vP Subj [v [v [vP V t ]]]]]

(15) ‘Two students bought pizza’
*Gakusei-ga pizza-o 2-ri katta.
student-Nom pizza-Acc 2-Cl bought
(*Gakusei-ga pizza-o [vP 2-ri t [vP t katta]] )

In Japanese, subject-related quantifiers generally appear either directly before or after the subject. That is, a quantifier must be adjacent to the subject it modifies.

(16) ‘Two students bought pizza’
a. 2-ri gakusei-ga pizza-o katta.
b. Gakusei-ga 2-ri pizza-o katta.

Furthermore, the sentences in (16) allow object scrambling, as shown in (17).

(17) ‘Two students bought pizza’
a. Pizza-o 2-ri gakusei-ga t katta.
b. Pizza-o gakusei-ga 2-ri t katta.

If the ungrammatical sentence in (15) undergoes object scrambling, its surface string is not different from the grammatical sentence in (17b). So one might argue that (17b) is actually derived from (15) by object scrambling, so that the subject-related quantifier is stranded at its base-generated position in (17b), as illustrated in (17c).

(17) c. Pizza-o gakusei-ga t’ [vP 2-ri t [vP t katta]]

We will address this problem again later. Sportiche (1988:427) observes that in French, the (subject-related) quantifier *tous* can appear sentence-finally.
(18) ‘The children all have seen this movie’
   a. Les enfants ont vu ce film tous.
   c. Les enfants ont tous vu ce film.

(19) ‘The children all will see this movie’
   a. Les enfants verront ce film tous.
   b. Les enfants verront tous ce film.

On the other hand, Sportiche also observes that the sentence-final *tous* is less natural and a modified form, such as *presque tous*, is better when it appears sentence-finally (*Les enfants ont vu ce film presque tous; Les enfants verront ce film presque tous*). Bowers (1993:625) argues that the quantifier in (20a-c) is “not a floating quantifier left by NP-movement, but rather the sentence-final quantifier that is always possible in French (though not in English: *The children have seen this movie all*)”.

(20) a. Les enfants ont été vus *tous/presque tous.*
   the children have been seen all/almost all
   b. Les enfants sont venus *tous/presque tous.*
   the children came all/almost all
   c. Les enfants ont dormi *tous/presque tous.*
   the children have slept all/almost all

There is no difference in grammaticality between the unergative example in (20c) and the others in (20a-b). If we maintain the stranding analysis, we would have to postulate a trace left by NP-movement in (20c) as well. Rather, it would be more natural to assume that the sentence-final quantifier is not located in a theta-position in (20a-c).

3. Floated quantifiers are not base-generated in theta-positions

The observations in Sections 1 and 2 support Bošković’s Generalization. Let us now consider the stranding analysis in light of Bošković’s Generalization. Under this view, the sentence in (15), repeated below, will be ruled out as a violation of the generalization: the subject-related quantifier is stranded in a theta-position.

(15) ‘Two students bought pizza’

*Gakusei-ga pizza-o 2-ri katta.

(*Gakusei-ga pizza-o [vP 2-ri t [vP t katta]])

As was previously observed, when the sentence in (15) undergoes object scrambling, the resulting sentence becomes grammatical. This is hard to capture under the stranding analysis, in light of Bošković’s Generalization. The contrast between (15) and (17c) is still a mystery.
Now consider the sentences in (21)-(22) below. (21a) would be ruled out as a violation of the generalization: the quantifier *tous* is stranded in its base-generated position. For the same reason, (22a) should also be ruled out, yet the sentence is grammatical. (21b) would be grammatical because it obeys the generalization. For the same reason, (22b) would also be grammatical, yet it is not.

(21) a. ?*Les enfants ont vu ce film tous.
the children have seen this movie all
‘The children have all seen this movie’

b. Tous les enfants ont vu ce film. (Doetjes 1992)

(22) a. Les enfants ont vu ce film tous les deux.
the children have seen this movie all the two
‘The children have both seen this movie’

b. *Tous les deux (les) enfants ont vu ce film. (Doetjes 1992)

One possible account is that the quantifier *tous les deux* can be stranded in a theta-position (22a), and it cannot be moved together with the NP it modifies (22b). If this is correct, however, it is hard to capture under the stranding analysis, in light of Bošković’s Generalization. The fact that *tous les deux* cannot combine with the NP it modifies (*tous les deux (les) enfants ‘both of the children’) is not relevant here. The point is that the sentence in (22b) cannot be excluded by the stranding analysis and Bošković’s Generalization, because the quantifier is not stranded in its base-generated position. One possibility would be to argue that the sentence-final quantifier *tous les deux* is not actually located in a theta position in (22a), whereas the sentence-final quantifier *tous* is located in a theta position in (21a), and thus violates the generalization. But such a view leads to a lack of syntactic generalization in the domain of quantifier float. We will instead pursue another possibility where both quantifiers in (21a) and (22a) are located in the same position. Recall that Bošković’s Generalization states that quantifiers cannot be stranded in theta-positions. This description implies that quantifiers are base-generated in a theta-position, but cannot stay there. Here I would like to modify Bošković’s Generalization as in (23).

(23) Floated quantifiers are not base-generated in theta-positions.

I propose that subject-related quantifiers and object-related quantifiers are base-generated in Case-licensing positions (i.e., in Spec-IP for the former, and in Spec-vP/Spec-AgrOP for the latter).

(24) \[
[IP Q_{subj} [I [vP Q_{obj} [Subj [v [VP V Obj ]]]]]]
\]

We leave open the question of whether movement of arguments from theta-positions to surface A-positions in (24) is adjunction or incorporation to the quantifiers, or through movement to the inner-Spec/outer-Spec of the relevant projection. We suggest that quantifiers with an argumental nature, such as *tous*, need to combine with the NP they modify in Spec-position (here, the position is Spec-IP because *tous* in (21) is a subject-
related quantifier). Quantifiers with an adverbial nature, such as *tous les deux*, need not: they are not base-generated in Case-licensing positions (e.g., Spec-IP, or Spec-vP). Suppose that both the sentence-final quantifiers *tous* in (21a) and *tous les deux* in (22a) are adjoined to IP. In this position, only the latter is licensed. The former is not licensed in the IP-adjoined position, which should be occupied by adverbial quantifiers. As for the sentence-initial quantifiers *tous* in (21b) and *tous les deux* in (22b), only the former is licensed. The latter is not licensed in Spec-IP, the position which should be occupied by argumental quantifiers. To summarize, based on the Japanese and French data this section proposed that quantifiers are not base-generated with their modifying NPs in theta-positions: rather they are located in surface A-positions (Case-positions) underlyingly.

4. Quantifier float in Japanese

In general, numeral quantifiers in Japanese must directly precede or directly follow the NP that they quantify over. They require some kind of adjacency, as shown in (25a,b).

(25) ‘Two students bought pizza’
   a. 2-ri(no) Gakusei-ga pizza-o katta
   b. Gakusei-ga 2-ri pizza-o katta
   c. *Gakusei-ga pizza-o 2-ri katta

In some environments, however, the adjacency requirement can be violated. Adjacency can be violated by scrambling (of direct objects): the NP can optionally strand the numeral quantifier when it undergoes scrambling, as in (26c), which shows violation of the adjacency requirement, but is perfectly grammatical.

(26) ‘The student bought two pizzas’
   a. Gakusei-ga [pizza-o 2-tu]_Obj katta
   b. [Pizza-o 2-tu]_Obj gakusei-ga tobj katta (scrambling)
   c. Pizza-o gakusei-ga 2-tu katta (scrambling)

We observe that in (25c), the subject is base-generated in Spec-vP and cannot raise to Spec-IP, leaving the quantifier in situ, when it undergoes A-movement. In contrast, (26c) suggests that the object can strand the quantifier, when adjoined to IP by scrambling. Subjects cannot strand quantifiers when they undergo movement, whereas objects can. The result is a subject-object asymmetry.

In the previous section we concluded that (floated) quantifiers are not base-generated in theta-positions; rather they are located in Case-licensing positions (i.e., Spec-vP/Spec-AgrP for quantifiers related to the object, Spec-IP for quantifiers related to the subject). Based on this, we would like to argue that (25c) is derived from (25a) first by scrambling the object located in the accusative Case-licensing position and then by scrambling the subject located in the nominative Case-licensing position, thereby stranding the subject-related quantifier in situ (Spec-IP). This gives us (27).
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(27) *[IP Gakusei-ga [IP pizza-o [IP Gakusei-ga 2-ri [AgrP t' [vP pizza-o [Agr' [vP ... katta ]]]]]]]

This representation is ruled out, however, as it incurs a violation of Relativized Minimality (Rizzi 1990; hereafter RM), which states that two elements X and Y are local when there is no third element, Z, which bears some structural similarity to X and Y and c-commands Y. The dependency between the scrambled subject in an A-bar position and the stranded quantifier in Spec-IP is not licensed due to the intervening A-bar element, the scrambled object. One might argue that the sentence under consideration can be ruled out by saying that the A-moved object induces a RM effect between the A-moved subject and its stranded quantifier in situ, as illustrated in (28) below, so that there is no need to postulate that quantifiers are base-generated in Case-licensing positions.

(28) ‘Two students bought pizza’ (= (15))

But such a view is not compatible with the widely accepted Case-licensing mechanism, and leads to the problem of why there is no RM effect in subject movement over objects for nominative Case checking. If we accept the current view, at least this conceptual problem will not arise. In Section 2 we mentioned the possibility that object scrambling “saves” the ungrammatical sentence and the quantifier is stranded in a theta-position. We observed that the ungrammaticality of the sentence in (28) shows that the quantifier related to the subject cannot be stranded in its base-generated position, as this violates Bošković’s Generalization. In (28), only A-movement is involved. It seems, however, that object scrambling turns (28) into a grammatical sentence as in (29).

(29) Pizza-o gakusei-ga t’ [vP 2-ri t [VP t katta]] (= (17c))

Under the proposed view, the sentence *gakusei-ga pizza-o 2-ri katta is ruled out, not as a violation of Bošković’s Generalization as illustrated in (28), but as a violation of Relativized Minimality, as shown in (27). Why, then, is the sentence in (29) grammatical? Under the proposed account, the grammatical sentence pizza-o gakusei-ga 2-ri katta should be represented as (30).

(30) Pizza-o [IP gakusei-ga 2-ri [AgrP t’ [vP t t katta]]]

In (30) there is no potential A-bar element which blocks the dependency between the scrambled object pizza-o and its trace in Spec-AgrP: the representation in (30) is licensed. Now consider the sentence in (26c) where the object-related quantifier is stranded by object
scrambling. (26c) is derived from (26a) by scrambling, leaving 2-tu in situ (i.e., Spec-AgrP), as shown in (31).

\[
\begin{array}{c}
\text{Pizza-o [IP gakusei-ga [AgrP t' 2-tu [vP t t katta]]]}
\end{array}
\]

The object scrambling creates an A-bar chain. Since there is no potential A-bar element in between the scrambled object and the quantifier, the dependency is licensed. There is no RM violation.

5. Summary

In this paper we have explored Bošković’s Generalization in light of the behaviour of quantifiers in Japanese. We have argued that quantifiers are base-generated in Case-licensing positions and the dependency between floated quantifiers and their related NPs are constrained by Relativized Minimality.

References