

To appear, *Proceedings of the 14th Japanese/Korean Linguistics Conference*, CSLI (2005).

Locality in Syntax and Floated Numeral Quantifiers in Japanese and Korean*

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1. Introduction

Much of syntax is study of locality. Throughout history of generative grammar, linguists have attempted to reduce various linguistic phenomena to some kind of locality — adjacency, specifier-head, ‘governing domain,’ ‘phase’, etc. The reason is simple: characterizing a problem in terms of locality substantially decreases the complexity of the problem by reducing the possible grammars that can be deduced. Floated quantifiers comprise a classic case study in syntactic locality. What is particularly interesting about floated quantifiers is that the study of its local nature has made it possible to extract empirical evidence for some of the most basic notions in linguistics. Sportiche’s (1988) study of floated quantifiers in English and French gives evidence for predicate-internal subject position. McCloskey

*I am grateful to the audiences at the 14th J/K Conference in Tucson, Arizona, Aoyama Gakuin University, Leiden Workshop on Ellipsis and Empty Categories, and Yokohama National University for useful discussion and suggestions.

(2000) shows that the distribution of floated quantifiers in West Ulster English gives evidence for intermediate traces left by wh-movement. In Miyagawa (1989) I argue that floated numeral quantifiers in Japanese point to the existence of NP trace in A-movement.

In this paper I will further explore issues of locality in floated numeral quantifiers by looking at Japanese and Korean. Some of the points are based on Miyagawa and Arikawa (2004).

2. Original Observed Locality of Floated Numeral Quantifiers

The starting point for the study of locality of floated numeral quantifiers (FNQ) is the observation made by Haig (1980) and Kuroda (1980).

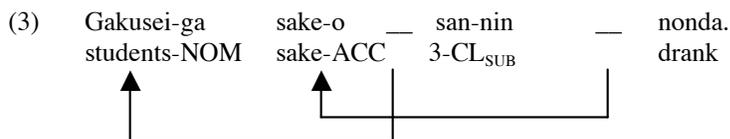
- (1) a. Gakusei-ga san-nin sake-o nonda.
 student-NOM 3-CL_{SUB} sake-ACC drank
 ‘Three students drank sake.’
- b. *Gakusei-ga sake-o san-nin nonda.
 student-NOM sake-ACC 3-CL_{SUB} drank
 ‘Three students drank sake.’ (Haig 1980; Kuroda 1980)
- c. Hon-o gakusei-ga go-satu katta.
 book-ACC student-NOM 5-CL_{OBJ} bought
 ‘Students bought five books.’ (Haig 1980, Kuroda 1980)

The subject FNQ *san-nin* is fine when occurring adjacent to the subject DP ((1a)), but if it occurs away from the subject, as when it is separated from the subject by the object ((1b)), the sentence is ungrammatical. The idea is that the FNQ and its associate DP require locality, and this locality is violated in (1b). The same point is observed in Korean.

- (2) a. Haksayng-i sey-myeng photocwu-lul masiessta.
 student-NOM 3-CL_{SUB} wine-ACC drank
 ‘Three students drank wine.’
- b. *Haksayng-i photocwu-lul sey-myeng masiessta.
 student-NOM wine-ACC 3-CL_{SUB} drank
 ‘Three students drank wine.’

In (1c), we see an instance of object FNQ; here the FNQ is separated from the object by the subject, yet, unlike (1b/2b), this separation does not lead to ungrammaticality. The assumption is that the locality requirement of the object FNQ is fulfilled by the trace left by the scrambling of the object.

Why can't the subject and the subject FNQ fulfill locality in (1b/2b)? There are two ways to ask this question. First, given that Japanese and Korean are scrambling languages, why can't there be the following derivation?



Saito (1985) answered this question by giving the following (the first is implicit but important).

- (4) (i) FNQ and the associated noun phrase observe strict locality.
 (ii) The subject in Japanese cannot scramble.

The second condition in (4) prohibits the derivation in (3) by blocking the scrambling of the subject *gakusei-ga* 'student-NOM'. Second way to ask the question above is, why can't Japanese and Korean have the 'Sportiche-style' A-movement that fulfills locality?

- (5) Les enfants ont tous vu ce film.
 the children have all seen this movie (Sportiche 1988: 426)

The underline indicates the VP-internal subject position where the trace of the A-moved subject *les enfants* is located. This trace fulfills the locality requirement of *tous*. Note that in order for this 'Sportiche-style' derivation to apply to (1b/2b), the object must scramble internal to the sentence to vP.

- (6) *_{[TP} Haksayng-i _{[vP} photocwu-lul _{[vP} t_S sey-myeng _{[vP} t_o ...]]]]
 student-NOM wine-ACC 3-CL

Later I will argue that the culprit in this example is the A-chain; the copy of this A-chain (t_S) is not visible, hence locality with FNQ is violated.

3. 'Exceptions' to Locality

It is not the case that whenever a subject FNQ is separated from the subject, the sentence is ungrammatical. The following is a Korean example (cf. Jung 2004, Kang 2002, and references therein).

- (7) Cased FNQ in Korean
 Haksayng-i photocwu-lul sey-myeng-i masiessta.
 student-NOM wine-ACC 3-CL-NOM drank
 ‘Three students drank wine.’

In this example the stranded subject FNQ has case marking — the same nominative case marking as its associated subject DP *haksayng* ‘students’. Why does case marking the FNQ ‘save’ the example?

To answer this question we need to understand the nature of ungrammaticality of the original observation by Haig and Kuroda ((1b/2b)). I repeat (1b) below.

- (8) *Gakusei-ga sake-o san-nin nonda.
 student-NOM sake-ACC 3-CL_{SUB} drank
 ‘Three students drank sake.’

When one listens to how a native speaker pronounces this sentence, it is clear that the nuclear stress is placed on the object *sake* (Miyagawa and Arikawa 2004). Because the nuclear stress rule places the stress on the lowest entity in the structure (Cinque 1993), this means that nothing can follow this object that is not a part of the object (I leave aside the verb, which has a special status in Cinque’s theory). This means that the FNQ *san-nin* cannot be a syntactically independent entity, but instead must be interpreted as being part of the object phrase.¹ This, then, explains the ungrammaticality. The subject FNQ has the classifier *-nin*, which is used to count people. This is incompatible with *sake*. It is a clash of agreement.

Returning to the Korean example in (7), we can see that the nominative case marking on the FNQ would block the FNQ from being interpreted with the object, which has accusative case marking. As a result the nuclear stress falls not on the object as in the case of the Japanese example in (8), but on the stranded subject FNQ. Later we will see that this case marking has a second important function. Korean helps us to see that the Haig/Kuroda-type locality violation can be saved if the stranded subject FNQ can somehow be kept separate from the object DP. Korean can resort to case marking, something not allowed in Japanese. But now the question arises, in the Korean example with the case-marked FNQ, how is locality fulfilled?

Before answering this question, I note that, although Japanese does not allow case-marked FNQs, a number of linguists have given examples that ‘save’ the Haig/Kuroda-type locality violation.

¹See Kawashima (1998) and Watanabe (2004) for an analysis that the FNQ immediately following the associated DP may be in the same phrase as the DP.

- (9) ?Gakusei-ga sake-o imamadeni san-nin nonda
 student-NOM sake-ACC so far 3-CL_{SUB} drank
 ‘Three students drank sake so far.’ (Gunji and Hasida 1998: 57)
- (10) Gakusei-ga watasi-no hon-o futa-ri-sika kaw-anakat-ta
 student-NOM my-GEN book-ACC 2-CL_{SUB}-only buy-not-past
 ‘Only two students bought my book.’ (cf. Takami 1998, 1: 92)

As noted in Miyagawa and Arikawa (2004), virtually all counterexamples given to the Haig/Kuroda locality typically have one of the forms shown. In (9) an adjunct phrase (‘so far’) is inserted between the object and the subject FNQ. In (10) a focus item (‘only’) is attached to the subject FNQ. In both cases the result is that the subject FNQ is kept separate from the object DP, thereby avoiding the problem originally observed by Haig and Kuroda. The adjunct phrase in (9) keeps the FNQ away from the object. The focus item on the FNQ in (10) attracts stress on the FNQ, which avoids the nuclear stress from falling on the object, in turn, keeping the FNQ phrasally separate from the object. Now we can ask the same question of these examples that we posed for the case-marked FNQ example in Korean. How is the locality requirement of the FNQ fulfilled?

4. Locality is Respected After All

To understand the nature of the case-marked FNQ example in Korean and (9) and (10) in Japanese, which are basically fine despite the apparent violation of locality, let us again reflect on Saito’s (1985) explanation of the ungrammatical Haig/Kuroda example.

- (11) (i) FNQ and the associated noun phrase observe strict locality.
 (ii) The subject in Japanese cannot scramble.

Every Japanese linguist who has offered a counterexample to the Haig/Kuroda locality violation has concluded that in (11), it is (i) that is wrong (e.g., Fukushima 2003, Gunji and Hasida 1998, Ishii 1998, Kuno 1978, Kuno and Takami 2003, Nishigauchi and Ishii 2003, Takami 1998). No one has considered the possibility that the other condition, which prohibits subjects from scrambling, might be questioned. If subjects can scramble, there is no problem in maintaining the ‘locality’ analysis of FNQs. This has not been considered before because of Saito’s (1985) influential work. To challenge it, Ko (in press) gives a series of arguments that the subject in Japanese and Korean may scramble. If it can be shown that

the subject is scrambled in the ‘nonlocal’ subject FNQ examples, it is a sure sign that the FNQ is asserting its locality requirement.

5. Miyagawa and Arikawa (2004)

If the linguists who have offered counterexamples to the Haig/Kuroda locality are right that the FNQ does not require locality, the nonlocal subject FNQ examples in (9) and (10) would have the following structure.

(12) [_{TP} SUB ... [_{VP} OBJ FNQ_{SUB} V]...]

There is nothing adjacent to the FNQ to connect it to the subject. A question immediately arises as to how the ‘agreement’ phenomenon is accounted for — an FNQ has a classifier that agrees with the entity being counted by the associated DP (e.g., *-nin* for people). Similarly, we wonder how the case marking on the FNQ in Korean would be licensed if the FNQ is not at all connected syntactically to its associated DP, which has the same case marking. In fact Jung (2004) argues convincingly that the nominative DP and the cased FNQ form a ‘split’ NP. By demonstrating sensitivity to islands, she shows that the subject DP has moved out of a structure that also contains the FNQ, thereby giving evidence that the trace of the moved DP fulfills the locality requirement of the case-marked FNQ.

What about the Japanese examples? If it can be shown that the subject has scrambled in (9) and (10), it is a clear sign that the FNQ is meeting locality. Miyagawa and Arikawa (2004) show that this is the correct way to view the nonlocal subject FNQ examples. I will give two pieces of evidence, the first showing that the object DP in these examples does not stay in the *vP/VP*, but moves to the Spec of TP, which, in turn, shows that the subject to the left of this object must have moved there. Second, I will show that the subject in this construction cannot bind an anaphor, showing that the subject is in an A’-position, i.e., a scrambled position. Both arguments are drawn from Miyagawa and Arikawa (2004).

5.1. Negation and ‘All’

In this argument we will see that the object in the nonlocal subject FNQ examples is in the Spec of TP, not in the *vP/VP*. The argument involves the interpretation of *zen’in* ‘all’ relative to sentential negation. If *zen’in* occurs in the object position, it is easily interpreted inside negation.

(13) Taroo-ga *zen’in*-o sikar-anakat-ta.
 Taro-NOM all-ACC scold-NEG-PAST
 ‘Taro didn’t scold all.’ not > all, all > not

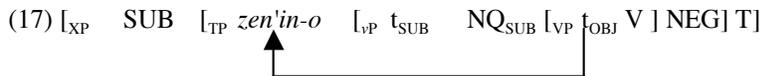
If, however, *zen'in* occurs in the subject position, it is difficult to interpret it inside negation (Kato 1988).

- (14) *Zen'in-ga tesuto-o uke-nakat-ta.*²
 all-NOM test-ACC take-NEG-PAST
 'All did not take the test.'
 *not > all, all > not

Turning to examples relevant to our discussion, note the following (Miyagawa and Arikawa 2004). (15a) illustrates the first point — *zen'in* 'all' in the object position may get the partial negation reading.

- (15)a. *Gakusei-ga futa-ri zen'in-o mi-nakat-ta.*
 student-NOM 2-CL all-ACC see-NEG-PAST
 'Two students did not see all.' (not > all, all > not)
 b. *Gakusei-ga zen'in-o futa-ri-tomo mi-nakat-ta.*
 student-NOM all-ACC 2-CL-both see-NEG-PAST
 'Neither of the two students saw all.' (*not > all, all > not)
 c. *Gakusei-ga zen'in-o futa-ri-dake mi-nakat-ta.*
 student-NOM all-ACC 2-CL-only see-NEG-PAST
 'Only two students saw all.' (*not > all, all > not)

However, as shown in (15b/c), which are 'nonlocal' instances of subject FNQ, the object *zen'in* can only be interpreted outside the scope of negation. This means that the object has moved outside not only the VP but also the *v*P. Based on the 'EPP' analysis of scrambling, this is an instance in which the object has moved to the Spec of TP to meet the EPP requirement of T (Miyagawa 2001). This is shown below.



The fact that the object *zen'in* moves into the Spec of TP is indication that the subject has scrambled to some position above the 'basic' Spec of TP. As we will see, this is an A'-position, which means that this subject scrambling is an instance of A'-movement.

5.2. Anaphor Binding

Note the distinction below.

² It is important to maintain neutral intonation for this test; the nuclear stress should fall on the object.

- (18) a. Gakusei_i-ga san-nin-dake zibunzisin_i-o hihansita.
 student-NOM 3-CL-only self-ACC criticized
 ‘Only three students criticized himself.’
 b. ??Gakusei_i-ga zibunzisin_i-o san-nin-dake hihansita
 student-NOM self-ACC 3-CL-only criticized
 ‘Only three students criticized himself.’

(18b) is an instance of a ‘nonlocal’ use of FNQ. The subject cannot be an antecedent for the anaphor, unlike in the ‘normal’ case in (18a). It is in an A’-position, in other words.³ By definition, the subject could not have been externally merged in this position, but must have moved there. This, again, is indication that the subject in these ‘nonlocal’ subject FNQ cases has scrambled, in turn giving evidence that the FNQ is meeting locality even in these ‘nonlocal’ cases. Below, we turn to what all this is telling us.

6. A-chains and A’-chains

Is it the case that all instances of nonlocal subject FNQ have a derivation in which the subject undergoes A’-scrambling? As it turns out, in Korean, it is possible for the subject to undergo A-movement and strand an FNQ. The FNQ must be case marked. Note the following.

- (19) Sensayngnim-(tul)-i caki-uy haksaying-ul 3-myeng-i honnay-ss-ta.
 teacher-(pl)-NOM self-GEN student-ACC 3-CL-NOM criticized
 ‘Three teachers criticized self’s students.’

As noted earlier, case marking on the subject FNQ makes it possible for it to be stranded. We can also see that the chain created by the movement of the subject is due to A-movement, because the head of the chain is able to bind an anaphor. This contrasts minimally with Japanese, in which the subject DP that strands an FNQ cannot bind an anaphor, showing that the subject undergoes A’-movement.

What is the source of the difference between Japanese and Korean? Let us begin with Japanese. The fact that the subject cannot undergo A-movement to the Spec of TP if it strands an FNQ is tantamount to saying that Japanese does not have ‘Sportiche-style’ A-movement for floated quantifier. In English and French, the floated quantifier may be stranded in the Spec of vP, and locality is met by the NP-trace of the subject that has undergone EPP-triggered movement to the Spec of TP. Why isn’t this move-

³See Hoji and Ishii (2004) for counterexamples to this claim. See Miyagawa and Arikawa (2004) for a response.

ment available in Japanese? Miyagawa and Arikawa (2004) appeal to an observation by Nevins and Anand (2003), who make the following point about A-movement. Unlike Lasnik (1999), who argues that A-movement simply does not reconstruct — i.e., the lower copy is not visible — Nevins and Anand show on the basis of cross-linguistic data that the visibility of the lower copy of A-chains varies depending on the occurrence of agreement on the A-chain. If agreement occurs, the lower copy is visible. This is English and French, in which the lower copy of the A-chain is visible and can fulfill the locality requirement of floated quantifiers. If there is no agreement, the lower copy is invisible, hence the lower copy cannot be used to meet the locality of floated quantifiers. This is Japanese. If there is to be a copy that could fulfill locality, it must be the lower copy of A'-chain. This is precisely what we see in Japanese.

What about the Korean case-marked FNQ construction? Like Japanese, Korean lacks agreement of the type found in English/French. Apparently the case marking on the FNQ and the same case marking on the moved subject together function as a form of agreement, which makes the lower copy of the A-chain visible. Thus, the case marking on the subject FNQ in Korean has two functions. As noted earlier, it avoids the subject FNQ from mistakenly being construed as part of the object phrase. Second the case marking allows an A-chain in which the lower copy is visible.

6.1. Object FNQ

We saw above that the stranded subject FNQ in Japanese is connected to its associated subject DP by A'-chain. Does this requirement of A'-scrambling for FNQs carry over to object FNQs? Let us look at stranding of object FNQ (Haig 1980, Kuroda 1980).

- (20) Hon-o gakusei-ga go-satu katta.
 book-ACC student-NOM 5-CL_{OBI} bought
 'Students bought five books.'

Does the object DP that strands its FNQ in this example move by A- or A'-scrambling? Two kinds of evidence point to the fact that it is A'-scrambling. First, as observed by Hasegawa (1993), a sentence such as the following is scopally unambiguous.

- (21) Hon-o dareka-ga t_O san-satu yonda.
 book-ACC someone-NOM 3-CL read
 'Someone read three books.' some > 3, *3 > some

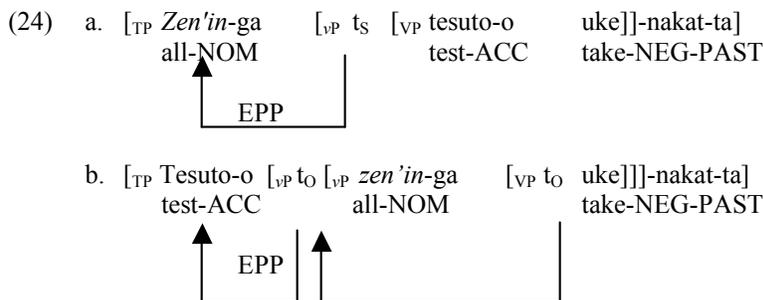
The scrambled object must necessarily reconstruct, a sign that the operation that moved the object is A'-scrambling. Second, recall the *zen'in* 'all'/negation test. If *zen'in* 'all' occurs in the subject position it cannot be (or is difficult to) interpret it inside the scope of negation.

- (22) *Zen'in-ga* tesuto-o uke-nakat-ta.
 all-NOM test-ACC take-NEG-PAST
 'All did not take the test.' *not > all, all > not

However, as I noted in Miyagawa (2001), if the object scrambles to the head of the sentence, it is much easier to interpret *zen'in* inside negation.

- (23) Tesuto-o *zen'in-ga* t₀ uke-nakat-ta.
 test-ACC all-NOM take-NEG-PAST
 'Test, all didn't take.' not > all, all > not

This is evidence that the object moves into the Spec of TP to satisfy the EPP on T. This is A-movement. Because the EPP is satisfied, the subject, *zen'in*, can stay in its original Spec of vP, making it possible to interpret it inside negation. In (22), it is the subject *zen'in* that must move into the Spec of TP to meet the EPP requirement of T, hence it cannot be interpreted inside negation. These are illustrated below (cf. Miyagawa 2001).

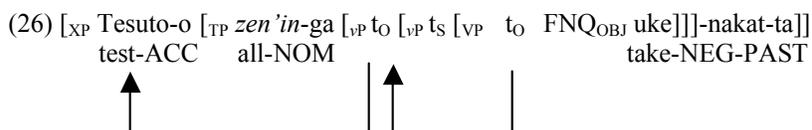


I have made the movement of the object a 'two-step' one; this is based on the assumption that vP is a 'phase' (a sort of a barrier) and to get out of it the object must adjoin to it (Chomsky 2000, 2001).

What is of interest is that Yamashita (2001) has noticed that if we add a stranded FNQ to the original example I gave, we get a very different result.

- (25) Tesuto-o *zen'in-ga* t₀ mit-tu uke-nakat-ta.
 test-ACC all-NOM 3-CL take-NEG-PAST
 'Three tests, all did not take.' *not > all, all > not

This shows that when the object strands an FNQ, the object can only undergo A'-scrambling. Here, the subject is meeting the EPP requirement of T by undergoing A-movement to the Spec of TP. This is why it cannot be interpreted inside negation.



One question that arises is, which portion of the chain is A'? Is it the entire 'two-step' chain, or is it just the top portion? If it is the latter, we have a nice generalization.

- (27) Generalization about 'invisible' copy in Japanese
 The trace in the vP domain is invisible in A-chain — whether the moved element is the external argument (subject) or the object.

Below we will see that this is, indeed, the case.

6.2. A-movement Also Possible for FNQ

Are there cases even in Japanese in which A-movement can license an FNQ? In Miyagawa (1989) evidence is given that A-movement in passive and unaccusative constructions licenses FNQs (cf. also Ueda 1986).

- (28) a. Kuruma_i-ga doroboo-ni t_i san-dai nusum-are-ta.
 cars-NOM thief-by 3-CL steal-PASS-PST
 'Three cars were stolen by a thief.'
- b. Doa_i-ga kono kagi-de t_i futa-tu aita.
 door-NOM this key-with 2-CL opened
 'Two doors opened with this key.'
- c. *Kodomo-ga geragerato san-nin waratta.
 kids-NOM loudly 3-CL laughed
 'Three kids laughed.'

The example in (a) has a passive verb and the example in (b) has an unaccusative verb. We expect to find A-chains in these constructions — we see it with the stranding of the FNQ. In (c) the verb is unergative, hence the only possible A-chain is the kind in which the lower copy in the Spec of vP is

invisible. The following shows that, for example, the passive involves A-movement.

- (29) Gakusei_i-ga zibunzisin_i-no sensei-ni t_i san-nin sikar-are-ta.
student-NOM self-GEN teacher-by 3-CL scold-PASS-PST
'Three students were scolded by his own teacher.'

This shows that the A'-movement requirement we saw earlier is imposed on a chain whose tail is at vP. The subject is one, as we have seen. For object scrambling that strands an FNQ, the object must move through vP, and it is this second step that must be A'-scrambling. What this means is that in the passive and unaccusative constructions, the internal argument moves directly to Spec of TP, bypassing the v. This suggests that the v is a 'weak' phase with passives and unaccusatives (cf. Chomsky 2000), contra Legate (2003). The trace in the internal argument position is visible presumably because of lexical θ -marking.

7. Concluding Remarks

Syntactic locality is basic to UG, and floated numeral quantifiers provide a clear case of how locality can be exploited to reveal insights about human language. What the challenges by linguists who tried to argue against the local nature of FNQs led us to understand is that syntax taps whatever resources it has to maintain the locality of FNQs, as we saw with the A'-scrambling of subjects in Japanese. Korean need not resort to A'-movement because of the availability of case marked FNQs that makes it possible to construct an A-chain in which the lower copy is visible.

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