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LOCALITY IN SYNTAX AND FLOATED NUMERAL QUANTIFIERS¹

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ABSTRACT

We defend the idea that floated quantifiers observe syntactic locality with its associated noun phrase. This idea has given rise to a number of important empirical arguments, including the VP-internal subject position (Sportiche), intermediate trace (McCloskey), and NP trace (Miyagawa). Recently, this syntactic locality of floated quantifiers has been questioned in a number of languages. We take up the counterevidence given in Japanese for floated numeral quantifiers and demonstrate that the arguments in fact give evidence for syntactic locality, not the other way around. Our conclusions suggest that evidence against locality of floated quantifiers given in other languages should be reexamined.

Key words: floated quantifier, quantifier stranding, numeral quantifier, scrambling

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1 Introduction

Much of syntax is study of locality. 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, in turn leading to deep insights. A classic example of how strict locality can lead to important insights is quantifier float. Sportiche (1988), based on observations such as the following, concludes that the subject starts out inside the verb phrase.

(1) a. Tous les enfants ont vu ce film.

all the children have seen this movie

b. Les enfants ont tous ___ vu ce film.

the children have all seen this movie (Sportiche 1988: 426)

Assuming that the quantifier *tous* is in a strict local relation with its associate noun phrase *les enfants*, Sportiche hypothesizes that in (1b), there is a trace of the noun phrase next to the quantifier, and this trace fulfills the locality requirement. The trace cannot be anywhere; for example it does not occur after the verb (**Les enfants ont vu tous ce film*), which is expected. The position of the trace in (1b) is precisely where the subject is initially merged inside the verb phrase. This idea of the so-called “VP-internal subject position” is one of the major developments that distinguish the recent Minimalist Program from the earlier GB framework (cf. also Fukui 1986, Kitagawa 1986, Kuroda 1988).

Another important work that is based on the locality of quantifier-noun phrase relation is that of McCloskey (2000). It has been assumed that ostensibly unbounded

movements — for example, wh-movement — are in fact local: they apply from one local domain to the next. An assumption here is that such a step-by-step movement leaves intermediate traces along the way (e.g., Lasnik and Saito 1984). While the existence of the intermediate trace is consonant with the local nature of human language, it is difficult to find empirical evidence for it. McCloskey uses quantifier float in West Ulster English to show that intermediate traces exist.

(2) West Ulster English

- a. What all did he say (that) he wanted *t*?
- b. What did he say (that) he wanted all?
- c. What did he say all (that) he wanted *t*?

The wh-phrase *what* and *all* must be in a local relation. In (2a) this locality is simply fulfilled by *what* and *all* occurring adjacent to each other, possibly even in the same phrase. In (2b) *all* is “stranded” in the original complement position of *what*; the trace of *what* makes the construal possible. The key observation is (2c). In this example *all* occurs at the head of the embedded CP, precisely where one would expect an intermediate trace to occur (*that* can optionally occur with *all*; this language does not have a doubly-filled COMP filter).

As a final example, Miyagawa (1989) demonstrated that floated numeral quantifiers in Japanese give evidence for NP trace (cf. also Ueda 1986). Just as with intermediate traces, evidence for NP trace has been difficult to come by. Numeral quantifiers are numerals with a classifier that agrees in type with the associated noun phrase. For example, *ni-dai* ‘2-classifier’ is a numeral quantifier with the numeral *ni* ‘2’

and the classifier *-dai* used for counting vehicles. Miyagawa gave evidence that the numeral quantifier (NQ) may be stranded inside the VP if the sentence contains a passive or an unaccusative verb, but not if the verb is unergative.

(3) a. Kuruma_i-ga doroboo-ni t_i ni-dai nusum-are-ta. (passive)

car_i-Nom thief-by t_i 2-CL steal-Pass.-Past

‘Two cars were stolen by a thief.’

b. Doa_i-ga kono kagi-de t_i futa-tu aita. (unaccusative)

door_i-Nom this key-with t_i 2-CL opened

‘Two doors opened with this key.’

c. *Kodomo-ga geragerato san-nin waratta. (unergative)

children-Nom loudly 3-CL laughed

‘Three children laughed loudly.’

In the passive example in (3a), the associated noun phrase, “cars,” is the externalized complement of “steal,” and the NQ *ni-dai* ‘2-CL’ that goes with it may be stranded in the original complement position where the locality is met by the trace of the externalized noun phrase. In the unaccusative example in (3b) the surface subject “doors” of the unaccusative “open_{INTR}” may be construed with the stranded NQ inside the VP thanks to the NP trace. However, in the unergative example in (3c), the surface subject “children” cannot be construed with the NQ inside the VP because the unergative verb, “laugh,” does not take an internal argument, hence there is no trace of the subject inside the VP to

support the NQ. An immediate question here is, why can't the VP-internal subject trace support this stranded NQ? It is a question we will address directly.

These results are based on the assumption that a quantifier and its associated noun phrase must observe strict locality. If they appear non-local to each other, the quantifier has been “stranded” by the noun phrase. By so viewing quantifier stranding, we arrive at the underlying form, in turn giving evidence for the VP-internal subject (Sportiche), intermediate trace (McCloskey), and NP trace (Miyagawa). Despite these achievements, the quantifier-stranding analysis has recently been challenged by a number of studies in a variety of languages (e.g., Bobaljik 1995, 1998/2003; Bosković 2004; Fukushima 2003, Hoji and Ishii 2004; Nishigauchi and Ishii 2003). In one way or another, these studies suggest that a quantifier may occur nonlocally relative to the noun phrase to begin with. A common view is that a quantifier in such an instance acts as a VP-adverb (e.g., Bobaljik 1995, Nishigauchi and Ishii 2003, Fukushima 2003), an idea that, as far as we know, originated in the study of the Chinese universal quantifier *dou* by Dowty and Brodie (1984). We will take up the criticism raised for the “locality” analysis of numeral quantifiers in Japanese and show that the counterexamples in the literature are in fact further evidence for the local nature of NQ. We will show that the ostensible ‘nonlocal’ use of NQs is governed by the kind of locality we see for the ‘local’ NQs. Our study, which focuses on Japanese, may or may not be suggestive of quantifier float in other languages. Minimally, it is a direct response to the criticism against locality of NQs in Japanese.

2 Floated Numeral Quantifiers

The idea that an NQ must be local to its associated noun phrase originates from an observation made by Haig (1980) and Kuroda (1980). Following is the standard paradigm from their work.

(4) Standard paradigm

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)

In (4a) the associated NP, the subject “students” and the NQ are adjacent to each other. In (4b), which is ungrammatical, the subject “students” and its NQ are separated by the object. In (4c), which is grammatical, the object “books” and its NQ are separated by the subject. The subject/object asymmetry here indicates that while there is no trace of the subject in the VP to support a stranded NQ (remember that this was the GB era), the object to the left of the subject has been moved there by scrambling, leaving a trace which supports the NQ (cf. Kuroda 1980, Saito 1985).

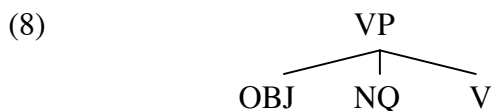
strongly disagree with them on the other. As we will show, the standard paradigm vis-a-vis (4b) reflects a particular parsing of the sentence, a ‘mis-parse’ that a slightly different intonation pattern can ameliorate. Although the issue of intonation is not taken up by the linguists who offered the counterexamples, we believe that this is in essence what their counterexamples demonstrate. Thus, we agree that the standard paradigm cannot be maintained in its original form as a *grammatical* paradigm. However, we disagree with these linguists on the issue of locality of NQs: even in the “non-standard” judgment examples that they offer, where a sentence like (4b) sounds fine, we will see that the subject and the stranded NQ preserve strict locality. Finally, we will show that, while the standard paradigm cannot be maintained in its original form as a grammatical paradigm, the NP-trace paradigm of Miyagawa (1989) can be maintained as such.

2.1 The Nature of Locality

Miyagawa (1989) argued that the nature of the locality of NQ-noun phrase is the structural requirement of mutual c-command.

(7) The NQ or its trace and the NP or its trace must mutually c-command each other.

It was suggested that this mutual c-command is the same structural requirement imposed on secondary predicates (Williams 1980), and that the NQ is a type of secondary predicate. By its nature a secondary predicate is a separate constituent from the associated noun phrase. One consequence of viewing NQs in this way is that we must allow ternary branching. The following illustrates this for the object and its NQ.



While this was not a problem at the time Miyagawa presented the analysis, more recent assumptions about structure building on the basis of Merge, internal or external (Chomsky 1995, 2000), entails that all structures are binary branching. A simple and direct way to accommodate the locality of NQs without having to postulate ternary branching is to assume that the noun phrase and the floated NQ comprise a single constituent (a NUM(ber) phrase, for example) (cf. Kawashima 1998, Watanabe 2004). The noun phrase with case marking and the NQ that follows it are dominated by a projection of the node that dominates the NQ, such as a Number Phrase (see (9) below). See Kawashima 1998 and Watanabe 2004 for a possible structural analysis, including how the case marking appears internal to the overall phrase. Thus, the object-NQ structure in (8) above, which required ternary branching in Miyagawa (1989), now has the binary branching form as shown below.



Stranding of the NQ is made possible by the cased noun phrase (e.g., object) moving out of this larger, NumP structure (cf. Watanabe 2004).

With this “constituent” analysis of noun phrase-NQ in mind, let us go back to the standard paradigm, specifically, the ungrammatical string involving a subject and its NQ separated by the object. The sentence is repeated below.

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

Here the NQ *go-satu* ‘5-CL’ is inside the VP, and it is the lowest constituent in the structure (aside from the verb), thus it receives nuclear stress and does not inappropriately get put together with the subject noun phrase. We will return to this notion of NSR and clash in agreement later in the article.

3 Counterexamples to Locality

The counterexamples given in the literature against locality commonly have the form that the subject and its NQ are separated by the object or some other relevant element, in contrast to the original standard paradigm of Haig and Kuroda. The following are representative of the kinds of counterexamples found in the literature (e.g., Gunji and Hasida 1998, Ishii 1998, Kuno 1978, Kuno and Takami 2003, Nishigauchi and Ishii 2003, Takami 1998).

(12) ?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)

(13) 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)

In (12), there is an adverb between the object and the subject NQ; in (13) the subject NQ after the object has the focus NPI *-sika* ‘only’. What do these examples indicate? Very clearly, they lead to a different prosody than in the standard paradigm. In (12), by separating the subject NQ from the object by an adverb, the subject NQ is marked as

phrasally separate from the object (unlike the standard-paradigm case). This avoids the subject NQ from being inappropriately construed as being part of the object phrase, hence avoids the standard ungrammatical judgment. The same holds for (13). The stress required by the focus element *-sika* ‘only’ on the NQ naturally attracts the stress onto the NQ, thereby identifying the NQ as a constituent separate from the object. In fact, even with the standard-paradigm example in (4b) — the ungrammatical example in which the subject is separated from its NQ by the object — if one puts a pause between the object and the subject NQ, and nuclear stress thus falls on the stranded subject NQ, the sentence improves considerably.

- (14) ?Gakusei-ga sake-o [PAUSE] SAN-NIN nonda.
 student-NOM sake-ACC 3-CL_{SUB} drank
 ‘Three students drank sake.’

Therefore, without realizing it, the linguists who thought up these counterexamples came up with a way to overcome the effect of nuclear stress that led to the standard paradigm of Haig/Kuroda. Based on their examples, these linguists conclude that cases such as (12) and (13), which we will refer to as “non-standard judgment,” demonstrate that the NQ need not observe syntactic locality.

4 Responding to the Counterexamples

Recall that in the original analysis of the standard paradigm, Saito (1985) assumed the following.

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

The linguists who have presented counterexamples have concluded that (15i) must be rejected, either completely or at least for the “non-standard” judgment cases (cf. Ishii 1998 for the latter). Hence, these linguists assume that the non-standard judgment cases have the structure as follows.

- (16) SUB [_{VP} OBJ NQ_{SUB} V]

Setting aside the question of how the object occurs in a non-complement position to begin with — a question that, in fact, becomes important in our analysis — the point is that the subject NQ occurs nonlocally to begin with relative to the subject noun phrase. Interestingly, no one has suggested the other logical possibility — that (15ii) should be questioned on the basis of the non-standard judgment cases. We will do just that. We will follow Ko (in press) in assuming that the subject in Japanese (and Korean) may scramble. We will combine this idea with the “EPP” approach to scrambling (Miyagawa 2001, 2003) to derive the non-standard judgment cases. At the end, we will return to the standard paradigm and Miyagawa’s NP-trace paradigm, and look to see what kind of analysis holds for them in light of our “subject scrambling” analysis of the non-standard judgment cases. As we will see, while the standard paradigm cannot be maintained in its original form, the NP-trace paradigm is upheld as originally observed. More importantly for the purposes of this article, we will see that the fundamental notion of syntactical locality of NQs assumed in the formulation of these paradigms holds true for all cases of floated NQs, including the “non-standard” cases.

Saito's (1985) original idea that subjects do not scramble is a reasonable one. It is a kind of an economy statement: avoid string-vacuous movement. If the subject could scramble, the order, subject-object-verb, has two derivations, one without any scrambling and the other with the object scrambling first, followed by the subject scrambling over the object. The latter derivation is string-vacuous and, indeed, it is counterintuitive.

However, what if there is a prosodic marking, indicating that this double scrambling has occurred? Given that there is a different prosody, it would not be string vacuous.

Let us look more carefully at the non-standard judgment cases. One example is repeated below.

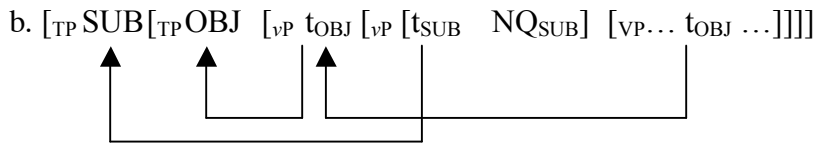
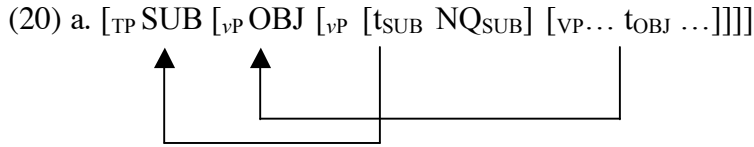
- (17) ?Gakusei-ga sake-o imamadeni san-nin nonda
 student-NOM sake-ACC so far 3-CL_{SUB} drank

'Three students drank sake so far.' (Gunji and Hasida 1998: 57)

As we saw, the occurrence of the adverb "so far" between the object and the subject NQ prevents the nuclear stress from falling on the object. The stress falls on the subject NQ. This avoids the "standard paradigm" problem of the object being construed with the subject NQ, which has an incompatible classifier. The nuclear stress on the subject NQ in (17) therefore marks the sentence as different in structure from the standard SOV string. This nuclear stress shows that this sentence has a "special" derivation, namely, subject (and object) scrambling.

We will therefore assume with Ko (in press) that subjects may scramble. The question is, what is the derivation of the non-standard judgment cases such as (17)?

There are two possible derivations for the typical non-standard judgment case of SUB-OBJ-NQ_{SUB} V.



In (20a) the object adjoins to vP. The subject then moves to the Spec of TP, leaving its NQ in the original Spec of vP. This latter movement is the “Sportiche-style” quantifier stranding. In (20b), the object first moves to the edge of vP, a “phase” (cf. Chomsky 2001), then moves to the Spec of TP to meet the EPP requirement of T (see Miyagawa 2001, 2003; we will illustrate this below), followed by the subject A’-scrambling to a higher position. We have indicated that it is a higher Spec of TP, but it could very well be the Spec of CP. Below, we will give evidence that the correct analysis is the second one, in which the object moves to the Spec of TP by EPP-triggered A-movement, and the subject then moves across it by A’-movement. This analysis gives support to Ko’s (in press) assertion that the subject may scramble in Korean and Japanese. More to the point at hand, the analysis upholds the notion that a numeral quantifier requires locality even in the non-standard judgment cases. In the second option (as well as the first), the object and the subject have scrambled; the subject therefore leaves a copy which fulfills the locality requirement with the subject NQ.

5 The Analysis

The analysis we will defend — (20b) above — is rooted in the “EPP” analysis of scrambling (Miyagawa 2001). In addressing the two possible word orders in Japanese, SOV and OSV, Miyagawa argues that in the SOV order, S has moved into the Spec of TP for the EPP, while in the OSV, O has moved into the Spec of TP for the EPP, and S stays in situ in the Spec of *v*P. The nominative case marking on this S is checked by T purely through AGREE without movement (cf. Chomsky 2000 for the notion of AGREE).

The evidence Miyagawa gives has to do with the interpretation of *zen'in* ‘all’ under negation. As shown below, if *zen'in* ‘all’ occurs in the object position, it can be interpreted inside the scope of sentential negation, making it possible to have a partial negation reading (the other reading, “all > not,” is due to the group reading of *zen'in* ‘all’).

(21) 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 the universal occurs in the subject position, it is most naturally interpreted in neutral intonation as being outside the scope of negation; most speakers find it difficult, if not impossible, to interpret it inside the scope of negation (Kato 1988).

(22) *Zen'in-ga tesuto-o uke-nakat-ta.*³
 all-NOM test-ACC take-NEG-PAST

'All did not take the test.'

*not > all, all > not

As pointed out in Miyagawa (2001), if the object scrambles across the subject *zen'in*, partial negation becomes easier to obtain.

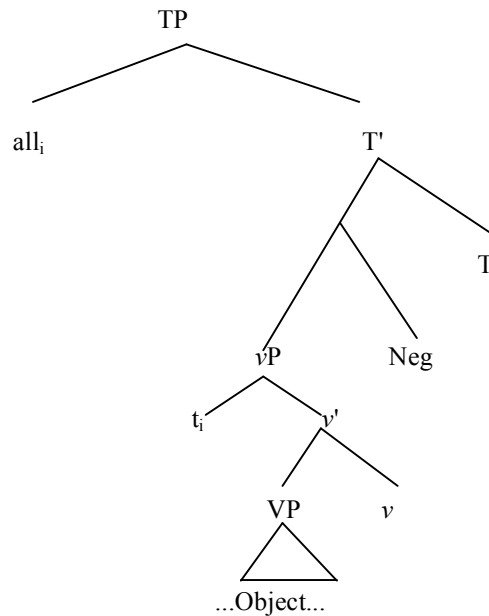
(23) *Tesuto-o_i zen'in-ga t_i uke-nakat-ta.*
 test-ACC_i all-NOM t_i take-NEG-PAST

'That test, all didn't take.'

not > all, all > not

(22) and (23) are diagrammed as follows.

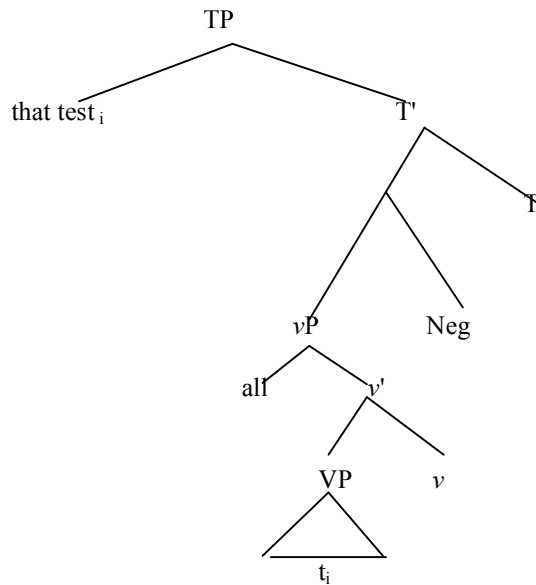
(24)=(22)



³This judgment is based on neutral intonation in which the nuclear stress falls on the object “test.” The same is true of (23) below. If the stress is shifted (e.g., to the verb or the subject), the judgment become less clear.

In (24) (=22), the subject “all” asymmetrically c-commands Neg, inducing all > not. In (23), in which the subject "all" occurs in the "scrambled" order of OSV, it can be interpreted inside the scope of negation. The simplest assumption to make here is that this subject "all" stays in-situ in the Spec of vP, which is made possible by the movement of the object to the Spec of TP.⁴

(25)=(23)



If we compare the two structures above, there is a simple generalization:

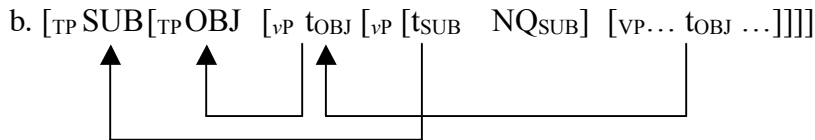
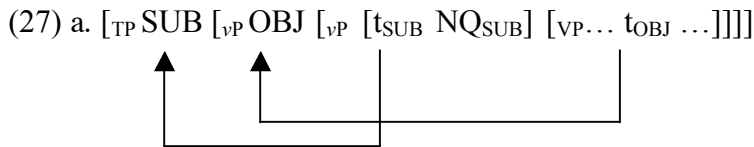
(26) Something must move to the Spec of TP (e.g., subject, object) (Miyagawa 2001).

If the subject moves to the Spec of TP, the object stays in-situ, as in (24). On the other hand, if the object moves to the Spec of TP, this allows the subject to stay in-situ, as

⁴ In (24), we follow the standard assumption in the scrambling literature that A-chain does not reconstruct (e.g., Mahajan 1990); that is why “all” that moves by A-movement to the Spec of TP is interpreted outside the scope of negation. For discussion of non-reconstruction of A-chains outside the scrambling literature, see, for example, Lasnik 1999.

shown in (25), making it possible to interpret it inside the scope of negation.⁵ As argued in Miyagawa (2001), the simplest account of what we just observed is that the T in Japanese is associated with the EPP feature. The Spec of TP is filled by something (subject, object, etc.), and this meets the EPP.

Returning to the two options for the double scrambling, repeated below,



we will argue that the non-standard judgment cases have the derivation in (27b). In (27b) the object first moves to the edge of the phase, *vP*, then moves to the Spec of TP for the EPP. This is A-movement. The subject then undergoes A'-movement to a position higher than the initial Spec of TP. This may be a second Spec of TP, as indicated in (27b), or it may even be Spec of CP. We will not attempt to decide — it just needs to be higher than the initial Spec of TP and a landing site for A'-movement.

Why is the Sportiche-style structure not available for the non-standard judgment construction in Japanese? That is, why can't the subject move into the Spec of TP and strand its NQ? The answer lies in the particular analysis of scrambling assumed for (27b), namely, that scrambling is not completely optional and it must be motivated (e.g.,

⁵ The other reading, “all > not,” for the OSV order comes from the subject first moving to the Spec of TP, then the object undergoing A'-scrambling above it.

Miyagawa 1997, 2001, 2005a, 2005b, in press). In this analysis, the object first moves to the edge of vP . From there, it is targeted by the EPP on T. It is the closest element for the EPP to pick out; the subject is in the inner Spec of vP .⁶ The subject may then undergo A'-scrambling to a position higher than the initial Spec of TP. This need not be feature-driven, but, as noted in Miyagawa (in press), it is subject to the conditions on optional movement (cf. Fox 2000, Reinhart 1995). Alternatively, if scrambling were completely optional and does not require motivation (e.g. Fukui 1993, Saito and Fukui 1998), we would expect that, after the object moves to the edge of vP , the subject should be free to move to the Spec of TP, since this would not be in any way a feature-driven movement. We in fact would expect the derivation in (27a) to be possible.

The analysis above predicts that if what intervenes between the subject and the subject NQ is an element that is merged higher than vP to begin with, such as a high adverb, we expect the Sportiche-style stranding to be possible. As noted in Miyagawa (1989), a sentence such as the following is fine.

(28) Gakusei-ga_i kinoo t_i san-nin syukudai-o wasureta.
 students yesterday 3-CL homework-ACC forgot

'Three students forgot their homework yesterday.'

In this example the subject "students" has moved from the Spec of vP to the Spec of TP, across the high adverb "yesterday." The subject NQ is stranded in the Spec of vP , as in the Sportiche cases (cf. Kawashima and Kitahara 1993 for arguments for this analysis).

⁶We assume that in this type of multiple specifier structure the higher Spec and the lower Spec are not equidistant from a higher probe; the higher Spec is closer to the probe. See Richards (2001) and Doggett (2004) for arguments for this view of multiple specifiers.

The EPP on T targets the subject phrase, not the high adverb, given that the adverb is an adjunct.

Below, we will give evidence that (27b) is the correct derivation for the “non-standard judgment” cases, thereby giving further justification for the kind of approach to scrambling advocated in Miyagawa’s work as well as Kitahara 2002, Otsuka, in press, Sabel, in press, among others. We will give supporting evidence for two crucial elements in our proposal. The first type shows that the object has moved outside of the vP , into the Spec of TP, for the EPP. The second type shows that the subject has undergone A’-scrambling.

5.1 Evidence

We will first give two pieces of evidence that in the non-standard judgment structure, the object occurs in the Spec of TP. This shows not only that the object moves out of vP to meet the EPP requirement of T, but also that the subject scrambles to a position higher than the Spec of TP.

5.1.1 Negation and “all”

Recall that if the universal *zen’in* ‘all’ occurs in the object position it may be interpreted inside the scope of sentential negation, leading to a partial negation reading. If *zen’in* occurs in the subject position in the SOV order, it preferentially is interpreted outside the scope of negation, indicating that it is outside not only the VP but also the vP , in the Spec

of TP to meet the EPP requirement. (29a) below illustrates the first point — *zen'in* ‘all’ in the object position may get the partial negation reading.

(29)a. Gakusei-ga futa-ri zen'in-o mi-nakat-ta (not > all, all > not)
 student-NOM 2-CL all-ACC see-NEG-PAST

‘Two students did not see all.’

b. Gakusei-ga zen'in-o futa-ri-tomo mi-nakat-ta (*not > all, all > not)
 student-NOM all-ACC 2-CL-both see-NEG-PAST

‘Neither of the two students saw all.’

c. Gakusei-ga zen'in-o futa-ri-dake mi-nakat-ta (*not > all, all > not)
 student-NOM all-ACC 2-CL-only see-NEG-PAST

‘Only two students saw all.’

However, as shown by (29b, c), which are non-standard judgment cases, the object *zen'in* can only be interpreted outside the scope of negation. This means that the object has moved outside not only its VP but also the *v*P, to the Spec of TP to meet the EPP requirement. This is shown below.

(30) [TP SUB [TP *zen'in-o* [_{vP} t_{OBJ} [_{vP} t_{SUB} NQ_{SUB} [_{VP} t_{OBJ} V] NEG] T]

5.1.2 Indeterminate Pronoun (Kishimoto 2001)

An indeterminate pronoun is a *wh*-phrase that is interpreted as indefinite *any* in the scope of the universal particle *mo*. To make this interpretation possible, the indeterminate

pronoun must be m-commanded by the universal *-mo*; this *-mo*, which occurs on the verb stem, raises with the stem to *v* but not to T (Kishimoto 2001).

(31)a. Taro-ga nani-o kai-*mo*-si-nakat-ta.
Taro-NOM what-ACC buy-MO-do-NEG-past
'Taro did not buy anything.'

b. * *Dare*-ga warai-*mo*-si-nakat-ta.
who-NOM laugh-MO-do-NEG-PAST
'No one laughed.'

c. * *Dare*-ga Hanako-o home-*mo*-si-nakat-ta.
who-NOM Hanako-ACC praise-MO-do-not-past
'No one praised Hanako.'

(Kishimoto 2001: 600)

As Kishimoto notes, while the object position can host an indeterminate pronoun ((31a)), the subject position cannot ((31b/c)). The subject position is outside the domain of the *mo* particle, which he assumes is at *v*. Now note the following.

(32) a. Kodomo-ga san-nin dono-eiga-o mi-*mo*-si-nakat-ta.
kids-NOM 3-CL which-movie-ACC see-MO-do-NOT-PAST.
'Three kids did not see any movie.'

- b. *Kodomo-ga dono-eiga-o imamadeni san-nin mi-mo-si-nakat-ta.
 kids-NOM which-movie-ACC so far 3-CL see-MO-do-NOT-PAST
 ‘Three children did not see any movie so far.’

In (32b), which is a non-standard judgment case, the object indeterminate pronoun is ungrammatical, indicating that this object has moved to the Spec of TP and outside the domain of *-mo*.

5.1.3 Quantifier Scope

In Japanese quantifier scope is usually limited to surface scope (Kuroda 1971, Hoji 1985).

- (33) Dareka-ga daremo-o sikatta.
 someone-NOM everyone-ACC scolded
 ‘Someone scolded everyone.’
 some > every, *every > some

However, note below.

- (34) Dareka-ga daremo-o tugitugito sikatta.
 someone-NOM everyone-ACC one.after.another scolded
 ‘Someone scolded everyone one after another.’
 some > every, every > some

As indicated, with the adverb “one after another” between the object and the verb, which occurs in the same position as the subject NQ in a non-standard judgment case and, like the subject NQ, and the nuclear scope falls on it, it is possible to get inverse scope. This suggests that the subject may reconstruct to a position below the object, which is normally possible only under A'-movement (Mahajan 1990).

The arguments given above demonstrate that in the non-standard judgment cases the subject has undergone scrambling, which leaves behind a trace that fulfills the locality requirement of the stranded subject NQ.

6 Standard Paradigm and NP-trace Paradigm

Let us return to the standard paradigm in Haig (1980)/Kuroda (1980) and also the NP-trace paradigm in Miyagawa (1989). The Haig/Kuroda paradigm is repeated below.

(35) Standard paradigm

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)

What we said about (35b) is that, unlike in the non-standard judgment cases, the NQ is construed as being a part of the object phrase with the object *sake-o*. This is because the nuclear stress falls on *sake-o*. The difference between this and the non-standard judgment cases is that here, the subject cannot be viewed as having scrambled from the position adjacent to the subject NQ. The subject NQ is in the same constituent with the

object, and, as a result, the NQ has no subject trace to give it the right analysis based on locality. Hence it is construed with the object, and there is a clash in the agreement of the classifier on the NQ, *-nin*, which is used for counting people, and the object *sake*. As mentioned earlier, if a pause is put between the object and the subject NQ, then it is possible to interpret this as a non-standard judgment case. The standard paradigm is therefore a paradigm about one way of parsing (35b); changing the parsing leads to a more grammatical judgment. In this way the standard paradigm cannot be maintained as a grammatical paradigm.

The other paradigm is the NP-trace paradigm in Miyagawa (1989), repeated below.

(36) a. Kuruma_i-ga doroboo-ni t_i ni-dai nusum-are-ta. (passive)

car_i-Nom thief-by t_i 2-CL steal-Pass.-Past

‘Two cars were stolen by a thief.’

b. Doa-ga_i kono kagi-de t_i futa-tu aita. (unaccusative)

doori-Nom this key-with t_i 2-CL opened

‘Two doors opened with this key.’

c. *Kodomo-ga geragerato san-nin waratta. (unergative)

children-Nom loudly 3-CL laughed

‘Three children laughed loudly.’

(36a, b) are fine because there is an NP-trace. But what about (36c)? Why can’t this be an instance of a non-standard judgment case, with the trace of the subject of the unergative verb in the Spec of *vP*?

(37) Kodomo-ga_i geragerato [_{VP} t_{SUB} san-nin [_{VP} waratta]] (unergative)
 children-Nom loudly 3-CL laughed

Before giving the reason, as noted earlier, note that the following is fine (cf. Miyagawa 1989).

(38) Kodomo-ga kinoo san-nin kurasu-de waratta.
 children-NOM yesterday 3-CL class-in laughed
 ‘Three children laughed yesterday in class.’

The subject is separated from its NQ by an adjunct phrase, just as in (36c), yet the sentence is grammatical. What is the difference? As Ko (2005) notes, the kind of example in (38) from Miyagawa (1989) involves a “high” adverb. The ungrammatical example in (36c), on the other hand, involves a low adverb (“loudly”). A low adverb occurs in VP. This gives the answer to why (36c) is ungrammatical. The low adverb “loudly,” being in VP, makes it impossible for the stranded subject NQ from being associated with the trace of the subject in the Spec of *v*P. This is shown below.

(38) *Kodomo-ga_i [_{VP} t_{SUB} [_{VP} geragerato san-nin waratta]] (unergative)
 children-Nom loudly 3-CL laughed

Importantly, a low adverb does not block the construal of a stranded NQ in passives and unaccusatives (Ko 2005). First, note that the adverb *umaku* ‘well/skillfully’ is a low adverb.

(39) *Doroboo-ga *umaku* san-nin kuruma-o nusunda.
 thieves-NOM skillfully 3-CL car-ACC stole
 ‘Three thieves stole cars deftly.’

As shown the occurrence of ‘well/skillfully’ before the subject NQ blocks the subject NQ from being construed with the trace of the subject. Now note the following.

(40) Kuruma-ga_i doroboo-ni *umaku* t_i san-dai nusum-are-ta.
cars-NOM thief-by skillfully 3-CL steal-PASS-PST
‘Three cars were stolen deftly by a thief.’

(41) Doa-ga_i *umaku* t_i mit-tu aita.
door-NOM well 3-CL opened
‘Three doors opened well.’

The passive example in (40) and the unaccusative example in (41) demonstrate that the trace responsible for fulfilling the locality requirement of the stranded NQ is inside the VP. This is because the low adverb ‘well’, which occurs in VP, precedes the stranded NQ. This is evidence that the NP-trace analysis of NQ stranding for passives and unaccusatives still stands. To complete the picture, note that the an unergative verb does not allow a stranded NQ with the adverb “well.”

(42) *Kodomo-ga umaku san-nin oyoida.
children-NOM well 3-CL swam
‘Three children swam well.’

The low adverb test allows us to separate unergative ((42)) and transitive ((39)) constructions from the passive ((40)) and unaccusative ((41)) constructions relative to the

ability to ability to allow a stranded NQ inside the VP. This test shows that we can maintain the NP-trace paradigm as a grammatical paradigm.^{7,8}

⁷One issue that remains is the observation in the literature that a stranded NQ only has a distributive meaning while a non-stranded NQ may have collective as well as a distributive meaning (e.g., Ishii 1998, Nakanishi 2004). For example, Nakanishi (2004) gives the following pair.

- (i) Gakusei-ga kinoo san-nin Peter-o tataita.
 students-NOM yesterday 3-CL Peter-ACC hit
 ‘Three students hit Peter yesterday.’
- (ii) ??Gakusei-ga kinoo san-nin Peter-o korosita.
 students-NOM yesterday 3-CL Peter-ACC killed
 ‘Three students killed Peter yesterday.’

According to Nakanishi the NQ that is separated from the subject is an adverb, thus ‘nonlocal’, and it modifies the VP, leading to the interpretation that there were three events involving the participants indicated. This would give it a distributive reading. In (i) such a reading is fine because hitting Peter can be done by three students at different times. But in (ii) such a reading is impossible because Peter can only be killed once. Although the judgment difference between (i) and (ii) is quite delicate, we agree with Nakanishi that (ii) is slightly degraded. The problem, however, is that there are ways to improve (ii). If, for example, a pause is placed after NQ, the judgment improves markedly. We are not certain what this suggests, but it is clear that (i/ii) require further analysis, which is outside the scope of the present article.

⁸ Hoji and Ishii (2004) give the following as counterexamples to our analysis.

- (i) a. 55% izyoo-no robotto_i-o [soitu_i-o tyuumonsita hito]-ga
 55% over-GEN robot-ACC [it-ACC ordered person]-NOM
 kouzyoo-ni san-nin okurikaesita
 factory-to 3-CL returned
 ‘Over 55% of the robots, three people who ordered it returned (it) to the factory.’
- b. 55% izyoo-no robotto_i-o ten’in-ga [soitu_i-o seizoosita koozyoo]-ni san-nin
 55% over-GEN robot-ACC store.clerk-NOM [it-ACC made factory]-to 3-CL
 okurikaesita
 returned
 ‘Over 55% of the robots, three store clerks returned to the factory that made it.’

7 Conclusion

In this article we gave evidence that the floated numeral quantifier in Japanese observes strict syntactic locality even when it appears at first to be disconnected from its noun phrase. Our analysis upholds the strict locality requirement of numeral quantifiers. Our analysis also is based on a particular analysis of scrambling, in which local scrambling is viewed as being triggered by a feature (EPP) (e.g., Miyagawa 2001, 2005a/b). The empirical arguments we gave for the locality of NQs also support this approach to scrambling over those who view it as completely free and requiring no motivation.

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These are non-standard judgment cases, with the subject being separated from its NQ by a dative phrase. We predict that the subject is in A'-position. This means that the object that has been scrambled to its left ("over 55% of the robots") must also be in an A'-position. As Hoji and Ishii note, we should, then, expect a weak-crossover violation (cf. Mahajan 1990, Saito 1992, Tada 1993). The fact that there is no such violation for them indicates that the object, and presumably also the subject, is in an A-position. We have two reactions to this data. We have asked a large number of native speakers, and the vast majority find the intended construal quite awkward at best, and many simply did not get the judgment. We therefore leave this as an open issue.

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