Locality in Syntax and Floating Numeral Quantifiers

Shigeru Miyagawa
Koji Arikawa

We defend the idea that a floating quantifier observes syntactic locality with its associated noun phrase. This idea has given rise to a number of important empirical insights, including the VP-internal subject position, intermediate traces, and NP-traces. Recently, this syntactic locality of floating quantifiers has been questioned in a number of languages. We take up evidence from Japanese that purports to disprove the locality requirements on floating numeral quantifiers and their associated NP, and we demonstrate that the arguments in fact give evidence for syntactic locality, not against it. Our conclusions suggest that evidence against the locality of floating quantifiers given in other languages should be reexamined.

Keywords: floating quantifier, quantifier stranding, numeral quantifier, scrambling

1 Introduction

Much of syntax is the 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. Three of these insights are the VP-internal subject position, intermediate traces, and NP-traces, described briefly here in turn.

On the basis of data like (1a–b), Sportiche (1988) 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 NP *les enfants*, Sportiche hypothesizes that in (1b), there is a trace of the NP next to the quantifier, and this trace

fulfills the locality requirement. The trace cannot occur just anywhere; for example, as expected, it does not occur after the verb (*Les enfants ont vu tous ce film*). It occurs 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 Minimalist Program from the earlier Government-Binding (GB) framework (also see Fukui 1986, Kitagawa 1986, Kuroda 1988).

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 intermediate traces is consonant with the local nature of human language, it is difficult to find empirical evidence for them. McCloskey (2000) 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 t*?
    c. *What* did he say *all* (that) he wanted *t*?

The *wh*-phrases *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 piece of data 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).

Just as with intermediate traces, evidence for *NP-traces* has been difficult to come by. Miyagawa (1989) demonstrates that floating numeral quantifiers in Japanese provide such evidence (see also Ueda 1986). Numeral quantifiers (NQs) are numerals with a classifier that agrees in type with the associated NP. For example, *ni-dai* '2-classifier' is an NQ with the numeral *ni* '2' and the classifier -*dai* used for counting vehicles. Miyagawa gives evidence that the 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)
       child-NOM   loudly   3-CL   laughed
       'Three children laughed loudly.'

In the passive example in (3a), the associated NP, '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 requirement is met by the trace of the externalized NP. In the unaccusative example in (3b), the surface subject 'doors' of the unaccusative verb '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 in the complement position of the verb 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 NP must observe strict locality. If they are not adjacent to each other, the quantifier has been ''stranded'' by the NP. By viewing quantifier stranding in this way, we get to see the underlying form, in turn giving evidence for the VP-internal subject position, intermediate traces, and NP-traces. Despite these achievements, the quantifier-stranding analysis has recently been challenged by a number of studies in a variety of languages. Taking up the floating-quantifier data presented by Sportiche (1988), Shlonsky (1991), and others, Bobaljik (1995, 2003) raises syntactic and semantic problems with the stranding analysis. For Japanese, on the basis of evidence from Miyagawa 1989, with additional data from Yamashita 2001, he suggests that the distribution of floating quantifiers does appear to reflect stranding (Bobaljik 2003:132–134; see Bošković 2004 for related discussion). Gunji and Hasida (1998), Fukushima (2003), Nishigauchi and Ishii (2003), Hoji and Ishii (2004), and Kuno and Takami (2003) give arguments against a stranding analysis for floating NQs in Japanese.

Analyses that do not adopt stranding typically regard floating quantifiers as adverbs, including many of the works on Japanese cited above (see Bobaljik 2003 for extensive discussion and references on the adverbial approach). Sag (1978) observes that floating quantifiers should be regarded as adverbs because they have the same distribution. Dowty and Brodie (1984) propose a semantic analysis of floating quantifiers as VP adverbs, based on, among others, the Chinese universal quantifier *dou*. Adverbial analyses do not impose the kind of strict locality on NP–floating quantifier pairs that the stranding analysis does, but that is not to say that they don't require any sort of locality. One version of the adverbial analysis of floating quantifiers would impose whatever locality the grammar requires for an adverb to combine with a VP, and for this predicate to predicate of the NP. Another version is that a floating quantifier is an anaphoric adverb, in which the associated NP and the floating quantifier are in the same relation as an antecedent and its anaphor (Kayne 1981, Belletti 1982; see Doetjes 1997 for a similar proposal). For Nakanishi (2004), who also adopts an adverbial analysis of floating NQs, a floating NQ quantifies over events; the relation between the NQ and its host NP is established by a certain semantic mechanism, and this semantic mechanism imposes a kind of locality, though not in any sense as strict as that imposed by the stranding analysis (see footnote 9 for Nakanishi's data).

In the remainder of this article, we will use *locality* to mean the strict locality assumed under a stranding analysis. We will take up the arguments against the locality analysis of NQs in Japanese and show that the counterexamples in the literature in fact provide further evidence for the local nature of NQs. We will show that the ostensible ''nonlocal'' use of NQs is governed by the same

locality requirement imposed on ''local'' NQs. Our study, which focuses on Japanese, may or may not be directly relevant to quantifier float in other languages. Minimally, it is a direct response to the criticism against locality of NQs in Japanese.[1]

2 Floating Numeral Quantifiers

The idea that an NQ must be local to its associated NP originates from an observation made by Haig (1980) and Kuroda (1980). The following is the standard paradigm based on their work:

(4) *Standard paradigm*
     a. Gakusei-ga san-nin sake-o nonda.
        student-NOM 3-CL$_S$ sake-ACC drank
        'Three students drank sake.'
     b. *Gakusei-ga sake-o san-nin nonda.
        student-NOM sake-ACC 3-CL$_S$ drank
        'Three students drank sake.'
     c. Hon-o gakusei-ga go-satu katta.
        book-ACC student-NOM 5-CL$_O$ bought
        'Students bought five books.'

In (4a), the associated NP, the subject 'students', and the NQ are adjacent to each other. In (4b), the subject 'students' and its NQ are separated by the object, and the sentence is marked as ungrammatical, a judgment that we will reevaluate. 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 that supports the NQ (see Kuroda 1980, Saito 1985).

2.1 Problems for the Standard Analysis

A problem immediately arises for the ''ungrammatical'' (4b): as Bobaljik (2003:115) notes, why can't there be ''double scrambling,'' first of the object, then of the subject (see also Bošković 2004)?

(5) Gakusei-ga sake-o _____ san-nin _____ nonda.

     student-NOM sake-ACC   3-CL$_S$ drank

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[1] See Fitzpatrick 2006 for extensive discussion of floating quantifiers across a variety of languages. Following the suggestion made by Bobaljik (2003), Fitzpatrick concludes that there are at least two types of floating quantifiers, those that are stranded and those that begin as adverbs. Even when a floating quantifier is an adverb, strict locality is required: the adverb is required to c-command an empty category corresponding to the associated NP, an idea adopted from Doetjes (1997). Fitzpatrick concludes that floating NQs in Japanese are of the stranding kind.

If this double scrambling were possible, the subject NQ in (4b) would observe locality, and we would expect the sentence to be grammatical. To address this, Saito (1985) makes the following assumptions (the first is implicit in his analysis but nevertheless critical):

(6) *Saito's (1985) assumptions*
    a. The NQ and its associated NP observe strict locality.
    b. The subject in Japanese cannot scramble.

It is the second assumption that leads to the standard paradigm in which the subject and its NQ separated by the object, as in (4b), are judged ungrammatical. The subject, unable to scramble, is merged in its surface position and stays there, and there is no trace of it elsewhere that can support a stranded NQ.

    As we will show, the literature contains a number of counterexamples to the standard paradigm. Commonly, in these counterexamples the subject and its associated NQ are separated by the object or some other relevant phrase, yet the sentence—unlike in the standard paradigm—is judged to be grammatical. The linguists who offer these counterexamples conclude that an NQ does not require locality with its associated NP, hence that the standard paradigm is something of an illusion. We agree with these linguists on one point, but strongly disagree with them on another. As we will show, the standard-paradigm view of (4b), in which it is judged ungrammatical, reflects a particular structure, but a different intonation pattern can ameliorate the problem, suggesting that the sentence in (4b) may be associated with a different structure that *is* grammatical. Although the issue of intonation is not taken up by the linguists who offer the counterexamples, we believe that this is in essence what their counterexamples demonstrate. Thus, we agree with these linguists that the standard paradigm cannot be maintained in its original form as the sole paradigm for NQs. However, we disagree with them on the issue of locality of NQs: we will show that even in the nonstandard-judgment examples that they offer—examples with the same surface word order as (4b) that nonetheless sound fine—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, the NP-trace paradigm of Miyagawa (1989) can be maintained as originally conceived.

2.2 The Nature of Locality

Miyagawa (1989) argues that the locality requirement on the NP and its associated NQ derives from 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.

He suggests 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 NP. One consequence of viewing NQs in this way is that we must allow ternary branching. (8) illustrates this for the object and its NQ.

(8)

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              VP
         ┌────┼────┐
         O    NQ    V
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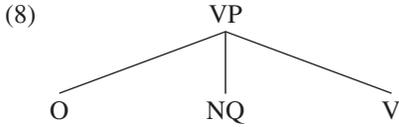
While this was not a problem at the time Miyagawa presented the analysis, more recent assumptions about structure building based on Merge, internal or external (Chomsky 1995, 2000), entail that all structures are binary branching. Even earlier, Kayne (1984) suggested this within the GB framework. A simple and direct way to account for the locality of NQs without having to postulate ternary branching is to assume that the NP and the floating NQ make up a single constituent. The NP 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)). 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 that required ternary branching in Miyagawa 1989, as in (8), now requires just binary branching.

(9)

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                    VP
             ┌──────┴──────┐
    [NumP O-CM NQ]          V
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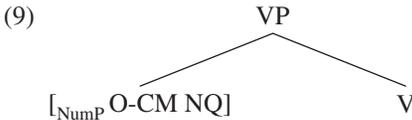
The NQ is stranded when the case-marked NP (e.g., object) moves out of this larger, NumP structure (see Watanabe 2004).

　　With this constituent analysis of NP-NQ in mind, let us go back to the standard paradigm, specifically, the string made up of a subject and its NQ separated by the object. The relevant sentence, (4b), is repeated in (10).

(10) *Gakusei-ga sake-o   san-nin nonda.
　　　 student-NOM sake-ACC 3-CL$_S$ drank
　　　 'Three students drank sake.'

Why is this sentence ungrammatical? In the neutral, first-pass reading of (10), the intonation contour is such that the NQ is pronounced in the same intonation phrase as the preceding object. The absence of a prosodic break between the object and the NQ promotes a reading in which the NQ refers to this object, resulting in a clash in agreement and thus an ungrammatical reading. The clash in agreement comes from the fact that the classifier -*nin* on the NQ is used to count people, not bottles of liquid such as sake. What is clear, then, is that in the ungrammatical version, the object and the following NQ are analyzed as a constituent, so that the NQ is structurally functioning as an object NQ: [NumP O NQ]. If the NQ had a classifier that agreed in kind with the object (*sake*) instead of the subject (*gakusei* 'students'), the sentence would be perfectly grammatical, but it would be an object-NQ construction. In section 7, we will introduce experimental data that support the ungrammatical parse of (10).

　　On the other hand, (4c), another sentence in the standard paradigm, repeated in (11), is not problematic.

(11) Hon-o$_i$ gakusei-ga   t$_i$ go-satu katta.
       book-ACC$_i$ student-NOM t$_i$ 5-CL$_O$ bought
       'Students bought five books.'

While the NQ *go-satu* '5-CL' is inside the VP, the subject, as we will show, is in Spec,TP. This structure avoids a ''misparse'' that would lump together the object NQ and the subject into a single constituent, because the subject and the object NQ are in two separate maximal projections.

3 Counterexamples to Locality

In a typical counterexample to locality, the subject and its NQ are separated by the object or some other relevant element yet the sentence is judged grammatical, in contrast to the standard paradigm originating with Haig (1980) and Kuroda (1980). The following are representative of the counterexamples found in the literature (e.g., Kuno 1978, Gunji and Hasida 1998, Ishii 1998, Takami 1998, Kuno and Takami 2003, Nishigauchi and Ishii 2003):

(12) ?Gakusei-ga sake-o   *imamadeni* san-nin nonda.
        student-NOM sake-ACC so.far   3-CL$_S$ drank
        'Three students drank sake so far.'
        (Gunji and Hasida 1998:57)

(13) Gakusei-ga   watasi-no hon-o   *futa-ri-sika* kaw-ana-katta.
        student-NOM my-GEN   book-ACC 2-CL$_S$-only buy-NEG-PAST
        'Only two students bought my book.'
        (cf. Takami 1998, 1:92)

In (12), an adverb intervenes between the object and the subject NQ; in (13), the subject NQ after the object is suffixed with the focus negative polarity item *-sika* 'only'. What do these examples indicate? Very clearly, they lead to a different prosody than in the standard paradigm. In (12), where the subject NQ is separated from the object by an adverb, the subject NQ and the object are produced in separate prosodic phrases (unlike the standard-paradigm case). This avoids the subject NQ being inappropriately construed as part of the object phrase, hence avoids the standard ungrammatical judgment. The same holds for (13). The prominence required by the focus element *-sika* 'only' on the NQ naturally attracts the prosodic prominence 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 the speaker pauses between the object and the subject NQ, thereby introducing a prosodic phrase break before the stranded subject NQ, the sentence improves considerably.

(14) ?Gakusei-ga sake-o   **[PAUSE]** SAN-NIN nonda.
        student-NOM sake-ACC   3-CL$_S$ drank
        'Three students drank sake.'

Therefore, without realizing it, the linguists who thought up these counterexamples shifted the structure from the standard Haig/Kuroda paradigm into one in which the subject NQ stranded after the object is successfully kept from being construed as part of the object. These linguists claim that examples such as (12) and (13), which we will refer to as *nonstandard-judgment* examples, demonstrate that the NQ need not observe syntactic locality. We will provide experimental evidence in section 7 for the nonstandard-judgment intonation pattern and show that it is distinct from the standard-judgment case.

4 Responding to the Counterexamples

Recall that in the original analysis of the standard paradigm, Saito (1985) made the following assumptions:

(15) a. The NQ and its associated NP observe strict locality.
     b. The subject in Japanese cannot scramble.

The linguists who have given the counterexamples have all concluded that (15a) must be rejected, either completely or at least for the nonstandard-judgment cases (for the latter, see Ishii 1998). Hence, these linguists assume that the nonstandard-judgment cases have the following structure:

(16) S [$_{VP}$ O NQ$_S$ V]

Setting aside the question of how the object occurs in a noncomplement position to begin with—a question that will become important in our analysis—the point is that the subject NQ occurs nonlocally to begin with relative to the subject NP. No one up to now has suggested the other logical possibility: that (15b) should be questioned on the basis of the nonstandard-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 Extended Projection Principle (EPP) approach to scrambling (Miyagawa 2001, 2003, 2005b) to derive the nonstandard-judgment cases. In section 6, we will return to the standard paradigm and Miyagawa's (1989) NP-trace paradigm, to see what we can salvage of these classic paradigms in light of our ''subject-scrambling'' analysis of the nonstandard-judgment cases. As we will show, while the standard paradigm cannot be maintained in its original form, the NP-trace paradigm holds as originally observed. More importantly for the purposes of this article, we will show that the fundamental notion of syntactic locality of NQs assumed in the formulation of these paradigms holds true for all cases of floating NQs, including the nonstandard-judgment cases.

Saito's (1985) original idea that subjects do not scramble is a reasonable one. It is a kind of economy statement: ''Avoid string-vacuous movement.'' If the subject could scramble, the order SOV would have 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, counterintuitive. However, what if the sentence carries prosodic marking, indicating that this double scrambling has occurred? Given the different prosody, it would not be string-vacuous. In section 7, we will give experimental evidence that two kinds of prosodic phrasing indeed exist, depending on the structure at hand.

Let us look more carefully at the nonstandard-judgment cases, one of which is repeated in (17).

(17) ?Gakusei-ga sake-o   imamadeni san-nin nonda.
       student-NOM sake-ACC so.far   3-CL$_S$ drank
       'Three students drank sake so far.'
       (Gunji and Hasida 1998:57)

As we showed, the occurrence of the adverb 'so far' between the object and the subject NQ prevents the subject NQ from being placed inside the object phrase. The presence of this adverb encourages an intonation phrase boundary to be placed between the object and the adverb, thus putting the object and the NQ in separate prosodic phrases. This avoids the standard-paradigm problem whereby the subject NQ is inappropriately construed with the object. Placing a prosodic phrase break before the adverb in (17) therefore associates a structure to the sentence that is different from the standard SOV string. We will argue that this structure in (17) is one in which the subject has scrambled.[2]

Assuming this, what precisely is the derivation of typical nonstandard-judgment cases like (17), of the form S-O-NQ$_S$-V? There are two possibilities.

(18) a. [$_{TP}$ S [$_{vP}$ O [$_{vP}$ [t$_S$ NQ$_S$] [$_{VP}$ … t$_O$ …]]]]]

     b. [$_{TP}$ S [$_{TP}$ O [$_{vP}$ t$_O$ [$_{vP}$ [t$_S$ NQ$_S$] [$_{VP}$ … t$_O$ …]]]]]]
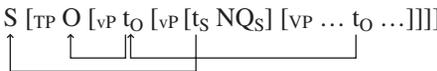
In (18a), the object adjoins to vP. The subject then moves to Spec,TP, leaving its NQ in the original Spec,vP. The latter movement is the ''Sportiche-style'' quantifier stranding (Sportiche 1988). In (18b), the object first moves to the edge of vP, a phase (Chomsky 2001), then moves to Spec,TP to meet the EPP requirement of T (see Miyagawa 2001, 2003, 2005b; we will illustrate this below). The subject then Ā-scrambles across the object to a higher position. (We have indicated that this position is a higher Spec,TP, but it could very well be Spec,CP.) Below, we will give evidence that the correct analysis is the second one, (18b). This analysis supports 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 an NQ requires locality even in the nonstandard-judgment cases. In the second analysis (as well as the first), the object and the subject have scrambled; the original subject NP in Spec,vP therefore fulfills the locality requirement with the subject NQ.

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[2] It is important to note that intonation phrases in Japanese are not formed solely on the basis of syntactic structure, although their edges can sometimes coincide with certain syntactic phrase edges (e.g., Selkirk and Tateishi 1991). In (17), the placement of the adverb clearly contributes to determining phrasing, so that in this case we can assume with reasonable certainty that the relevant intonation phrasing does reflect syntactic structure. The experimental results in section 7 will further confirm the relevance of syntactic structure for phrasing for the standard-judgment and nonstandard-judgment cases.

5 The Analysis

The analysis of the nonstandard-judgment cases that we will defend, (18b), is rooted in the EPP analysis of scrambling (Miyagawa 2001; see also 2003, 2005b). In addressing the two possible word orders in Japanese, SOV and OSV, Miyagawa argues that in the SOV order, the subject has moved into Spec,TP to satisfy the EPP, while in the OSV order, the object has moved into Spec,TP to satisfy the EPP, and the subject stays in situ in Spec,vP. The nominative case marking on this subject is checked by T purely through Agree without movement (regarding Agree, see Chomsky 2000).

5.1 The EPP Analysis of Scrambling

Miyagawa's evidence has to do with the interpretation of *zen'in* 'all' under negation. As shown in (19), if 'all' occurs in object position, it can be interpreted inside the scope of sentential negation, making a partial negation reading possible (the other reading, 'all > not', is due to the group reading of 'all').

(19) Taroo-ga *zen'in-o* sikar-ana-katta.
Taro-NOM all-ACC scold-NEG-PAST
'Taro didn't scold all.'
'not > all', 'all > not'

If the universal occurs in subject position, it is most naturally interpreted under 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).

(20) *Zen'in*-ga tesuto-o uke-na-katta.[3]
all-NOM   test-ACC take-NEG-PAST
'All did not take the test.'
'*not > all', 'all > not'

Crucially, as pointed out in Miyagawa 2001, if the object scrambles across the subject *zen'in*, the partial negation reading becomes easier to obtain.

(21) Tesuto-o$_i$ *zen'in*-ga t$_i$ uke-na-katta.
test-ACC$_i$ all-NOM   t$_i$ take-NEG-PAST
'That test, all didn't take.'
'not > all', 'all > not'

(20) and (21) are diagrammed as in (22) and (23), respectively.[4]

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[3] This judgment is based on neutral intonation in which the object 'test' is prosodically prominent. The same is true of (21). If the prominence is shifted (e.g., to the verb or the subject), the judgment becomes less clear.
[4] An anonymous reviewer asks precisely what the difference is in entailment between (20) and (21). For example, it is distinctly odd to follow (20) with *Hanako-wa uketa* 'Hanako took it' because (20) entails that no one took the test, but it is completely natural to follow (21) with this statement since (21) entails only that some people failed to take the test.

(22)

```
            TP
           /  \
      'all_i'   T'
              /    \
            vP       \
           /  \       T
         t_i   v'    /  \
             /  \  Neg
           VP    v
          /__\
      … Object …
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(23)

```
            TP
           /  \
   'that test_i'  T'
                 /    \
               vP       \
              /  \       T
          'all'   v'    /  \
                /  \  Neg
              VP    v
             /\
            t_i
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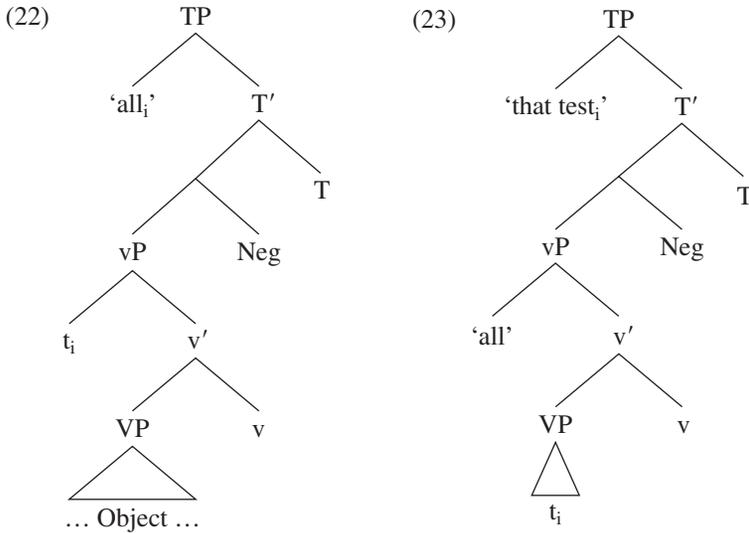
In (22) (= (20)), the subject 'all' asymmetrically c-commands Neg, inducing the reading 'all > not'. In (23) (= (21)), in which the subject 'all' occurs in the ''scrambled'' order OSV, it can be interpreted inside the scope of negation. The simplest assumption to make here is that this subject 'all' stays in situ in Spec,vP, its lack of movement being made possible by the object's movement to Spec,TP.[5]

Comparing structures (22) and (23) in fact reveals a simple generalization.

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

If the subject moves to Spec,TP, the object stays in situ, as in (22). On the other hand, if the object moves to Spec,TP, this allows the subject to stay in situ, as shown in (23), making it possible to interpret it inside the scope of negation.[6] As argued in Miyagawa 2001, the simplest account of generalization (24) is that T in Japanese is associated with the EPP feature. Spec,TP is filled by something (subject, object, etc.), and this satisfies the EPP. Kuroda (1988) first suggested that the object (or some other nonsubject element) may move into Spec,TP in Japanese, although in his analysis this movement is strictly optional, whereas our analysis portrays it as meeting the EPP requirement of T.

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[5] Regarding (22), we must stipulate that A-chains in Japanese uniformly do not allow reconstruction (e.g., Mahajan 1990); that is why 'all', which moves by A-movement to Spec,TP, is interpreted outside the scope of negation. This differs from A-chains in English, for example, where a sentence like *Everyone isn't there yet* does exhibit reconstruction. In addition, we adopt the notion (essentially due to Klima 1964) that in order for a quantifier to take scope inside negation (partial negation), the negation must c-command it. This is not the case in (22), but it is the case in (23).

[6] The other reading for the OSV order, 'all > not', arises when the subject moves to Spec,TP and the object then undergoes Ā-scrambling above it.

Returning to the two options for double scrambling, repeated here, we will argue that the nonstandard-judgment cases have the derivation in (25b).

(25) a. [$_{TP}$ S [$_{vP}$ O [$_{vP}$ [t$_S$ NQ$_S$] [$_{VP}$ … t$_O$ …]]]]

b. [$_{TP}$ S [$_{TP}$ O [$_{vP}$ t$_O$ [$_{vP}$ [t$_S$ NQ$_S$] [$_{VP}$ … t$_O$ …]]]]]

In (25b), the object first moves to the edge of the phase, vP, then moves to Spec,TP to satisfy the EPP. This is A-movement. The subject then undergoes Ā-movement to a position higher than the initial Spec,TP. This may be a second Spec,TP, as indicated in (25b), or it may even be Spec,CP. We will not attempt to decide; the subject's resting place just needs to be higher than the initial Spec,TP and a landing site for Ā-movement.

Why is the Sportiche-style structure not available for the nonstandard-judgment construction in Japanese? That is, why can't the subject move into Spec,TP and strand its NQ? The answer lies in the particular analysis of scrambling assumed for (25b), namely, that scrambling is not completely optional and must be motivated (see, e.g., Miyagawa 1997, 2001, 2003, 2005b; see also Kitahara 2002). 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,vP.[7] The subject may then undergo Ā-scrambling to a position higher than the initial Spec,TP. This need not be feature-driven, but, as noted in Miyagawa 2005a, 2006, it is subject to the conditions on optional movement (see Fox 2000, Reinhart 2006). Alternatively, if scrambling were completely optional and did not require motivation (e.g., Kuroda 1988, 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 Spec,TP, since this would not be in any way a feature-driven movement. In fact, we would expect the derivation in (25a) to be possible.

The above analysis 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, Sportiche-style stranding should be possible. Example (26) bears out this prediction.

(26) Gakusei-ga$_i$ kinoo   t$_i$ san-nin syukudai-o   wasureta.
     student-NOM$_i$ yesterday t$_i$ 3-CL   homework-ACC forgot
     'Three students forgot their homework yesterday.'
     (Miyagawa 1989)

In this example, the subject 'students' has moved from Spec,vP to Spec,TP, across the high adverb 'yesterday'. The subject NQ is stranded in Spec,vP, as in the Sportiche-style cases (see Kawashima and Kitahara 1994 for arguments supporting this analysis). The EPP on T targets the subject phrase, not the high adverb, given that the adverb is an adjunct.

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[7] We 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 supporting this view of multiple specifiers.

Below, we will give evidence that (25b) is the correct derivation for the nonstandard-judgment cases, thereby further justifying the kind of nonoptional approach to scrambling advocated by Miyagawa (1997, 2001, 2003, 2005b), as well as by Kitahara (2002), Otsuka (2005), and Sabel (2005), among others. We will give evidence supporting two crucial elements in our proposal. The first type of evidence shows that the object has moved out of vP, into Spec,TP, to satisfy the EPP. The second type shows that the subject has undergone Ā-scrambling.

5.2 Evidence

We will first give two pieces of evidence that in the nonstandard-judgment structure, the object occurs in Spec,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 Spec,TP. In addition, we will give evidence that this subject has undergone Ā-scrambling, which makes reconstruction possible.

5.2.1 Negation and 'all'   Recall that if the universal *zen'in* 'all' occurs in object position, it may be interpreted inside the scope of sentential negation, leading to a partial negation reading. If 'all' occurs in subject position in the SOV order, it preferentially is interpreted outside the scope of negation, indicating that it is outside vP, in Spec,TP, to meet the EPP requirement. (27a) illustrates the first point; 'all' in object position may have the partial negation reading.

(27) a. Gakusei-ga   futa-ri zen'in-o mi-na-katta.
          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-na-katta.
          student-NOM all-ACC 2-CL-both   see-NEG-PAST
          'Both of the two students didn't see all.'
          '*not > all', 'all > not'
      c. Gakusei-ga   zen'in-o futa-ri-dake mi-na-katta.
          student-NOM all-ACC 2-CL-only   see-NEG-PAST
          'Only two students didn't see all.'
          '*not > all', 'all > not'

However, as shown by (27b–c), which are nonstandard-judgment cases, the object 'all' can only be interpreted outside the scope of negation. This means that the object has moved outside not only its VP but also the vP, to Spec,TP, to meet the EPP requirement.[8] This is shown in (28).

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[8] An anonymous reviewer points out that, along with the universal quantifier, we need to pay attention in (27b–c) to the scope of the subject NQ relative to the negation. In both of these examples, the NQ may be interpreted inside the scope of negation, which our account predicts since the subject, by undergoing scrambling, strands the NQ in Spec,vP. On this interpretation, (27b) means 'Not both of the two students saw all', with the universal taking wide scope over

(28) [$_{TP}$ S [$_{TP}$ *zen'in-o* [$_{vP}$ t$_O$ [$_{vP}$ t$_S$ NQ$_S$ [$_{vP}$ t$_O$V]] Neg] T]]
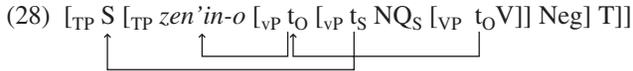
5.2.2 Indeterminate Pronouns   An indeterminate pronoun in Japanese is a *wh*-phrase that is interpreted as indefinite 'any' in the scope of the universal particle *mo*. For this interpretation to be possible, the indeterminate pronoun must be m-commanded by -*mo*; this -*mo*, which occurs on the verb stem, raises with the stem to v but not to T (Kishimoto 2001).

(29) a.   Taroo-ga *nani*-o   kai-*mo*-si-na-katta.
          Taro-NOM what-ACC buy-MO-do-NEG-PAST
          'Taro did not buy anything.'
     b.   *Dare*-ga   warai-*mo*-si-na-katta.
          who-NOM laugh-MO-do-NEG-PAST
          'No one laughed.'
     c.   *Dare*-ga Hanako-o   home-*mo*-si-na-katta.
          who-NOM Hanako-ACC praise-MO-do-NEG-PAST
          'No one praised Hanako.'
          (Kishimoto 2001:600)

As Kishimoto notes, while the object position can host an indeterminate pronoun (29a), the subject position cannot (29b–c). The subject position is outside the domain of the *mo* particle, which he assumes occupies v. Now consider (30).

(30) a.   Kodomo-ga san-nin *dono-eiga*-o   mi-*mo*-si-na-katta.
          child-NOM   3-CL   which-movie-ACC see-MO-do-NEG-PAST
          'Three children did not see any movie.'

---

negation while 'both of the two students' takes narrow scope relative to negation. (27c) means 'Not only two students saw all', again with the universal quantifier taking wide scope over negation.

The existence of these interpretations gives further support to our analysis. However, along with these interpretations, there is an interpretation in which the NQ as well as the universal takes wide scope over negation. On this reading, (27b) means 'Neither of the two students saw all' and (27c) means 'Only two students didn't see all'. There are at least two possible reasons why this unpredicted interpretation occurs. It is possible that the occurrence of the focus particle on the NQ, -*tomo* 'both' in (27b) and -*dake* 'only' in (27c), optionally raises the NQ covertly to a position higher than the negation. Alternatively, there may be yet another derivation, in which the subject and its NQ scramble to Spec,TP, then the object scrambles above the subject and its NQ, and, finally, the subject scrambles above the object, stranding the subject NQ in Spec,TP, which is outside the scope of negation. One test for these hypotheses is the following example, in which there is no focus particle on the NQ:

(i) Gakusei-ga   zen'in-o futa-ri mi-na-katta.
     student-NOM all-ACC 2-CL   see-NEG-PAST
     'Two students didn't see all.'

One of us feels that in this example, only the 'not > two' interpretation is possible, which is what we expect if there is no covert raising because no focus particle is present. However, the other of us isn't certain that the wide scope reading, 'two > not', isn't available. We leave this question open.

    b. *Kodomo-ga *dono-eiga*-o   imamadeni san-nin mi-*mo*-si-na-katta.
       child-NOM   which-movie-ACC so.far   3-CL   see-MO-do-NEG-PAST
       'Three children did not see any movie so far.'

In (30b), which is a nonstandard-judgment case, the object indeterminate pronoun is ungrammatical, indicating that this object has moved to Spec,TP and outside the domain of *-mo*.

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

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

However, note (32).

(32) 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, inverse scope is possible. This suggests that the subject may reconstruct to a position below the object, which can normally happen only under Ā-movement (Mahajan 1990). That is, the derivation of (32) is identical to that of the nonstandard-judgment cases of floating NQs: the object moves to Spec,TP to meet the EPP requirement of T, and the subject undergoes Ā-scrambling above this object. What (32) shows is that the copy of this subject is clearly interpretable, given the possibility of reconstruction. This, then, shows that in the nonstandard-judgment cases, the fact that the subject undergoes Ā-scrambling makes it possible for its copy to be visible at the position of the NQ, which fulfills the locality requirement of the quantifier-NP construal.

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

6 The Standard Paradigm and the NP-Trace Paradigm

Let us return to the standard paradigm based on Haig 1980 and Kuroda 1980 and the NP-trace paradigm noted by Miyagawa (1989). The Haig/Kuroda paradigm is repeated here.

(33) *Standard paradigm*
    a. Gakusei-ga san-nin sake-o   nonda.
      student-NOM 3-CL$_S$ sake-ACC drank
      'Three students drank sake.'

    b. *Gakusei-ga sake-o   san-nin nonda.
       student-NOM sake-ACC 3-CL$_S$ drank
       'Three students drank sake.'

    c. Hon-o   gakusei-ga   go-satu katta.
       book-ACC student-NOM 5-CL$_O$ bought
       'Students bought five books.'

What we said is that, unlike in the nonstandard-judgment cases, in (33b) the NQ is construed as being part of the object phrase with the object *sake-o*. The standard paradigm is therefore a paradigm about one way of parsing (33b). Changing the parsing leads to a more grammatical judgment—what we have called the ''nonstandard'' judgment. Therefore, the standard paradigm cannot be maintained as the sole grammatical paradigm.

    The other paradigm is the NP-trace paradigm noted by Miyagawa (1989), repeated here.

(34) 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)
          child-NOM   loudly   3-CL   laughed
          'Three children laughed loudly.'

(34a–b) are fine because they contain an NP-trace. But what about (34c)? Why can't the trace of the subject of the unergative verb in Spec,vP fulfill the locality requirement for the NQ?

(35) Kodomo-ga$_i$ geragerato [$_{vP}$ t$_i$ san-nin [$_{VP}$ waratta]].   (unergative)
     child-NOM$_i$ loudly   t$_i$ 3-CL   laughed

Before we give the reason, recall that (36) is fine (see Miyagawa 1989).

(36) Kodomo-ga kinoo   san-nin kurasu-de waratta.
     child-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 (34c), yet the sentence is grammatical. What is the difference? As Ko (2007) notes, examples like (36) involve a ''high'' adverb. The ungrammatical example in (34c), on the other hand, involves a low adverb ('loudly'). A low adverb occurs in VP. This explains why (34c) is ungrammatical. The fact that the low adverb 'loudly' is located in VP makes it impossible for the stranded subject NQ to be associated with the trace of the subject in Spec,vP. This is shown in (37).

(37) *Kodomo-ga$_i$ [$_{vP}$ t$_i$ [$_{VP}$ geragerato san-nin waratta]].   (unergative)
     child-NOM$_i$ t$_i$ loudly   3-CL   laughed

Importantly, a low adverb does not block the construal of a stranded NQ in passives and unaccusatives (Ko 2007). First, note that the adverb *umaku* 'well/skillfully' is a low adverb.

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

As (38) shows, the occurrence of 'well/skillfully' before the subject NQ blocks the subject NQ from being construed with the trace of the subject. Now note (39) and (40).

(39) Kuruma$_i$-ga doroboo-ni *umaku*   t$_i$ san-dai nusum-are-ta.
    car$_i$-NOM   thief-by   skillfully t$_i$ 3-CL   steal-PASS-PAST
    'Three cars were stolen deftly by a thief.'

(40) Doa$_i$-ga   *umaku* t$_i$ mit-tu aita.
    door$_i$-NOM well   t$_i$ 3-CL   opened
    'Three doors opened nicely.'

The passive example in (39) and the unaccusative example in (40) 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/skillfully', 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 an unergative verb does not allow a stranded NQ with the adverb 'well/skillfully'.

(41) *Kodomo-ga *umaku* san-nin oyoida.
    child-NOM   well   3-CL   swam
    'Three children swam well.'

The low-adverb test allows us to separate the unergative and transitive constructions in (41) and (38) from the passive and unaccusative constructions in (39) and (40) relative to the ability to allow a stranded NQ inside VP. This test shows that the NP-trace paradigm can continue to be viewed as a grammatical paradigm.[9]

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[9] One issue that remains is the observation (e.g., Ishii 1998, Nakanishi 2004) that a stranded NQ has only a distributive meaning while a nonstranded NQ may have a collective as well as a distributive meaning. For example, Nakanishi (2004) gives the following pair of examples:

(i) Gakusei-ga kinoo   san-nin Peter-o   tataita.
    student-NOM yesterday 3-CL   Peter-ACC hit
    'Three students hit Peter yesterday.'

(ii) ??Gakusei-ga kinoo   san-nin Peter-o   korosita.
    student-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 event structure, leading to the interpretation that there were three events involving the participants. This would give both (i) and (ii) a distributive reading. In (i), such a reading is fine because hitting Peter can be done by three students at different times. In (ii), however, such a reading is impossible because Peter can only be killed once. Although the difference in judgment between (i) and (ii) is delicate, we agree with Nakanishi that (ii) is degraded. One point we note, however,

7 Experimental Evidence

As our final point, we will present experimental evidence for our claims about the standard and nonstandard paradigms.[10] To recap the difference, the following sentence is ungrammatical in the standard paradigm, but grammatical in the nonstandard paradigm:

(42) (*)Gakusei-ga sake-o   san-nin nonda.
        student-NOM sake-ACC 3-CL   drank
        'Three students drank sake.'

Under our analysis, in the standard paradigm the NQ is construed as being inside the object phrase, leading to a clash in agreement, while in the nonstandard paradigm the NQ is a separate phrase from the object, and the prosody signals that subject (and object) scrambling has taken place.

In a pilot experiment, we asked one native speaker to say the following sentence, first with the NQ construed as the object NQ, then with the NQ construed as the subject NQ. The utterances were digitally recorded using a Shure SM10A head-mounted microphone connected to a Sound Devices USBPre PreAmp, digitized and saved to a 44.1 kHz mono AIFF file for acoustic analysis in Praat.

(43) Sakanaya-ga   yaoya-o   yo-nin yonda.
        fish.seller-NOM vegetable.seller-ACC 4-CL   called
        Object NQ: 'A fish seller called four vegetable sellers.'
        Subject NQ: 'Four fish sellers called a vegetable seller.'

None of the words in this sentence is accented, and we chose words composed as much as possible of sonorants so the intonation patterns would appear as clearly as possible.

Figures 1 and 2 show the prosodic patterns for the two readings. Jennifer Venditti annotated the intonation contours for us using the Japanese ToBI prosodic transcription scheme (Venditti 2005). Japanese ToBI recognizes two types of prosodic phrasing: accentual phrasing, marked with parentheses in (44), and intonation phrasing, marked with square brackets.

(44) a. Object NQ: [(sakanaya-ga) (yaoya-o) (yon-in yonda)]
        b. Subject NQ: [(sakanaya-ga) (yaoya-o)][(yo-nin yonda)]

Venditti (pers. comm.) reports the following:

> The accentual phrasing is the same for both utterances: /sakanaya-ga/ and /yaoya-o/ both form their own accentual phrase, and the numeral quantifier /yonin/ is phrased together with the verb /yonda/.

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is that there are ways to improve (ii). If, for example, the speaker pauses after the NQ, the judgment improves. We are not certain what this suggests, but it is clear that (i) and (ii) require further explanation, something we leave for future study.

[10] Thanks to an anonymous reviewer for suggesting that we provide experimental evidence for our analysis.
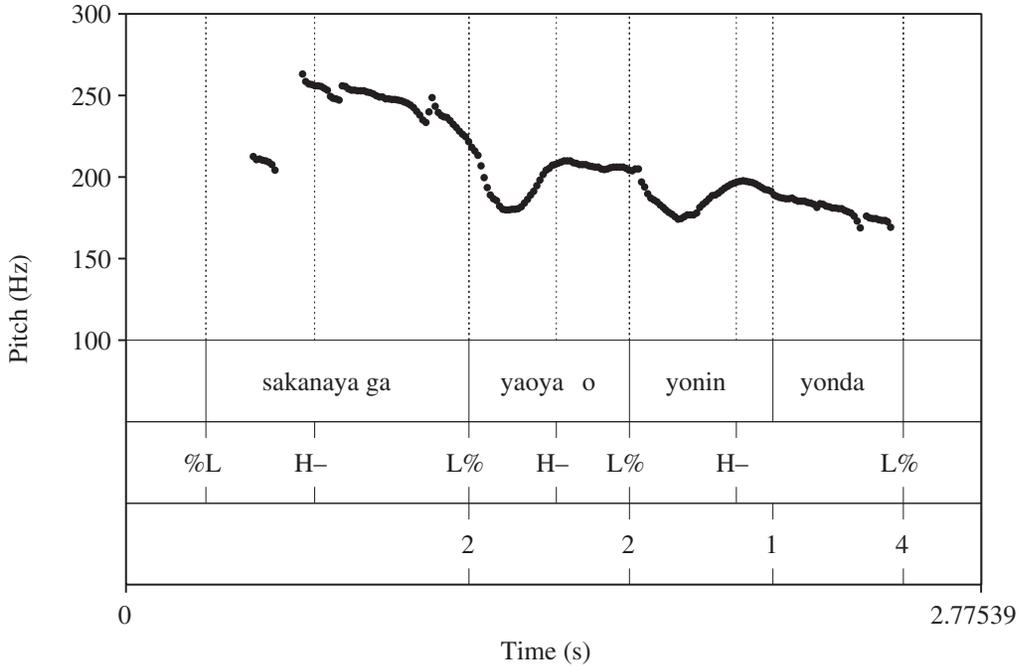
Figure 1
Prosodic pattern for the object numeral quantifier reading of the experimental sentence

In contrast, the utterances are distinct in their intonation phrasing. In the ONQ [object NQ] case, the entire utterance forms one intonation phrase, while in the SNQ [subject NQ] case, there is an intonation phrase break before the quantifier, accompanied by a pitch range ''reset'' on the phrase /yonin yonda/. Intonation phrase breaks in Japanese are primarily cued by such ''reset,'' whereby the new phrase (beginning here with /yonin/) is typically realized at a pitch level at or above that of the previous word (see Pierrehumbert & Beckman (1988) and Kubozono (1993) for a more detailed discussion).

It is the prosodic grouping at the intonation phrase level that gives clues to syntactic constituent structure (see also Uyeno et al. 1980).[11] As Venditti notes, there is no intonation phrase break in the utterance with the object NQ; crucially, there is no evidence for a phrasal break between the object and the object NQ. In sharp contrast, in the utterance with the subject NQ, the intonation phrase break before the subject NQ, and the pitch reset of the subject NQ, are consistent with a phrasal break. This is precisely what we predict. In the object NQ example, the object NQ is part

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[11] For extensive discussion of Japanese tonal structure, see Pierrehumbert and Beckman 1988.
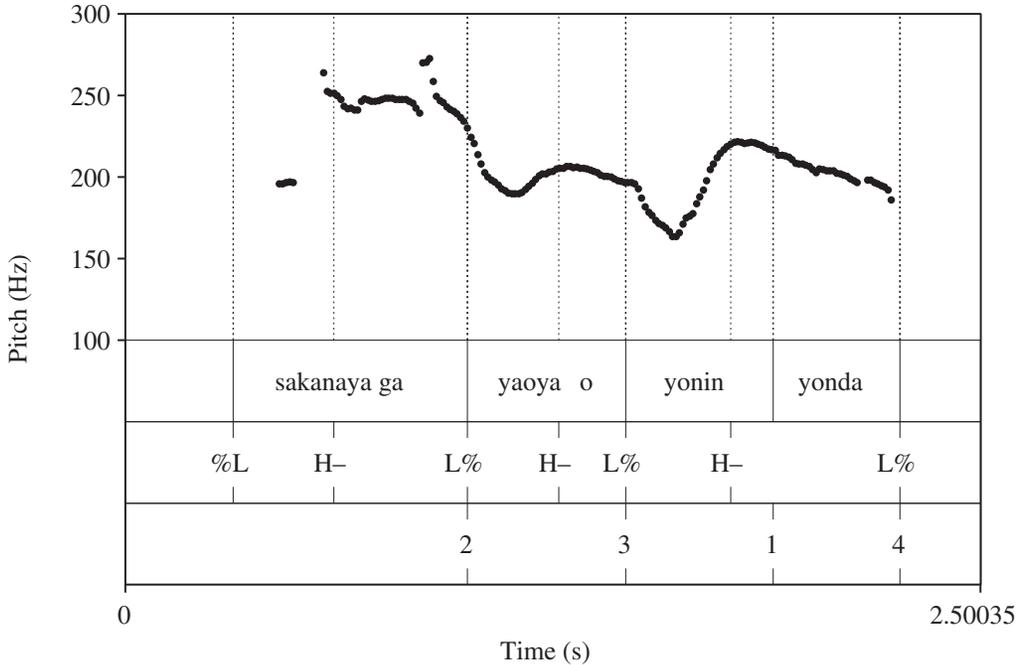
Figure 2

Prosodic pattern for the subject numeral quantifier reading of the experimental sentence

of the object phrase with *yaoya* 'vegetable seller', so there is no intonation phrase break between them. But in the nonstandard paradigm, the subject NQ must be separate from the object. The intonation pattern clearly marks this nonstandard-judgment sentence as having a structure different from that of the object NQ example. We can see that in the ''ungrammatical'' sentence in the standard paradigm, in which the subject is separated from its NQ by the object, the NQ follows the object NQ intonational pattern, leading to a clash in agreement.

8 Conclusion

In this article, we gave evidence that a floating 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 on numeral quantifiers. It suggests that evidence put forth against the locality of floating quantifiers in other languages should be reexamined. Our analysis also is based on a particular approach to scrambling, in which local scrambling is viewed as being triggered by a feature (EPP; see, e.g., Miyagawa 2001, 2005a,b). This contrasts with most works on Japanese scrambling, which assume that scrambling is an entirely optional, free

operation. The empirical arguments we gave for the locality of numeral quantifiers also support this approach to scrambling over those that view it as requiring no motivation.

Appendix

We need to acknowledge two types of counterexamples given to the kind of analysis we propose in this article. Kuno and Takami (2003:284) offer counterexamples such as (45) to Miyagawa's (1989) NP-trace analysis of floating NQs.

(45) A: 'Is this new magazine selling well?'
     B: Ee, kesa-mo   gakusei-san-ga   [$_{VP}$ sore-o go-nin kat-te
         yes this.morning-also student-POLITE-NOM   it-ACC 5-CL   buy-ing
         iki-masi-ta   yo].
         go-POLITE-PAST EXCLAMATIVE
         'Yes, this morning also, five students bought it.'

Kuno and Takami's point is that in (45B), the subject NQ '5-CL' is inside the VP without an NP-trace to support its construal. While we agree with this judgment, we draw attention to the particular verb form Kuno and Takami use: specifically, the verb is not the simple verb form of 'buy'; rather, it is accompanied by the motion verb *iku* 'go'. This motion verb, by itself, is unaccusative. As (46a–b) show, adding such a motion verb does affect the argument structure of a sentence with a transitive verb. (We thank Sachiko Kato for assistance with the examples and the judgment.)

(46) a. ?*Watasi-no-seito-ga umaku   san-nin e-o   kaita.
            I-GEN-student-NOM skillfully 3-CL   picture-ACC drew
            'Three of my students drew pictures skillfully.'
     b.   ?Watasi-no-seito-ga umaku   san-nin e-o   kaite-itta.
            I-GEN-student-NOM skillfully 3-CL   picture-ACC drew-went
            'Three of my students drew pictures skillfully (and went).'

In (46a), the subject NQ occurs after the low adverb 'skillfully', there is no motion verb morphology on the verb 'draw', and the sentence is ungrammatical. In contrast, as (46b) shows, adding the motion verb morphology improves the sentence. While a detailed analysis of the derivational morphology of forms such as *katte ikimasu* 'buy-go' in (45) is beyond the scope of this article, it is evident to us that adding the unaccusative motion verb allows for an unaccusative structure at a relevant level of representation.

Hoji and Ishii (2004) give (47a–b) as counterexamples to our analysis.

(47) a. 55% izyoo-no robotto$_i$-o [soitu$_i$-o tyuumonsita hito]-ga   koozyoo-ni san-nin
           55% over-GEN robot$_i$-ACC [it$_i$-ACC   ordered   person]-NOM factory-to   3-CL
           okurikaesita.
           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$_i$-ACC store.clerk-NOM [it$_i$-ACC made   factory]-to 3-CL
      okurikaesita.
      returned
      'Over 55% of the robots, three store clerks returned to the factory that made it.'

These are nonstandard-judgment cases in which the subject is separated from its NQ by a dative phrase. We predict that the subject is in an Ā-position. This means that the object that has been scrambled to its left ('over 55% of the robots') must also be in an Ā-position. As Hoji and Ishii note, these examples should therefore violate Weak Crossover (see Mahajan 1990, Saito 1992, Tada 1993). The fact that they do not violate Weak Crossover indicates to Hoji and Ishii that both the object and the subject are in A-positions, contrary to our analysis. Miyamoto and Sugimura (2005) provide other examples that, to us, are easier to judge than those offered by Hoji and Ishii, and their examples appear to demonstrate essentially the same point that Hoji and Ishii make. Among the counterexamples, Miyamoto and Sugimura note (48), where the subject in a non-standard-judgment construction is ostensibly able to bind the anaphor *zibun-zisin* 'self'.

   (48) ?MIT-no-gakusei$_i$-ga   zibun-zisin$_i$-no-tanzyoobi-made-ni ronbun-o e$_i$ san-nin
        MIT-GEN-student$_i$-NOM self$_i$-GEN-birthday-by   paper-ACC e$_i$ 3-CL
        LI-ni okuranakereba naranai.
        LI-to send   must
        'Three MIT students must send a paper to *LI* by his own birthday.'

This example contains the anaphor *zibun-zisin*, whose antecedent is the subject. Given that this is a nonstandard-judgment example, our analysis predicts this construal to be impossible because the subject is in an Ā-position. On reflection, though, it is not clear to us how grammatical this sentence is. For example, comparing sentences with and without anaphor binding in an embedded context, such as (49a–b), we find that the judgments contradict Miyamoto and Sugimura's claim (thanks to Yoshio Endo for pointing this out, and for checking the grammaticality of (48) and (49a–b) with others).

   (49) a. ?*Gakkou-gawa-wa, kyouin-ga   zibun-zisin-no seito-no   izime-o
            school-TOP   teacher-NOM self-GEN   student-GEN abuse-ACC
            san-nin-mo misugosita to   mitometa.
            3-CL-EMPH ignored   COMP confirmed
            'The school has confirmed that three instructors ignored the abuse of their own
            students.'
        b. Gakkou-gawa-wa, kyouin-ga   Tanaka-sensei-no   seito-no   izime-o
            school-TOP   teacher-NOM Tanaka-teacher-GEN student-GEN abuse-ACC
            san-nin-mo misugosita to   mitometa.
            3-CL-EMPH ignored   COMP confirmed
            'The school has confirmed that three instructors ignored the abuse of Mr./Ms.
            Tanaka's students.'

Why should embedding the example lead to a difference in judgment, one that is inconsistent with Miyamoto and Sugimura's? One possibility, and this is only a speculation, is that this sort of example invites making a judgment at two points, first for the material up to the object, and the second for the remaining material. The subject NQ does depend on a pro, as Miyamoto and Sugimura propose. However, it is not a pro connected to a major subject, but rather, the pro typically found in Japanese, a pro-drop language across all arguments. On this account, Miyamoto and Sugimura's judgment may not reflect the grammaticality of a single, nonstandard-judgment sentence. It is possible that Hoji and Ishii's judgment also reflects this ''split'' judgment—though again, we are speculating at this point. Embedding the example makes splitting the sentence into two separate regions more difficult—hence the expected ''ungrammatical'' judgment with an anaphor and ''grammatical'' judgment without an anaphor. We will save for future work our response to other counterexamples raised by Miyamoto and Sugimura.

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(Miyagawa)
Department of Linguistics and Philosophy
32-D886
MIT
Cambridge, Massachusetts 02139

miyagawa@mit.edu

(Arikawa)
Department of International Studies
St. Andrew's University
1-1, Manabino, Izumi
Osaka 594-1198
Japan

karikawa@andrew.ac.jp