In press, *Mouton Handbook of Japanese Syntax*

In Masayoshi Shibatani, Shigeru Miyagawa and Hisashi Noda, eds., *Mouton Handbook of Japanese Syntax*, de Gruyter

Chapter XX. Numeral quantifiers

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1.   Introduction

In Japanese, any expression for counting people, animals, or things invariably contains a numeral quantifier (NQ). A numeral quantifier consists of a numeral and a classifier (CL) that agrees with the type of entity being counted. Two examples are *-nin* for people and *-satu* for bound volumes such as books and magazines.

(1)   *Gakusei ga   **san-nin** kita.*
     student   NOM 3-CL   came
     'Three students came.'

(2)   *Hanako ga   hon   o   **ni-satu** yonda.*
     Hanako NOM book   ACC 2-CL   read
     'Hanako read two books.'

While over 150 classifiers are attested in the language, the classifiers that people use on a daily basis number less than 30 (Downing 1984: 12-15). The NQ may occur in four different configurations relative to the associated NP, as shown by the following examples with the identical meaning 'three students came'.

(3)   a.   [*San-nin no   gakusei*] *ga   kita.*
        3-CL   GEN students   NOM came

    b.   [*Gakusei san-nin*] *ga   kita.*
        students 3-CL   NOM   came

c. *Gakusei ga   san-nin   kita.*

   student   NOM 3-CL   came

d. *San-nin gakusei ga   kita.*

   3-CL   students NOM came

In (3a) the NQ occurs in the modifier position of the associated NP and is marked with the genitive case marker, while in (3b) the NQ apparently heads the phrase that contains the associated NP. In both of these cases the NQ occurs in the same phrase as the associated NP. In (3c) the NQ occurs after the case-marked associated NP, and is commonly analyzed as an instance of floating NQ (FNQ), although if it occurs adjacent to the case marker, as is the case in (3c), it is also analyzed as heading the phrase that contains the associated NP (Kamio 1977, Terada 1990, Kawashima 1998, Watanabe 2006, Miyagawa and Arikawa 2007). The fourth configuration, in which the FNQ occurs in front of the associated NP, but without any marking on it, is considered as the FNQ having scrambled from the configuration in (3c) (see relevant discussion in, for example, Fukushima 1991, Gunji and Hashida 1998, Kawashima 1998). I will focus particularly on the configuration in (3c) in which the FNQ occurs after the case-marked associated NP.

2. Mutual c-command requirement

What is the generalization across the four configurations we saw above? Based on a number of earlier works (e.g. Shibatani 1977, Inoue 1978, Haig 1980, Kuroda 1980), I argued in Miyagawa (1989) that the relation between the NQ and its associated NP is a strictly local one requiring each to c-command the other.[1]

(4) Mutual c-command requirement

   The NP or its trace and the NQ or its trace must c-command each other.

                                                             (Miyagawa 1989: 30)

This is clear for the first two configurations in which the NQ and the associated NP are in the same phrase. For the third configuration, in which the FNQ follows the case-marked

associated NP, I argued for a ternary-branching structure that allows a FNQ and the subject NP to mutually c-command each other.

(5)   [$_{TP}$ NP-*ga* NQ VP]

The fourth configuration is derived from the third configuration by scrambling the FNQ to the left of the associated NP, leaving behind a trace that maintains the mutual-command relation with the associated NP (Miyagawa 1989).

(6)   [$_{TP}$ NQ$_i$ [$_{TP}$ NP-*ga*   t$_i$ VP]]

In Miyagawa and Arikawa (2007), we revised the ternary-branching approach in Miyagawa (1989), and suggested, along the lines of a number of earlier works (e.g. Watanabe 2006), that the *NP-Case NQ* sequence may form a constituent, with the NQ heading a NumP.

(7)   [$_{NumP}$ NP-Case   NQ]

I will assume this structure for the discussion below.

The mutual c-command requirement finds support in a variety of constructions. It has been noted that a FNQ cannot be associated with an NP inside adjuncts (Okutsu 1969, Harada 1976, Shibatani 1977, Inoue 1978, Kuno 1978), something that follows from the mutual c-command requirement because an adjunct, such as a PP, projects a maximal projection that blocks the NP inside it from c-commanding the FNQ.

(8) * [... [$_{PP}$ [NP] P] FNQ...]

In a similar vein, an associated NP in the specifier of a larger NP cannot c-command a FNQ.[2]

(9) * [*Sensei   no   hon*] *ga*   *san-nin   todoita.*

teacher GEN book NOM 3-CL$_{HUMAN}$ arrived

Intended: 'Three teachers' books arrived.'

2.1. A-movement analysis of stranding FNQ

The standard paradigm for FNQ that led to a number of proposals from a variety of theoretical perspectives is given below (see Miyagawa and Arikawa 2007).

(10) 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.'   (based on Haig 1980, Kuroda 1980)

In (10a) the associated NP, the subject "students", and the FNQ are adjacent to each other. In (10b), the subject "students" and the FNQ are separated by the object, and it is judged as ungrammatical. In (10c), which is grammatical, the object "books" and its FNQ are separated by the subject. The subject/object asymmetry indicates that while there is no trace of the subject in the VP to support a stranded FNQ, the object to the left of the subject has been moved there by scrambling, leaving a trace. This trace supports the FNQ (cf. Kuroda 1980, Saito 1985). The structures for (10b) and (10c) are as shown below; I will ignore the VP-internal subject position until I take it up in the next section.

(11) a. *[$_{TP}$ *student* ... [$_{VP}$ *sake* FNQ$_{SUB}$ ...]]

b. [$_{TP}$ *book$_i$* ... *student* ... [$_{VP}$ t$_i$ FNQ$_{OBJ}$ ...]]

Miyagawa (1989) extends the insight particularly of Kuroda (1980) that the movement of the associate NP away from its FNQ does not hinder fulfillment of the locality condition because the copy of the associated NP occurs adjacent to the FNQ (see also Saito 1985). This is an instance of FNQ stranding. A similar observation has been made in English and French (Sportiche 1988) as well as West Ulster English (McCloskey 2000).

An important point that comes out of the locality-based analysis of FNQs is that we get clear evidence for NP trace. NP trace is an entity that is predicted to occur, but it is empirically difficult to ascertain. The crucial examples are presented in (12), where a FNQ can be associated with the subject of a passive or an unaccusative verb, but not with the subject of a transitive or an unergative verb.

(12) a. Transitive

   *Doroboo ga   kuruma o   san-nin nusunda.
    thief   NOM   sake   ACC 3-CL   stole
    'Three thieves stole a car.'

   b. Direct passive

    Kuruma ga   doroboo ni   ni-dai nusum-are-ta.
    car   NOM thief   by 2-CL   steal-PASS-PAST
    'Two cars were stolen by a thief.' (Miyagawa 1989: 38; also Ueda 1986)

   c. Unaccusative

    Gakusei ga   ofisu   ni   huta-ri ki-ta.
    student NOM office to   2-CL   came
    'Two students came to the office.'   (Miyagawa 1989: 43)

   d.   Unergative

    *Tomodati ga   tookyoo de huta-ri   atta.
     friend   NOM Tokyo   in   2-CL   met
     'Two friends met in Tokyo.'

In (12b) and (12c), which are passive and unaccusative examples, the nominative subject may be construed with the FNQ in the VP, while in the transitive and the unergative cases

in (12a) and (12d), stranding of the subject-oriented FNQ inside the VP leads to ungrammaticality. The contrast between (12b/c) and (12a/d) is due to the fact that in the passive and the unaccusative cases, there is an NP trace of the surface subject in the VP, as is schematized in (13), while no such NP trace occurs in the VP in the transitive and unergative cases.

(13) $[_{TP}DP_i ... [_{VP} t_i FNQ ...]]$

This parallels the object scrambling case noted by Kuroda and others in which the copy of the object scrambled out of VP may fulfill the locality requirement with the FNQ inside the VP. Moreover, while the direct passive leaves a NP trace that fulfills the locality requirement with the FNQ, the indirect passive does not involve any movement (Kuno 1973). As a result, the indirect passive does not allow stranding of FNQ inside the VP (Miyagawa 1989).

(14) *Tomodati ga   ame ni   huta-ri hur-are-ta.
     friend   NOM rain DAT 2-CL   fall-PASS-PAT
     'Two friends were rained on.'

    Finally, there are motion-type verbs such as 'cross' in which the traversed entity is marked by the accusative, yet a FNQ is allowed to be stranded in the VP (Miyagawa 1989).

(15) Kodomo ga   hasi   o   huta-ri watatta.
     child   NOM bridge ACC 2-CL   crossed
     'Two children crossed the bridge.'

This type of verb is a "transitive" unaccusative verb, and it differs sharply from a normal transitive verb such as 'drink', which does not allow stranding a FNQ inside the VP. An independent support for the difference is found with quantifier scope. Japanese is a scopally

rigid language, so that subject and object quantifiers in a normal transitive construction are scopally unambiguous (Kuroda 1971, Hoji 1985).

(16) *Dareka   ga   dono-hon-mo   yonda.*
      someone   NOM every book   read
      'Someone read every book.'   some > all, *all > some

As Kuroda noted, scope ambiguity obtains if one quantifier is moved across the other, as in scrambling of the object across the subject.

(17) *Dono-hon-mo$_i$ dareka   ga   t$_i$ yonda.*
      every book   someone NOM   read
      some > every, every > some

If we look at the "transitive" unaccusative construction, we see that scope ambiguity is possible in the regular SOV order, indicating that the subject has moved across the object.

(18) *Dareka   ga   dono-hasi-mo   watatta.*
      someone NOM every bridge   crossed
      'Someone crossed every bridge.' some > every, every > some

This is further evidence that A-movement has moved the surface subject of 'cross' from within the VP to Spec,TP, which makes it possible to strand a FNQ within the VP as we saw earlier.

3. The predicate-internal subject position and apparent counterexamples to locality

Much of syntax is a study based on locality. The reason is that 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. The

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study of FNQ is no exception: it is based on the assumption that a FNQ and its associated NP must observe strict locality. If they are not local to each other in surface form, it means that the FNQ has been stranded by the associated NP that has left a copy of itself in the position local to the NQ. By viewing the associated NP - FNQ relation in this way, we can detect the underlying form, in turn giving evidence for NP traces and, as we will see later, the predicate-internal subject position.

The stranding analysis has been challenged by a number of studies in a variety of languages. Taking up the stranding data presented by Sportiche (1988), Shlonsky (1991), and others, Bobaljik (1995, 2003) raises syntactic and semantic problems, although for Japanese, he concludes that the distribution of FNQs does appear to reflect stranding (Bobaljik 2003: 132-134; see also Bošković 2004). Nevertheless, within the Japanese linguistics literature, the locality requirement has been taken to task by a number of linguists (e.g. Gunji and Hasida 1998, Fukushima 2003, Nishigauchi and Ishii 2003, Hoji and Ishii 2004, and Kuno and Takami 2003).

Analyses that do not adopt stranding typically regard FNQs as adverbs (see Bobaljik 2003 for references for the adverb approach). This is a particularly attractive approach for a language such as English in that, as Sag (1978) first observed, the floating quantifier *all* has the same distribution as a normal adverb. Dowty and Brodie (1984) propose a semantic analysis of floating quantifiers as VP adverbs, based on, among others, the Chinese universal quantifier *dou*. Adverb analyses do not impose the kind of strict locality on the associate NP – FNQ relation that the stranding analysis does. One version of the adverb analysis would impose whatever locality the grammar requires of an adverb to combine with a VP, and for this predicate to predicate of the associated 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 adopts an adverb analysis of FNQs, a FNQ quantifies over events (see also Fujita 1994); the relation between the FNQ and the associated NP is established by a certain semantic mechanism, and this mechanism imposes a kind of locality, though not in any way as strict as that imposed by the stranding analysis. We will discuss Nakanishi's data later.

3.1. Predicate-internal subject position and adverbs

Based on observations such as the following, Sportiche (1988) concludes that the subject starts out inside the verb phrase, shown as the underlined position in (19b).

(19) 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 associated NP *les enfants*, Sportiche hypothesizes that in (19b), there is a trace of the NP 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 (19b) is precisely where the subject is initially merged inside the verb phrase. This idea of the so-called "predicate-internal subject position" is one of the major developments that distinguishes the recent Minimalist Program from the earlier Government and Binding framework. Kuroda (1988), in developing his important "whether we agree or not" work, independently proposed the idea of the predicate-internal subject position from a conceptual standpoint.

With the predicate-internal subject position (PISP) in mind, we can look at some FNQ data in the literature with the hope of providing a more precise analysis. It has been noted that a FNQ_{SUB} can get stranded from its associated subject NP, being separated by certain adverbs (Miyagawa 1989 and references therein).

(20) *Gakusei ga kyoo san-nin sinbun o yonda.*
       student NOM today 3-CL newspaper ACC read
       'Three students read a newspaper today.'

Nakanishi (2004) considers this occurrence of FNQ as an adverb that modifies the VP. An alternative is to adopt a Sportiche-style analysis and assume that the position occupied by the FNQ is the predicate-internal subject position, and the associated subject NP 'student' has moved from there to Spec,TP (Kawashima and Kitahara 1994). The copy of the associated NP that resides adjacent to the FNQ fulfills the mutual c-command requirement.

Evidence for the stranding analysis comes from other types of adverbs such as *umaku* 'well/skillfully' (Miyagawa and Arikawa 2007; see Ko 2007). As Ko notes, this adverb is a low VP adverb, which Miyagawa and Arikawa assume is lower than the predicate-internal subject position. On the stranding analysis, we predict that a subject-oriented FNQ that follows *umaku* would fail to be construed with the associated subject NP because it is too low to meet the locality requirement with the copy of the associated NP in Spec,*v*P. This is shown below in (21a); (21b) gives the structure of the ungrammatical example.

(21) a. **Gakusei   ga   umaku   san-nin   eigo   o   hanasita.*
         student   NOM well   3-CL   English   ACC spoke
         'Three students spoke English well.'

    b. **[$_{TP}$ SUB$_i$ [$_{vP}$ t$_i$ *umaku* [$_{VP}$ FNQ$_{SUB}$ …]]]*

The adverb approach to FNQs would be hard put to explain the distinction between 'today' and 'well'. Now, if it were the case that the stranding of the FNQ after *umaku* were always bad, some condition could be constructed to prevent this *umaku* - FNQ sequence even in the adverb approach. However, there are cases in which *umaku* is fine before a FNQ; these are cases where the copy of the associated NP resides within the VP. This shows that it is not sufficient simply to rule out all instances of *umaku* – FNQ sequence.

(22) *Doa   ga   umaku huta-tu aita.*   (Miyagawa and Arikawa 2007)
     door NOM deftly 2-CL   opened
     'Two doors opened deftly.'

The verb in this example is unaccusative ('open_unacc'), so that the copy of the associated subject NP resides in the VP that is modified by *umaku*.

(23)　*Doa ga* _i_　*umaku* [_VP_ t_i_ *huta-tu aita*]
　　　door NOM deftly　　2-CL　opened

We can see the same with the direct passive.

(24)　*Kuruma ga　doroboo ni umaku ni-dai nusum-are-ta.*
　　　car　　NOM thief　by deftly 2-CL steal-PASS-PAST
　　　'Two cars were stolen deftly by a thief.'

Here, again, the copy of the A-moved associated NP, 'car', is in the VP, which makes it possible for the FNQ inside the VP to fulfill the locality requirement with the copy of the associated NP.

　　The adverb approach faces difficulty in accounting for the range of data just observed. Minimally, it will need to add mechanism to the analysis, thus potentially introducing complexity into the account. We will return to Nakanishi's (2004) study, which presents an interesting argument for the analysis of FNQs in Japanese as adverbs. We will see that there is an alternative locality approach that has a number of advantages.

3.2. Predicate-internal subject position and the standard paradigm

　　Recall the standard paradigm given earlier.

(25) Standard paradigm (Miyagawa and Arikawa 2007)
　　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)

With PISP in place, the question arises as to why (25b) is ungrammatical, given that objects scramble to a sentence-medial position easily.

(26) *Taroo wa   piza o$_i$ isoide t$_i$ tabeta.*
      Taro   TOP pizza ACC quickly   ate
      'Taro ate the pizza quickly.'

As Bobaljik (2003: 11) noted, why can't there be this clause-internal scrambling of the object, then the scrambling of the subject across it, which would allow the copy of the subject NP to fulfill locality with the stranded FNQ in Spec,*v*P?

(27) [$_{TP}$ SUB$_i$ ... OBJ$_j$ [$_{vP}$ t$_i$ FNQ$_{SUB}$ [$_{VP}$ t$_j$ ...]]...]

Before the PISP was introduced into linguistic theory, structures such as (27) were excluded by the proposal that Saito (1985) made: subjects do not scramble. This is a reasonable constraint based on economy considerations: scrambling of the subject is an instance of string-vacuous movement, which would be uneconomical. The same goes with double scrambling — first the object, then the subject — which would also constitute a string-vacuous derivation. But that is only true in the pre-PISP era, when the subject was externally merged directly to VP.

(28) [$_S$ SUB VP]

Moving the object to adjoin to S, then moving the subject above the object, would indeed constitute a vacuous derivation.

(29)   [s SUB [s OBJ [s t_i [vp … t_i …]]]]
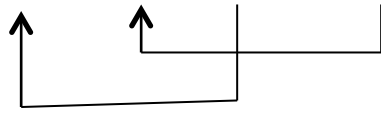
However, with the advent of the PISP, this kind of double movement need not be considered as purely vacuous optional movement. With both the subject and the object originating in the verbal phrase, one of them could move to Spec,TP, which would constitute movement to fulfill the EPP requirement; see Miyagawa (2001, 2010) for evidence that either the subject or the object may fulfill the EPP requirement of T in Japanese. On that view, there is only one instance of scrambling, whichever that moves into a position other than Spec,TP. So long as this movement is motivated, it would not be a string-vacuous movement (see Miyagawa 2011 for conditions on optional movement).

In the remainder of this chapter, we will look at examples where structures such as (27) are apparently possible under certain conditions. I will refer to this structure as the "Double-Movement Structure" (DMS). The examples I cite are those given in the literature to challenge the mutual c-command requirement on FNQ construal. As we will see, the DMS can account for most of the counterexamples while maintaining the mutual c-command requirement. We will also see that it is only under a specific condition that the DMS becomes possible for licensing the FNQ. Looking closely at these apparent counterexamples informs us of the role of PISP in Japanese, which has the consequence of providing evidence for this theoretically important position.

3.3. Counterexamples to locality

A number of linguists have noted apparent exceptions to the standard paradigm, particularly the locality between the subject and its FNQ (Gunji and Hasida 1998, Fukushima 2003, Nishigauchi and Ishii 2003, Hoji and Ishii 2004, and Kuno and Takami 2003). Following are typical examples.

(30) ?*Gakusei ga sake o imamadeni san-nin nonda.*
    student NOM sake ACC so far 3-CL$_{Subj}$ drank
    'Three students drank sake so far.'

(Gunji and Hasida 1998: 57)

(31) *Gakusei ga watasi no hon o huta-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, pt. 1: 92)

These examples differ from the ungrammatical example in the standard paradigm in having something intervene between the object and the subject-oriented FNQ ((30)) or, in (31), the addition of the negative polarity item –*sika* 'only' on the FNQ. In the standard paradigm example, nothing comes between the object and the subject-oriented FNQ nor does anything like –*sika* occur on the FNQ.
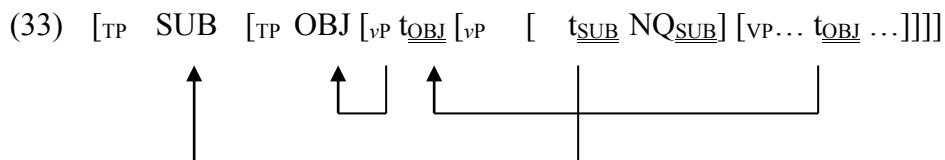
Miyagawa and Arikawa (2007) point out that the intervening item or –*sika* in the counterexamples leads to a different prosody from the ungrammatical example in the standard paradigm. In the example in the standard paradigm, the default prosody is one in which the object and the FNQ are within the same prosodic domain that receives the default prosodic prominence.

(32) **Gakusei ga [**sake o san-nin**] nonda.*
    student NOM sake ACC 3- CL$_{SUB}$ drank
    'Three students drank sake.'

This leads to the object and the subject-oriented FNQ being construed together, which results in a clash in the agreement between the classifier for people and the object 'sake'. In the counterexamples, it is the FNQ itself that receives the default prosodic prominence, either because it is separated from the object as in (30) or because of the occurrence of –*sika* on the FNQ in (31), a focus element that attracts the sentential prosodic prominence. In either case, the prosodic prominence on the FNQ keeps it from being construed in the same domain as the object.

If it were simply the case that keeping the object from being in the same prosodic domain as the subject-oriented FNQ is what it takes to overcome the ungrammaticality in the crucial example in the standard paradigm, it would be difficult to separate the adverb approach from the locality-based analysis. It may in fact favor the adverb approach. However, Miyagawa and Arikawa (2007) note an additional point: in these counterexamples, the object has moved from inside the verb phrase to a position high in the structure. They argue, following the EPP analysis of Miyagawa (2001), that the object has moved to Spec,TP. If this is true, it is completely unexpected under the adverb approach to the FNQ.

Miyagawa and Arikawa (2007) adopt the proposal in Miyagawa (2001) that when the subject does not move into the Spec,TP, the object may move there to fulfill the EPP requirement of T. The subject then moves across the object to form a Double-Movement Structure (DMS) configuration.

(33)   [$_{TP}$ SUB   [$_{TP}$ OBJ [$_{vP}$ t$_{\underline{OBJ}}$ [$_{vP}$ [t$_{\underline{SUB}}$ NQ$_{\underline{SUB}}$] [$_{VP}$… t$_{\underline{OBJ}}$ …]]]]

In this structure, the object first moves to adjoin to *v*P, then moves to Spec,TP. The subject moves over the object to adjoin to TP. See Miyagawa and Arikawa (2007) and Miyagawa (2001) for discussion. Below, I present two of the arguments Miyagawa and Arikawa give for the DMS in (33).[3]

The first argument that the object in the counterexamples moves to Spec,TP is based on the scope of a universal quantifier relative to negation. A universal expression such as *zen'in* 'all' in the subject position scopes over negation, but it may be within the scope of negation in the object position (see Miyagawa 2001).[4]

(34) a. *Zen'in ga   syukudai   o   das-anakat-ta.*
      all   NOM homework ACC turn.in-NEG-PAST
      'Everyone did not turn in the homework.'   all > not, *not > all

   b. *Iinkai   ga zen'in o   erab-anakat-ta.*
      committee NOM all   ACC choose-NEG-PAST
      'The committee didn't choose everyone.'   all > not, not > all

The universal-quantifier subject in (34a) has moved to Spec,TP, above negation, and this position can only take wide scope relative to negation. In (34b), the universal-quantifier object may be interpreted inside the scope of negation, showing that it stays in VP. I will return to the other interpretation below. Now note that if the object intervenes between the subject NP and the subject-oriented FNQ as we saw in the counterexamples, there is evidence that the object moves high in the structure, above negation. This is shown in the (35b) example below.

(35) a. *Gakusei ga   huta-ri zen'in o   mi-nakat-ta.*
      student NOM 2-CL   all   ACC see-NEG-PAST
      'Two students didn't see everyone.' all > not, not > all

   b. *Gakusei ga   zen'in o   huta-ri-tomo mi-nakat-ta.*
      student NOM all   ACC 2-CL-both   see-NEG-PAST
      'Both of the two students didn't see everyone.' all > not, *not > all

In (35a), the subject FNQ occurs adjacent to the subject, and the object may take scope within the negation. But in (35b), the object *zen'in* intervenes between the subject and the subject FNQ; the subject FNQ has *–tomo* 'both' that attracts the prosodic prominence.

Here, the object cannot be in the scope of negation, indicating that the object has moved high in the structure. In this DMS, in which the object moves, and then the subject moves across the moved object, there is a copy of the subject following the object, which makes it possible to strand the subject-oriented FNQ after the object. Going back to the (35a) example in which the object within the VP may have the 'all > not' as well as the other interpretation, we can speculate that this interpretation is possible due to movement of the object string vacuously to Spec,TP.

The second argument is based on indeterminate pronouns. 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).

(36) 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)

While the object position can host an indeterminate pronoun ((36a)), the subject position cannot ((36b/c)). The subject position is outside the domain of the *mo* particle, which Kishimoto assumes is at *v*. Now note the following.

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(37) a. *Kodomo   ga   san-nin dono-eiga   o   mi-mo-si-na-katta.*

       kids   NOM 3-CL   which-movie ACC see-MO-do-NEG-PAST

       'Three kids did not see any movie.'

   b. **Kodomo   ga   dono-eiga   o   imamadeni san-nin*

       kids   NOM which-movie ACC so far   3-CL

       mi-mo-si-na-katta.

       see-MO-do-NEG-PAST

       'Three children did not see any movie so far.' (Miyagawa and Arikawa 2007)

In (37b), in which the object occurs between the subject and the FNQ, the object
indeterminate pronoun is ungrammatical, indicating that this object has moved to Spec,TP
and outside the domain of *-mo*.

4. FNQ and telicity[5]

The DMS analysis accounts for the counterexamples noted in the literature to the
locality-based analysis of FNQs. It is crucially based on the PISP. However, there still
remains a problem. The DMS does not always lead to a natural example, as in the following
(Miyagawa 2012).

(38) ?* *Kodomo ga   uta o   zyuppunkan   san-nin   utatta.*

       child   NOM song ACC for 10 minutes   3-CL   sang

       'Three children sang a song for ten minutes.'

The subject-oriented FNQ *san-nin* is separated from the object by the adverb 'for ten
minutes' so that the FNQ receives the prosodic prominence, yet, the sentence is
ungrammatical. There is nothing wrong with the meaning of the sentence; if the FNQ
occurs next to the subject, the sentence is grammatical.

(39) *Kodomo ga   san-nin uta   o   zyuppunkan   utatta.*

     child   NOM 3-CL   song   ACC for 10 minutes sang

     'Three children sang a song for ten minutes.'

As we will see, DMS alone is not sufficient to guarantee that the copy of the subject is available to strand the FNQ. There is an additional condition: the aspect of verbal phrase must be telic (Miyagawa 2012). Below, we will explore this additional condition on the copy in the PISP in Japanese.

4.1. Intransitive verbs

A number of linguists have noticed that certain types of FNQ stranding that are otherwise impossible become possible in a particular aspectual context, namely, in the *telic* aspect, in which there is an endpoint to the event expressed.[6] The first to note this was Tsujimura (1990) in her study of unaccusative mismatches (Dowty 1991; Levin and Rappaport 1989; Levin and Rappaport Hovav 1995). She gives the following minimal pairs with the intransitive verbs 'run' and 'swim'.

(40) a. *?*Gakusei ga   kodomo   to   san-nin hasitta.*

       student   NOM children   with 3-CL   ran

       Intended: 'Three students ran with the children.'

  b. *Gakusei   ga   kooen made   san-nin hasitta.*

       student   NOM   park   as far as 3-CL   ran

       'Three students ran to the park.'

(41) a. ?**Gakusei ga   kodomo   to   inukaki   de san-nin   oyoida.*

       student NOM children   with dog-paddling by 3-CL   swam

       Intended: 'Three students swam with children by dog-paddling.'

  b. *Gakusei   ga   kisi   made   inukaki   de san-nin   oyoida.*

       student   NOM   shore as far as dog-paddling by   3-CL   swam

       'Three students swam to the shore by dog-paddling.'

As Tsujimura (1990, 269–270) notes, 'run' and 'swim' are typical unergative verbs, so that we would not expect them to allow stranding of the FNQ across PPs. The (a) examples demonstrate this, but, puzzlingly, the (b) examples allow stranding. According to Tsujimura, the addition of the goal phrase in the (b) examples "adds a specification of inherent direction as well as an *endpoint to the original meaning of the verb* and makes the verb function like [an unaccusative] verb." Tsujimura, referring to Levin and Rappaport 1989 (see also Dowty 1991; Levin and Rappaport Hovav 1995), observes that with the goal phrase, these intransitive verbs behave like unaccusative verbs with inherent direction, such as 'arrive', 'come', 'go', 'depart', 'fall', 'return', and 'descend'.

In the following example given by Kuno and Takami (2003: 284), intended as a counterexample to the locality analysis of FNQ, we can see the same point about telicity.

(42) A: 'Is this new magazine selling well?'

　　B: *Ee, kesa　　　mo　　gakusei-san ga*

　　　　yes this morning also students　　NOM

　　　　[VP *sore o　　go-nin kat-te　　iki-masi-ta yo*].

　　　　　it　　ACC 5-CL　buy-ing　go-POLITE-PAST

　　　　'Yes, this morning also, five students bought it.'

Note that in this example, the verb contains the motion verb 'go', which, being unaccusative, naturally leads to a telic interpretation.

The following minimal pair demonstrates in a direct fashion the importance of aspectual interpretation for stranding of NQs.

(43) a. **Tomodati　ga　　zyuppunkan　　huta-ri odotta.*

　　　　friend　　　NOM for ten minutes　2-CL　　danced

　　　　Intended: 'Two friends danced for ten minutes.'

　　b. *Tomodati　ga　　zyup-pun-no-uti-ni huta-ri odotta.*

　　　　friend　　　NOM in ten minutes　　　2-CL　danced

　　　　'Two friends danced (a dance) in ten minutes.'

This is a classic test of aspect found in Vendler (1967) that distinguishes between activities (*X-ing for ten minutes*) and accomplishments (*X-ing in ten minutes*), the former without an endpoint that bounds the event expressed, and the latter with such an endpoint. The judgment is crisp and clear: with an activity, which has atelic aspect, stranding of the FNQ is entirely ungrammatical, while the telic aspect of accomplishment makes FNQ stranding totally acceptable.[7] There is nothing wrong with the meaning of the sentence in (43a), as shown by the fact that if the FNQ is next to the subject, the example is perfectly fine.

(44) *Tomodati   ga   huta-ri   zyuppunkan   odotta.*
  friend   NOM 2-CL   for ten minutes   danced
  'Two friends danced for ten minutes.'

Furthermore, it has been noted that stranding of a FNQ is ungrammatical with permanent/individual-level predicates (Harada 1976c; Fukushima 1991; Nishigauchi and Uchibori 1991; Ohki 1987), an observation that coincides with the idea that stranding of FNQs is limited to telic expressions, since individual-level predicates are atelic (see, for example, Diesing 1992). The following is taken from Mihara (1998, pt. 3: 110–111; see also Nakanishi 2008).

(45) a. *Uti-no doobutuen de wa   kaba ga   mada   san-too genki   da.*
    my   zoo   at TOP hippo NOM still   3-CL   healthy COP
    'In my zoo, three hippos are still healthy.'
  b **Uti-no doobutuen de wa   kaba ga   zannennakotoni san-too osu   da.*
    my   zoo   at TOP   hippo NOM unfortunately   3-CL   male   COP
    'In my zoo, unfortunately, three hippos are male.'

All of the examples of unexpectedly grammatical FNQ stranding involve an external argument. The pattern that emerges is that stranding of a subject-oriented FNQ by the external argument is possible in telic expressions. How can we account for this? Whatever account we come up with will need to account for the unaccusative mismatch that

Tsujimura observed: the addition of a goal phrase to an unergative construction creates the possibility of stranding a FNQ. Although one option is to follow Tsujimura in assuming that the argument structure changes with the addition of the goal phrase, there is a sense that the predicate and the participant in the event are basically the same with and without the goal phrase, and that the difference is in the aspectual interpretation of the event.

What I suggest is the following (Miyagawa 2012):

(46)   Telicity and the external argument (TEA)

Once the external argument moves to Spec,TP, its copy in the predicate-internal subject position is visible under a telic interpretation.

It has been noted in the literature (e.g. Miyagawa 2001) that the lower copy of the external argument is not visible in Japanese. However, what TEA states is that the copy becomes visible under telic aspect. The reason is not clear, and it is beyond the scope of this chapter to try to come up with an account (see a brief speculation at the end of the chapter), particularly because the relationship between the external argument and argument structure is, with few exceptions, uncharted territory. There are a handful of works that make observations related to this relationship between the subject and telicity; see, for example, Folli and Harley 2005; Rappaport Hovav and Levin 2007; Rappaport Hovav 2008. Folli and Harley note a number of examples from English and Italian where there is a close link between the type of event in the verbal predicate and the type of external argument that is allowed, and often it is the aspect of the event that governs the type of the external argument that can occur.[8]

TEA accounts for all of the examples above in which a subject-oriented FNQ is successfully stranded; in the telic aspect, the lower copy of the subject meets the strict-locality requirement. We can in fact "repair" the ungrammatical example (47a) from the standard paradigm and see TEA at work.

(47) a. *Gakusei ga   sake o   san-nin   nonda.
   student   NOM   sake ACC 3-CL$_{SUB}$ drank
   'Three students drank sake.' (Kuroda 1980)

  b. *Gakusei ga   sake o   **sudeni** san-nin   nonda.
   student NOM sake   ACC   already 3-CL$_{SUB}$ drank
   'Three students already drank sake.'

While most speakers I have consulted agree with the judgment that (47a) is degraded, example (47b), which, because of the addition of 'already', has a clear telic interpretation, is perfectly acceptable. This is true whether 'already' is placed before the verb or even the subject.

 The account according to TEA is particularly important for the notion of the PISP. Sportiche's (1988) examples from English and French of stranded quantifiers provided one of the strongest pieces of evidence for this notion. However, Bošković (2004) and Tada (1999), among others, argue that the position of the floating quantifier in English (and French, in Bošković's case) is not the original position of the subject, but is instead a derived, non-θ-marked position. If this is the case, we no longer have quantifier stranding in English and French as empirical evidence for one of the most important notions that distinguish minimalism from Government and Binding. Instead, if our analysis of subject-oriented FNQ stranding in terms of TEA is correct, Japanese provides independent evidence for the predicate-internal subject position.

 In presenting support for FNQ stranding based on TEA, I take into account observations made in the literature to the effect that a FNQ not only modifies the associated NP, it also interacts with the event structure of the verbal predicate. Fujita (1994) argues that a NQ in the NP–FNQ sequence (or likewise a stranded FNQ) modifies its host NP through modification of the verbal predicate. Likewise, Nakanishi (2004, 2007a, 2007b) presents a semantic approach in which the FNQ quantifies over events denoted by the verbal predicate as well as over individuals denoted by the host NP. What I will present is a stranding approach that makes explicit how the FNQ can quantify over individuals denoted by the NP—which accounts for the agreement between the type of associated NP being

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counted and the classifier on the FNQ—and at the same time can directly participate in the quantificational structure of telic events denoted by the verbal predicate.

4.2. Grammaticalizing telicity

The analysis I will present for FNQs in the NP(case)–FNQ sequence and stranded FNQs is based on an extension of Borer (2005). Borer argues that the telic aspect is structurally represented by an aspectual head, which she calls Asp_Q, where *Q* stands for *quantity*. This represents the notion that "telic events are quantities, in the sense that they involve quantification over event divisions" (Borer 2005: 74; see also Link 1983, 1987; Bach 1989; Krifka 1989, 1992; see also Tenny 1987, 1994; among others). In contrast, "atelic events are homogeneous" and do not involve a quantitative aspectual head. In Borer's system, if Asp_Q occurs, an XP that provides the quantity is merged into the specifier of this head, and this XP then binds an operator position within an extended verbal projection.

(48)

$$Asp_Q{}^{MAX}$$

$$Spec^1$$
$$|$$
$$XP$$

$$<e^1>$$

$$VP$$
$$|$$
$$Verb$$
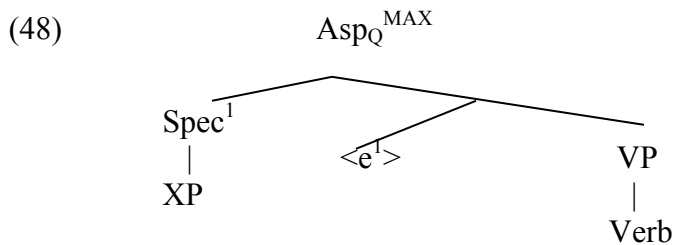
In (48), <e> is an open value that requires range assignment, and if bound by an XP with the property of quantity, it is given an appropriate range over event divisions. In an atelic event, there is no such structure. This XP may be the object of a transitive verb or the lone argument of an unaccusative verb. (Borer sometimes assumes a nonce projection for atelic events and at other times there is no such projection; I will make the latter assumption.)

In Miyagawa (2012), I argued that, contrary to Borer's proposal, the Asp_Q is merged above *v*P.

(49)

$$\text{Asp}_Q{}^{\text{MAX}}$$

Asp$_Q'$

vP   Asp$_Q$ Miyagawa (2012)
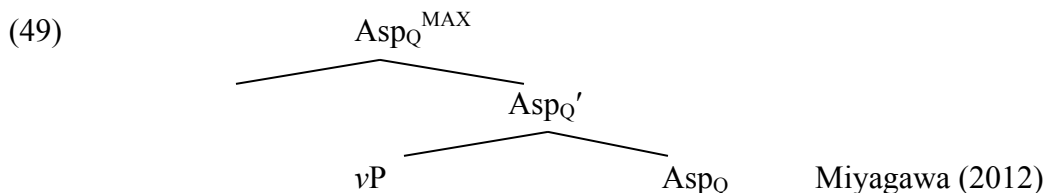
However, there are reasons to believe that we would end up with a better analysis if we simply accept Borer's original idea that the Asp$_Q$ is merged on the VP as shown in (48). I will therefore depart from the analysis in Miyagawa (2012) and assume (48). (48) is equivalent to what Fukuda (2012) calls a Low Aspect.

   Let us again look at the minimal pair presented earlier.

(50) a. *Tomodati   ga   zyuppunkan   huta-ri   odotta.
         friend   NOM for ten minutes   2-CL   danced
         Intended: 'Two friends danced for ten minutes.'

   b. Tomodati   ga   zyuppun-no-uti-ni huta-ri   odotta.
         friend   NOM in ten minutes   2-CL   danced
         'Two friends danced (a dance) in ten minutes.'

To begin with the grammatical (50b) example, this sentence has a telic interpretation because of the adverb 'in ten minutes'. The relevant portion of the structure for this sentence is given below.

(51)   [$_{TP}$ tomotati ga   zyuppun-no-uti-ni [$_{vP}$ t$_i$ huta-ri [$_{AspQP}$ [$_{VP}$ odotta…
           friend   NOM   in ten minutes   2-CL   danced

From this structure, which is grammatical, we can see that TEA is implemented by the copy of the external argument c-commanding Asp$_Q$.

   In the ungrammatical example, (50a), the aspect is that of an activity, which is atelic, so the lower copy is not visible under TEA and hence the stranded FNQ violates locality. If

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the subject NP and the FNQ are moved together to Spec,TP, the FNQ is local to its associated NP and the sentence is grammatical as expected.

(52) *Tomodati ga   huta-ri   zyuppunkan   odotta.*
     friend   NOM   2-CL   for ten minutes   danced
     'Two friends danced for ten minutes.'

4.3. Subjects and objects

In Miyagawa and Arikawa (2007), we responded to a number of counterexamples to the standard paradigm, including examples discussed earlier in this chapter in which the subject and its FNQ are separated by the object; the examples are repeated below.
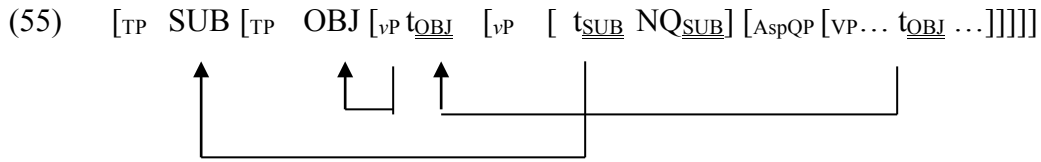
(53) ?*Gakusei ga   sake   o   imamadeni   san-nin   nonda.*
     student   NOM   sake   ACC   so far   3-CL$_{Subj}$ drank
     'Three students drank sake so far.'

                                                 (Gunji and Hasida 1998: 57)

(54) *Gakusei ga   watasi no   hon o   huta-ri-sika   kaw-anakat-ta.*
     student   NOM   my   GEN   book ACC   2-CL$_{Subj}$-only buy-not-PAST
     'Only two students bought my book.'

                                            (cf. Takami 1998, pt. 1: 92)

As noted earlier, in these examples, the subject FNQ is prosodically separated from the object, so that the FNQ cannot mistakenly be construed with the object. These are cases of the DMS in which the object first moves above the subject, then the subject moves above the object, stranding its FNQ. We adopted the EPP analysis in Miyagawa (2001) in which the object moves to Spec,TP. I have added the Asp$_Q$P to the structure.

(55) $[_{TP}$ SUB $[_{TP}$ OBJ $[_{vP}$ t$_{\underline{OBJ}}$ $[_{vP}$ [t$_{\underline{SUB}}$ NQ$_{\underline{SUB}}$] $[_{AspQP}$ $[_{VP}$… t$_{\underline{OBJ}}$ …]]]]]

This DMS in which the subject FNQ is stranded is possible under a telic interpretation due to TEA. This is again shown with the minimal pair below.

(56) a. *Gakusei   ga   sake   o   yonzyuugo-hun-kan   san-nin   nonda.
          student   NOM   sake   ACC   for forty-five minutes   3-CL$_{Subj}$ drank
          Intended: 'Three students drank sake for forty-five minutes.'

    b. Gakusei   ga   sake   o   yonzyuugo-hun-no-uti-ni   san-nin   nonda.
        student   NOM   sake   ACC   in forty-five minutes   3-CL$_{Subj}$ drank
        'Three students drank sake in forty-five minutes.'

4.4. Stranded NQ and modification of events

Fujita (1994) and Nakanishi (2004) observe that a FNQ not only modifies the associated NP, but also the event represented by the verbal predicate. Nakanishi (2004: 67) gives the following to demonstrate this.[9]

(57) *?/??Gakusei   ga   kinoo   san-nin   Peter   o   korosi-ta.
        student   NOM   yesterday   3-CL   Peter   ACC   kill-PAST
        Intended: 'Three students killed Peter yesterday.'

Nakanishi notes that the event of killing Peter is something that can only occur once. The unacceptance of (57) is explained if the FNQ, as an adverb, ranges over multiple events of killing Peter that distribute over each of the three students; this goes against the idea that there can only be one event of killing Peter. Nakanishi uses this interesting data to argue against the stranding analysis of floating FNQs (see also Nakanishi 2008), instead arguing that the interpretative facts suggest that the FNQ is an adverb.

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This debate is typical of the kind of discussion that has occurred in the general analysis of floating quantifiers. Some assert that all floating quantifiers are of the stranded kind (e.g. Cirillo 2009; Shlonsky 1991; Sportiche 1988) while others propose that floating quantifiers are either always adverbs or maybe alternating between stranded quantifiers and adverbs depending on the context (see for example, Bobaljik 2003; Doetjes 1997; Fitzpatrick 2006; Fukushima 1991; Ishii 1998; Nakanishi 2004; Sag 1978). For Japanese, Nakanishi's example has been one of the most compelling pieces of empirical evidence given for the adverb analysis of FNQs (her analysis can be traced back to the work by Ishii 1998, whose work in turn owes insights to Kitagawa and Kuroda 1992).

But is there a reason to believe that (57) argues against a stranding analysis? I believe the distributive reading noted by Nakanishi can be generated by the analysis of the telic aspect sketched above without recourse to the adverb analysis of the FNQ. Given that the verb 'kill' clearly defines a telic event, the structure for (57) must contain Asp_QP. The stranded FNQ 'three' c-commands the Asp_QP, thereby modifying the event subdivision of Asp_Q and giving the interpretation that there are three instances of the (subdivided) event.

The following example argues against a Nakanishi-type adverb approach to FNQs, and at the same time, is consistent with the analysis I have presented.

(58) *Gakusei ga   sakihodo   san-nin (issyoni) teeburu o   motiageta*.
       student   NOM a while ago 3-CL   together table   ACC   picked up
       'A while ago, three students (together) picked up a table.'

This sentence is ambiguous between a collective and a distributive meaning: the students either together picked up a table once (for which 'together' is compatible) or they each individually picked up a table. The adverb analysis would only be consistent with the distributive meaning. But on the analysis we have presented, the FNQ itself does not trigger event division; if the event itself can be collective because of the nature of the predicate, as in (58) above, the FNQ does not force a distributed meaning. This is why a collective interpretation remains possible even with a stranded FNQ; the distributed meaning is not a function of the FNQ but simply an option that comes with the meaning of the predicate.

5. Quantifier scope and TEA

As the final point in this chapter, I will take up quantifier scope to give independent evidence for TEA. As already noted, since Kuroda (1971), it has been widely assumed that Japanese is a scopally rigid language (see also Hoji 1985).

(59) *Dareka   ga   dono-sensei-mo   kiratteiru.*
     someone NOM   every teacher   hates
     'Someone hates every teacher.'

Unlike its English counterpart, in the Japanese example in (59), the surface-scope reading involving a particular person who loves everyone is strongly preferred; for most speakers, the inverse scope is impossible. This has become one of the defining characteristics of Japanese.

However, a closer look at the data shows that this characterization as a general property of the language is incorrect. There are examples in which native speakers have an easier time getting an inverse-scope interpretation. Following are two such examples.[10]

(60) a. *(Gozi-kan-no-uti-ni)   dareka ga   dono-mado-mo aketa.*
      in five hours   someone NOM   every window   opened
      'Someone opened every window (in five hours).'
   b. *(Nizi-kan-no-uti-ni) dareka   ga   dono-omotya-mo kowasita.*
      two hours   someone NOM   every toy   broke
      'Someone broke every toy (in two hours).'

As we can see, these are clearly telic examples, suggesting that telicity has a role not just in licensing certain kinds of NQ stranding, but also scope inversion. What is going on? A reasonable assumption based on TEA is that these are cases of DMS, in which the object has moved to Spec,TP, and the subject across this object.

The following, pointed out to me by Toshiaki Inada and Hiroaki Tada, also demonstrates that telicity is relevant to scope relations.

(61) *Dareka ga   dono-hon-mo yonde-iru.*
     someone NOM every book   read-ing
     'Somone has read/is reading every book.'

The verbal inflection *-iru* can indicate progressive or resultative, the former representing activity and the latter accomplishment. In the progressive interpretation, this sentence is unambiguous, with only the surface scope being possible, but with the resultative interpretation, the inverse scope becomes possible, although surface scope is still preferred.

Why is it that inverse scope appears under the telic aspect? Let us begin by looking into how inverse scope is made possible in English. Johnson and Tomioka (1997) and Johnson (2000) argue that inverse scope in a sentence such as the following is possible thanks to the fact that the object quantifier *many of the questions on the exam* takes scope over the copy of the subject in Spec,*v*P.

(62)   Some student or other has answered many of the questions on the exam.
(63)   [$_{TP}$ Subject$_i$ [$_{vP}$ Object$_j$ [$_{vP}$ t$_i$ [$_{VP}$ V t$_j$] . . .

In Johnson and Tomioka (1997), the reason why the object moves to *v*P is to correct type mismatch; in Johnson 2000 the movement of the object is covert scrambling. On either account, the analysis does not depend on the object undergoing Quantifier Raising to adjoin to TP, which is the classic analysis of inverse scope (May 1977). Johnson gives the following evidence to show that it is the copy of the subject in Spec,*v*P that is operative in inverse scope. First, we are reminded that the indefinite *some* cannot scope under negation.
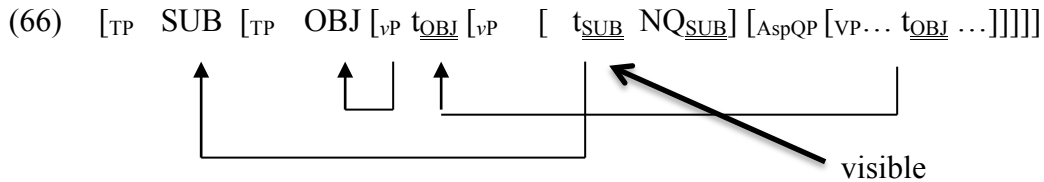
(64) I have not met some student.   some student > not

Johnson then notes the following, which is the negative counterpart of the ambiguous sentence we saw in (62) above.

(65)   Some student or other hasn't answered many of the questions on the exam.

This example fails to have inverse scope in which *many questions on the exam* takes scope over the subject *some student or other*. We can understand this lack of inverse scope if negation keeps the subject indefinite *some student or other* from being interpreted in its original Spec,*v*P position. Without this copy available for interpretation, inverse scope becomes impossible, on the assumption that it is this copy that enters into the calculation of inverse scope.

Returning to Japanese, the surprising availability of inverse scope in telic sentences finds an explanation in our approach to stranding of FNQs based on telicity, in a way that parallels the analysis of inverse scope in English just outlined. Because of TEA, a telic aspect allows a double-movement construction (DMC) with the copy of the external argument visible.

(66)   [$_{TP}$ SUB [$_{TP}$ OBJ [$_{vP}$ t$_{\underline{OBJ}}$ [$_{vP}$ [t$_{\underline{SUB}}$ NQ$_{\underline{SUB}}$] [$_{AspQP}$ [$_{VP}$··· t$_{\underline{OBJ}}$ ···]]]]]]

visible

In this structure, the object c-commands the visible copy of the external argument, thereby making the inverse scope interpretation available. In an atelic structure, even if it is a DMC, the inverse scope is not possible because the lower copy is invisible.

6. Conclusion

The numerous counterexamples to the locality-based analysis of FNQs turn out to provide further insights into the locality-based analysis. The typical counterexamples may be analyzed as instances of a double-movement construction, with the object moving to

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Spec,TP and the subject above the object. The subject FNQ in the original Spec,vP position is local to the copy of the external argument, thereby fulfilling the locality requirement. An additional condition in Japanese is that the copy of the external argument is visible only under telic aspect. While we need to understand where this condition comes from, we found independent evidence for it from quantifier scope. On the analysis given, it is not the case that Japanese as a whole is scopally rigid. Rather, Japanese has TEA, which only allows inverse scope in telic aspect. Ultimately, we will have to derive TEA from other, independent considerations. One possibility is to explore Nakanishi's insight that FNQs distribute events. Although I showed that this need not be the case, some combination of her observation and the idea of telicity as subdividing the event may lead to a promising analysis.

Notes

[1]The mutual c-command requirement comes from the assumption that the FNQ is a secondary predicate, which has been argued to be subject to strict locality (Williams 1990). [2]Kikuchi (1994) notes one interesting exception, in which NPs in an inalienable possession relation are allowed to be construed with a FNQ despite the apparent violation of mutual c-command.

(i) *Ano isya wa [zidoo no me] o* **sanzyuu-nin** *sirabeta.*
   that doctor TOP pupil GEN eye ACC 30-CL examined
   'That doctor exampled thirty pupil's eyes.'

Kikuchi, Takami (2001), and Nakanishi (2008) point to these as counterexamples to the mutual c-command requirement, but because they occur in highly restricted cases involving inalienable possession, it would be interesting to pursue the possibility that these are exceptional cases, something that I will not pursue in this chapter. I should note that not all speakers accept this type of sentence. The reviewer of this chapter informs me that she finds it almost ungrammatical.

[3] See Koizumi and Tamaoka (2010) for experimental evidence for the DMS in (33).

[4]The judgment for the (a) example is based on the default pronunciation in which the object receives the prosodic prominence.

[5] Much of the text in sections 4 and 5 are taken from Miyagawa (2012). However, I have fundamentally changed the analysis of telicity that is crucial to the arguments in these two sections.

[6] See Levin and Rappaport Hovav 2005 for discussion of three types of telicity. In this chapter, I will not subdivide telicity into different types.

[7] There are examples superficially very similar to the ungrammatical (42a) that for some people are not so bad, with a special interpretation.

(i) (*)Tomodati-ga   itizikan   huta-ri   odotta.
     friend-NOM   one hour   two-CL   danced
     ('Two friends danced per hour.')

For those who accept this sentence, the special interpretation is that every hour, two friends danced. This is a telic interpretation, and the grammatical nature of it is predicted. To get this interpretation, 'one hour' and the NQ must be pronounced as a prosodic unit. The following pseudocleft example shows that the two comprise a phrase (thanks to Hiroki Maezawa for pointing this out).

(ii)   Tomodati-ga odotta-no-wa   itizikan   huta-ri da.
        friend-NOM   danced-NL-TOP one hour   two-CL COP
        'It's two each hour that friends danced.'

This example only has the interpretation that friends danced two at a time each hour. In the ungrammatical (42a), combining 'ten minutes' with the NQ is more difficult for reasons that I do not understand.

[8] It is possible that TEA could follow from independent considerations, if we consider the possibility that in the ungrammatical atelic examples, what intervenes between the subject NP and the subject NQ is an element that structurally belongs below Spec,vP, and thus the stranded subject NQ is not supported by the copy of the subject in vP. This would allow us to account for the ungrammatical (and grammatical) cases without stipulating something like TEA. One example in favor of this is that the following atelic example is fine.

(i)   Gakusei-ga kinoo   san-nin   sake-o   nonda.
       student-NOM yesterday three-CL sake-ACC   drank
       'Three students drank sake yesterday.'

This is an atelic example, yet stranding is possible. The reason may be that the temporal adverb 'yesterday' is above Spec,*v*P, and the NQ *san-nin* is in Spec,*v*P along with the copy of the subject 'students'. However, there are a number of examples, such as the pairs due to Tsujimura and the activity–accomplishment minimal pair in (42), that are not readily amenable to this kind of structural analysis. I will therefore assume TEA, but with the idea that it may be possible to derive it from basic structural considerations.

[9] Nakanashi pairs (57) with the following example:

(i)   Gakusei-ga   kinoo   san-nin   Peter-o   tatai-ta.
        student-NOM   yesterday three-CL   Peter-ACC   hit-PAST
        'Three students hit Peter yesterday.'

Unlike with 'kill' in (57), the act of hitting Peter can take place multiple times, hence the sentence is felicitous.

[10] Most speakers I consulted about these examples were able to get the inverse scope. A few speakers note that as soon as they hear *dareka* 'someone' in the subject position, they immediately imagine a specific person; for these speakers, inverse scope is not available.

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