Predication-Based Analysis of English Floating Quantifiers[*]

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1. Introduction

This paper studies quantifier(Q)-floating phenomena exemplified in (1).

(1) a. The students will <u>all</u> play tennis.

    b. The twins <u>both</u> studied French.

    c. The girls have <u>each</u> received a letter.

The floating quantifiers (FQs) in (1) properly modify the subject NPs though these FQs occur in positions other than the determiner position (henceforth, we refer to NPs modified by FQs as "host NPs").[1]

Sportiche (1988) has been one of the influential syntactic analyses of FQs.[2] The first aim of this paper is to show that there remain some problems for Sportiche's analysis in view of its extension proposed in Tanaka (1994a). The second aim is to present an alternative analysis, according to which FQs are licensed by a local relation between the specifier position and a X'-projection. More precisely, our analysis requires that an FQ be left-adjoined to the topmost X'-projection of the category whose Spec position is occupied by (a trace of) its host NP. We refer to this Spec-X' relation as a "syntactic" predication relation by introducing a purely syntactic notion of predicate.

A syntactic notion of predicate is advocated in Rothstein (1983), Heycock (1994), and Baltin (1995). We assume with them that the syntactic relation of predication is a primitive syntactic relation in that it is independent of other licensing relations; in particular, it is not dependent on θ-theory. In other words, our approach differs from other approaches which regard predication as external θ-role assignment.

The organization of this paper is as follows. Section 2 reviews Tanaka's (1994a) extension of Sportiche's (1988) analysis. Section 3 is devoted to pointing out that the stranding analysis cannot account for some kinds of FQs despite its extension. The first part of section 4 observes a restriction on the distribution of FQs, and also considers the syntactic properties of FQs. Based on these considerations, the second

part proposes an alternative analysis according to which FQs are left-adjoined to syntactic predicates, and also provides some evidence for a purely syntactic notion of predicate. Then, I verify that our analysis is not marred by the problems in section 3 to which the (extended) stranding analysis is subject. Furthermore, this alternative can also deal with other FQs some of which cannot be accounted for under the (extended) stranding analysis. Section 5 provides concluding remarks.

2. An Extension of Sportiche's Analysis in Tanaka (1994a)

Let us briefly review Sportiche's (1988) analysis before summarizing Tanaka's (1994a) extension of the analysis. Sportiche puts forth the "stranding" analysis, according to which FQs are partitive quantifiers stranded by their host NPs. This analysis presupposes the VP-internal Subject Hypothesis (VPISH): the subject of a sentence is base-generated in [Spec, VP] (cf. Kuroda (1988) and Koopman and Sportiche (1991), see also the references cited therein).[3]

Let us consider the examples in (2).

(2) a. All the boys have played tennis.

b. The boys have all played tennis.

Under the stranding analysis, the sentences in (2) have the following structural representations during derivation:

(3) $[_{IP} e [_{I'} have [_{VP} [_{NP} all [_{NP} the boys]] [_{V'} played tennis]]]]$.

(4) a. $[_{IP} [_{NPi} all [_{NP} the boys]] [_{I'} have [_{VP} t_i [_{V'} played tennis]]]]$.

b. $[_{IP} [_{NPi} the boys] [_{I'} have [_{VP} [_{NP} all t_i] [_{V'} played tennis]]]]$.

The sentences in (2) share the D-structure representation in (3). The subject NP the boys forms a larger NP with the Q all, and the larger NP occupies [Spec, VP].

At S-Structure, the sentences in (2) differ in the position of the Q. As (4a) indicates, the subject the boys pied-pipes the Q all and leaves a trace of the whole NP when moving into [Spec, IP]. On the other hand, the subject in (4b) leaves the Q, thus creating the "illusion" that the Q "floats off" its host NP. Notice that the subject leaves its trace in [Spec, VP] in both (4a) and (4b); thus, even in the case of (4b), the resulting trace enables the FQ (all) to modify its host NP legitimately.

Let us now summarize Tanaka's (1994a) extension of the stranding analysis. In Tanaka (1994a), I propose an analysis of small clauses (SCs) based on the VPISH (henceforth, the ISH-based SC analysis).[4] The ISH-based SC analysis assumes that SCs are realized as IPs and that subjects of SCs (SC-subjects) are always base-generated in the Spec position of their predicates (SC-predicates) and move to [Spec, IP], as schematically illustrated in (5).

(5) $[_{IP(=SC)}$ SC-subjects$_j$ $[_{I'}$ INFL$_0$ $[_{XP}$ t$_j$ $[_{X'}$ X $\cdots]]]]$

SC-subjects move from the Spec of SC-predicates to [Spec, IP] to fulfill the Extended Projection Principle: clauses have subjects (cf. Chomsky 1981; 1993).[5]

This SC analysis enables the stranding analysis to account for FQs from SC-subjects like those in (6), whose relevant S-structure representations are as in (7).

(6) a. We consider [the men all crazy].

b. John regarded [his friends all as psychos].

c. We consider [the men all fools].

d. I saw [the kids all playing in the swimming pool].

(7) a. We consider $[_{IP}$ [the men]$_i$ $[_{AP}$ all t$_i$ $[_{A'}$ crazy]]].

b. John regarded $[_{IP}$ [his friends]$_i$ $[_{PP}$ all t$_i$ $[_{P'}$ as psychos]]].

c. We consider $[_{IP}$ [the men]$_i$ $[_{NP}$ all t$_i$ $[_{N'}$ fools]]].

d. I saw $[_{IP}$ [the kids]$_i$ $[_{VP}$ all t$_i$ $[_{V'}$ playing in the swimming pool]]].

The SC-subjects (the men, his friends, and the kids) are base-generated in the Spec of the corresponding SC-predicates (crazy, as psychos, fools, and playing in the swimming pool). Then, the SC-subjects move into [Spec, IP], stranding their partitive Qs.

Furthermore, I claim in Tanaka (1994a) that the extended stranding analysis can deal with FQs occurring with with-absolutives as in (8) and secondary predicates as in (9) if it is guaranteed that the host NPs serve as SC-subjects. (Adopting Roberts's (1988) classification, we refer to the three types of secondary predicates in (9a-c) as circumstantial, depictive, and resultative predicates.)

(8) a.   She was sitting with [the flowers all in her hands].

b.   With [the brothers both doctors], they competed against each
other.

(9) a.   *John ate the carrots both naked.   (Circumstantial)

b.   John ate the carrots both raw.   (Depictive)

c.   John hammered the metal sheets both flat. (Resultative)

Following Radford (1988), Rizzi (1990), and Hornstein and Lighthoot
(1987), I assign the following S-structure representations to (8) and (9):

(10) a.   She was sitting with [$_{IP}$the flowers$_j$ [$_{PP}$all t$_j$ [$_{P'}$ in her
hands]]].

b.   With [$_{IP}$the brothers$_j$ [$_{NP}$both t$_j$ [$_{N'}$ doctors]]], they competed
against each other.

(11) a.   John^1 ate the carrots [$_{IP}$PRO^1$_j$ [$_{AP}$both t$_j$ naked]].

b.   John ate [the carrots]^1 [$_{IP}$PRO^1$_j$ [$_{AP}$both t$_j$ raw]].

c.   John hammered [$_{IP}$[the metal sheets]$_k$ [$_{AP}$both t$_k$ [$_{A'}$ flat]]].

The SC-subjects in (10) (<u>the flowers</u> and <u>the brothers</u>) move into [Spec,
IP], stranding the partitive Qs (<u>all</u> and <u>both</u>). Like the ordinary SCs in
(10), the resultative in (11c) (<u>flat</u>) and the object NP (<u>the metal sheets</u>)
constitute an SC. Thus, the SC-subject (<u>the metal sheets</u>) can move from
[Spec, AP] to [Spec, IP] without pied-piping the Q <u>both</u>.

The circumstantial and depictive predicates in (11a-b) (<u>naked</u> and
<u>raw</u>) form SCs with PRO subjects. As the superscript <u>1</u> indicates, the PRO
subject in (11a) is controlled by the matrix subject (<u>John</u>); whereas, the
PRO subjects in (11b) is controlled by the matrix object (<u>the carrots</u>).
PRO subjects, like NP subjects, are assumed to move from [Spec, AP] to
[Spec, IP] for Case requirements (Martin 1992; cf. Baltin 1995).[8]

  · The extended stranding analysis permits the FQ in (11b) because it is
properly associated with (the trace of) the PRO controlled by its host NP
(<u>the carrots</u>). On the other hand, the FQ in (11a) is not allowed since it
is associated with the PRO subject whose controller (<u>John</u>) is not the host
NP of the FQ. Note that the FQ in (11a) is allowed in the context in
which it modifies a subject NP, as in (12).

(12)   [The twins]^1 ate the carrot [$_{IP}$PRO^1 both naked].

In this case, the FQ (<u>both</u>) is adequately related with the PRO subject

controlled by its host NP (the twins).

In this section, we have seen that the extended stranding analysis proposed in Tanaka (1994a) can account for FQs occurring with ordinary SCs, with-absolutives, and secondary predicates.

3. Problems with the (Extended) Stranding Analysis

This section points out two problems with the (extended) stranding analysis outlined in the last section.

3.1 Post-verbal FQs

The first problem of the (extended) stranding analysis concerns overgeneration. This is exemplified by the unacceptability of post-verbal FQs. The stranding analysis permits FQs whenever their host NPs undergo movement. Thus, it would allow FQs from objects in passive and ergative constructions where the object is assumed to move in the standard account of the constructions within Government-Binding theory (Chomsky 1981; Keyser and Roeper 1984). However, the sentences in (13) show that such post-verbal FQs are ruled out.

(13) a. *The children were seen all.

   b. *The children have arrived all.

(14) a. [The children]$_i$ were [$_{VP}$t$_i'$ [$_{V'}$ seen [$_{NP}$all t$_i$]]].

   b. [The children]$_i$ have [$_{VP}$t$_i'$ [$_{V'}$ arrived [$_{NP}$all t$_i$]]].

As the S-structure representations in (14) indicate,[7] the (extended) stranding analysis would incorrectly predict that the derived subjects of both constructions may strand their partitive Qs (all) in their base positions.

To overcome this problem, Sportiche claims that the subjects of passive and ergative constructions originate in [Spec, VP]. If this claim is correct, it follows that the base position of subjects always precedes that of verbs. Consequently, all FQs which are base-generated with subjects should at least precede verbs.

Thus, Sportiche's account assigns to the sentences in (13) the following S-structure representations instead of those in (14):

(15) a. [The children]$_i$ were [$_{VP}$ t$_i$ [$_{V'}$ seen all]].

   b. [The children]$_i$ have [$_{VP}$ t$_i$ [$_{V'}$ arrived all]].

Both of the subjects (the children) start from the [Spec, VP]; therefore, the FQs all cannot appear in post-verbal positions.

Sportiche's solution would correctly account for the distribution of FQs in passive and ergative constructions. The solution, however, crucially relies on the assumption that subjects of these constructions originate in the pre-verbal position rather than in the post-verbal position. As long as this assumption is made only to account for problematic data like (13), we should regard it at best as an ad hoc assumption.

3.2 Pre-Infl FQs

The second problem is raised by the unacceptability of FQs immediately preceding auxiliaries (henceforth, pre-Infl FQs) like the one in (16).

(16) The students all will have solved the problems.

The stranding analysis would predict that the pre-Infl FQ in (16) occupies [Spec, IP], as in (17), since the auxiliary will is widely assumed to occupy the head I.

(17) [$_{XP}$ [The students]$_j$ [$_{X'}$ [$_{IP}$ [all t$_j$]$_k$ [$_{I'}$ will [$_{VP}$ t$_k$ have solved the problems]]]]].

Accordingly, the host NP (the students) should be in a higher Spec position ([Spec, XP]).

Sportiche provides a potential solution: subjects move to the Spec position of Topic phrase (TopP). In what goes on, we verify whether his solution is satisfactory. Under Sportiche's account, the sentence in (16) would have the following S-structure representation:

(18) [$_{TopP}$ [The students]$_j$ [$_{IP}$ [all t$_j$]$_k$ [$_{I'}$ will [$_{VP}$ t$_k$ have [$_{VP}$ t$_k$ solved the problems]]]]].

The subject the students in (18) moves to [Spec, TopP], stranding the Q all in [Spec, IP] (i.e., the host NP is topicalized). However, this derivation cannot be correct for two reasons: (i) according to Lasnik and

Saito (1992, L&S), matrix subjects cannot undergo topicalization; (i) Given L&S's claim that topicalization applies only once in a simple sentence, we predict that if the subject were topicalized, no other element should be able to undergo topicalization; however, this prediction is not borne out.

Let us first consider (i). L&S (1992:110) argue that topicalization may apply to objects (as in (19a)) but not to subjects (as in (19b)).

(19) a. $[_{IP}$ [The problems]$_j$, $[_{IP}$ the students solved t$_j$]].

     b. *$[_{IP}$ [The students]$_j$, $[_{IP}$ t$_j$ solved the problems]].

In L&S's framework, the topicalized subject NP in (19b) (i.e., the students) undergoes adjunction to IP instead of movement into [Spec, TopP].[8] Accordingly, there is no lexical governor for the trace t$_j$, nor is there an adequate X^0 category that antecedent-governs the trace. The trace, therefore, produces a violation of the Empty Category Principle: a nonpronominal empty category must be properly governed (Chomsky 1981). Hence, (19b) should be ruled out. If L&S are correct in claiming that subjects cannot be topicalized, it is dubious that subjects, as Sportiche claims, occupy [Spec, TopP].

Let us move on to reason (i). Suppose that the subject in (19a) is topicalized. Then, what we expect would be that no other elements in the sentence could undergo topicalization. This expectation stems from the following data pointed out by L&S (1992:86):

(20) ??[On the desk]$_j$, [this book]$_k$, I put t$_k$ t$_j$.

They ascribe the deviancy of this sentence to "double" topicalization: the NP this book is first topicalized, and then the PP on the desk is also topicalized.

Given that double topicalization is disallowed, we predict that another topicalization operation cannot apply to the sentence in (16) since according to Sportiche's solution, the subject has already been topicalized. However, this predication is not borne out.

(21) [The problems]$_j$, the students all will have solved t$_j$.

The object the problem is topicalized in (21). Thus, as long as it is the case that double topicalization is banned, Sportiche's solution cannot

predict the well-formedness of (21).

These two reasons in (i) and (ı) lead us to conclude that it is untenable to assume that when pre-Infl FQs occur, subjects move into [Spec, TopP]. Consequently, the grammaticality of (16) casts doubt on the (extended) stranding analysis.[9]

This section has shown that the two kinds of FQs cause serious problems for the (extended) stranding analysis: post-verbal and pre-Infl FQs. In the next section, we will present an alternative analysis which will cover not only these problematic FQs but also other FQs that may be dealt with under the (extended) stranding analysis.

4. An Alternative Analysis Based on a Syntactic Notion of Predicate

This section first observes that FQs should always appear between (traces of) host NPs and their predicates (in the semantic sense). Section 4.2 discusses the properties of FQs that impose the restrictions on the linear ordering observed in 4.1. Then, we claim that FQs are licensed by a local relation between the highest X'-projection of a category and its specifier position (we will refer to this local relation as a "syntactic" predication relation). Based on this claim, section 4.3 proposes "the predication-based analysis of FQs," and provides independent evidence for the syntactic notion of predicate. Section 4.4 applies the alternative analysis to various FQs. The first part shows that our analysis properly deals with the problematic FQs discussed in section 3. The second part verifies that the analysis can also adequately deal with other FQs that could be accounted for under the (extended) stranding analysis.

4.1 Restrictions on the Linear Ordering of FQs, Host NPs, and Predicates

Logically, there could be six possible linear orders of FQs, host NPs, and predicates, as illustrated below (host NPs are abbreviated as Host).

(22) (i)   Host-FQ-Predicate

(ı)   FQ-Predicate-Host

(ı)   Host-Predicate-FQ

(ı)   Predicate-Host-FQ

(ⅴ) Predicate-FQ-Host

(ⅵ) FQ-Host-Predicate

We will, however, observe that out of these six orders, only (i) and (ⅱ) are permitted. We first look at the ill-formed sequences in (ⅲ-ⅵ), and then move on to the well-formed ones in (i-ⅱ).

The following sentences have the orders from (ⅲ) to (ⅵ), respectively:[10]

(23) a. *[The students]$_i$ were seen all t$_i$.   Host-Pred-FQ (ⅲ)

      b. *[The students]$_i$ arrived all t$_i$.   Host-Pred-FQ (ⅲ)

      c. *[Play tennis]$_i$, the students did all t$_i$. Pred-Host-FQ (ⅳ)

      d. *[Play tennis]$_i$, all, the students did t$_i$. Pred-FQ-Host (ⅴ)

      e. *All, the students played tennis.   FQ-Host-Pred (ⅵ)

The sentences in (23a-b) with the order in (ⅲ) represent passive and ergative constructions, respectively. The illicit FQs in these sentences occur in the "post-predicate" position. The same factor seems to cause the ungrammaticality of the sentence in (23c) with the order in (ⅳ). The FQ in (23c) does not precede the fronted predicate. Thus, the deviancy of (23a-c) indicates that FQs cannot follow predicates of their host NPs.

The sentences in (23d-e) have the orders in (ⅴ-ⅵ), respectively. The FQs in (23d-e) occupy the position leftward apart from that of their host NPs the students. The ungrammaticality of these sentences indicates that FQs should follow their host NPs.

The ill-formed orders we have seen so far indicate that the following requirement governs the distribution of FQs:

(24) FQs should follow their host NPs and precede predicates of their host NPs.

Let us now consider the well-formed orders in (i) and (ⅱ). First, let us take the following examples with order (i) (i.e., Host-FQ-Pred):

(25) a. I consider [$_{SC(=IP)}$ the men all intelligent].

      b. [$_{IP}$ The men⌃seem⌃to⌃be all honest].

The sentence in (25a) includes an SC. According to the ISH-based SC analysis, which we continue to assume, the FQ all moves from Spec of the SC-predicate (intelligent) to Spec of the inner IP. Although we put aside

the exact position of the FQ at the moment, the position is obviously between the host NP (i.e., the SC-subject) and the SC-predicate, thus satisfying the requirement in (24).

A raising construction is involved in (25b). The subject the men moves from Spec of its predicate (honest) to [Spec, IP]. There are some alternative positions which allow an FQ. These positions are indicated by the superscript ($\wedge$). Putting aside the exact potential positions of these FQs, it is obvious again that whichever FQ is taken, it satisfies the requirement in (24): it not only follows its host NP (the men) but also precedes its predicate (honest).

Let us now go on to order (i): FQ-Pred-Host. We may expect that FQs in this context do not meet the requirement in (24) since they precede their host NPs. However, the following grammatical sentence cited from Baltin (1982:9) shows that such FQs are allowed:

(26) They said that they would all work on that, and [all work on that]$_i$, they did t$_i$.

One may argue that the first clause of the requirement in (24) (i.e., FQs should follow their host NPs) is too strong; however, I claim that the FQ in (26), in fact, fulfills the first clause.

Under the VPISH, according to which subjects originate in [Spec, VP] and move up to [Spec, IP], the fronted predicate in (26) involves a subject trace left by NP movement, as in (27).

(27) $\cdots$[$_{VP}$ t$_k$ All work on that]$_i$, they$_k$ did t$_i$.

In this representation, the FQ follows a trace of its host NP and precedes the predicate of the NP. We claim that the FQ in (27) satisfies the requirement in (24), assuming that not only a host NP but also its trace counts as the element FQs should follow.

It is worth while comparing (27) with (23c), repeated as (28) with modifications.

(28) *[$_{VP}$ t$_k$ Play tennis]$_i$, [the students]$_k$ did all t$_i$.

Although the FQ in (28) precedes a trace of the fronted predicate, this sentence is ungrammatical. Thus, the deviancy of (28) seems to indicate that FQs should occur on the left of "overt" predicates. Consequently,

the element FQs should follow is either host NPs or their traces, whereas the element FQs should precede is only overt predicates.

Based on the above considerations, we revise the requirement in (24) as follows:

(24´) FQs should follow (traces of) their host NPs, and precede overt predicates of their host NPs.

Incidentally, the contrast between (27) and (28) provides important evidence concerning the position FQs generally occupy. Let us consider the issue we have so far left untouched: the exact positions occupied by FQs. Suppose that FQs are uniformly adjoined to the same level of the projection of categories. Then, having already rejected the stranding analysis which analyzes FQs as occupying the specifier position, we have three possibilities: (i) FQs are adjoined to X'-projections; (i) FQs are adjoined to maximal projections; (i) FQs are adjoined to heads.

The possibility in (i) is rejected because of the acceptability of pre-Infl FQs as in (16), repeated here as (29) with categorial labels.

(29)   [$_{IP}$The students all[$_{I'}$ will[$_{VP}$have solved the problems]]].

The only possible position of the FQ in (29) is an adjoined position to the I'. This is because as we discussed in 3.2, the subject and the auxiliary <u>will</u> occupy [Spec, IP] and the head I, respectively.

We cannot admit the possibility in (i), either. If FQs occupied adjoined positions to the head, we would erroneously predict the unacceptability of the following sentence cited from Bowers (1994:613):

(30)   *The men will quickly [$_{V'}$ [$_V$all learn] French perfectly].

This sentence is ungrammatical even though the FQ seems to be adjoined to the V head <u>learn</u>. Thus, under the alternative in (i), this unacceptability is counter to what is intended.

Consequently, the remaining possibility is (i): FQs are uniformly adjoined to X'-projections. We admit this possibility because there seems to be no reason to reject it. In this respect, we agree with Jaeggli (1982), who claims that FQs and adverbs are the same in that both occupy adjoined positions. (We will, however, point out in the next subsection that there is a crucial difference between FQs and adverbs.)

With the above considerations in mind, let us return to the contrast between (27) and (28). We are now justified in claiming that the FQ <u>all</u> in (27) occupies an adjoined position to the V´-projection of the fronted VP. Given this, the deviancy of (28) is automatically derived. Namely, the FQ cannot be stranded since the fronted category is nothing but the maximal projection VP which includes the FQ, on the widely-accepted assumption that X´-projections cannot undergo movement.

In this subsection, we have observed the restriction on the distribution of FQs: FQs should occur between (traces of) their host NPs and overt predicates of the NPs.

4.2 Syntactic Properties of FQs

This subsection considers the syntactic (and semantic) properties of FQs that lead to the requirement in (24´).

(24´) FQs should follow (traces of) their host NPs, and precede overt predicates of their host NPs.

Let us start with the first clause in (24´): FQs should follow (traces of) their host NPs. According to this clause, FQs only have to follow their host NPs; however, the following contrast indicates that this is not sufficient:

(31) a. *The teacher of the boys both played tennis.

b. The boys both played tennis.

The FQs <u>both</u> in (31) both follow their host NPs (<u>the boys</u>). However, there is a crucial difference between them. The host NP in (31a) does not c-command the FQ, while the one in (31b) does. We assume with Jaeggli (1982) that this c-commanding requirement stems from the anaphoric status of FQs. Thus, the first clause in (24´) should be replaced by the more restricted one: FQs should be c-commanded by their host NPs.

Let us move on to the second clause in (24´): FQs should precede overt predicates of their host NPs. This requirement is not satisfactory, either. Take the following contrast cited from Bowers (1994:613):

(32) a. The men will [$_{VP}$ t$_j$ [$_{V´}$ all [$_{V´}$ quickly learn French perfectly]].

b. *The men will [$_{VP}$ t$_j$ [$_{V´}$ quickly [$_{V´}$ all learn French perfectly]].

((32b)=(30))

As we have discussed in 4.1, FQs occupy adjoined positions like adverbs. This contrast, however, indicates that FQs should precede adverbs. In both of the examples, the FQs follow (traces of) their host NPs and precede predicates of the NPs, satisfying the requirement in (24´). Thus, the second clause is silent on the contrast. Instead, we need the more restricted requirement that FQs should be adjoined to the topmost $X´$ -projection in a category.

The following schematic structure shows the configuration in which FQs are allowed:

(33)   ··· XP
        Host   X´
             FQ X_1´
                 (Adv) X_2´
                         X   YP
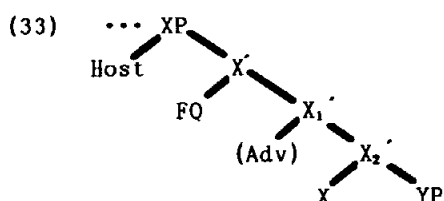
In this configuration, an FQ is adjoined to the X_1´ -projection which is the highest bar-level projection of X. In the case of (32a), the XP in (33) corresponds to an VP. If the FQ in (33) is adjoined to X_2´ , an inner $X´$ -projection, the resulting structure is deviant, as in (32b).

What is important here is that FQs are licensed by a local relation between the highest bar-level projection of a category and its specifier position. Put another way, FQs should appear between the topmost $X´$ - projection and its Spec. To express the local relation in (33) between the Spec and X_1´ , we use the syntactic notion of predicate advocated by Rothstein (1983), Heycock (1994), and Baltin (1995). Namely, we claim that the host NP in [Spec XP] and the highest $X´$ projection are in a syntactic predication relation, given that they are in a mutual c-command relation.[11] The definition of syntactic predicates will be offered in the next subsection.

Now, we can account for the contrast in (32). Consider the following underlying structure of (32) (FQs are omitted for the sake of argument):

(32´)   The men will $[_{VP}t_j [_{V_1}$´ quickly$[_{V_2}$´ learn French perfectly]].

There are two potential position to which an FQ may be adjoined: V_1´ and V_2´ . However, given that only a local relation between specifier position and that the highest $X´$ -projection allows an FQ to be adjoined, the V_1´ -

predicate (but not the V_2'-predicate) is an adequate position to which an FQ is adjoined.

Before leaving this subsection, we have to discuss a remaining important question concerning the adjunction of FQs. As we have already claimed, the reason why FQs follow their host NPs is due to the requirement that FQs be c-commanded by their host NPs. The remaining question, then, is why FQs should precede predicates of their host NPs. There are two types of adjunction, depending on direction: left- and right-adjunction. However, the only permissible adjunction is left-adjunction. Consider the following contrast:

(34) a. [$_{IP}$The men [$_{I'}$all[$_{I'}$played tennis]]].

b. *[$_{IP}$The men [$_{I'}$ [$_{I'}$played tennis] all]].

The FQ in (34a) is left-adjoined to an adequate position between specifier position of IP and the only (hence, the highest) bar-level projection I'. If we also sanctioned right-adjunction, we would incorrectly predict that (34b) is also grammatical.

To explain this contrast, we stipulate that in addition to the function as modifiers, FQs have their own semantic property, namely that of sharing with their host NPs the subject role of syntactic predicates. More specifically, our claim is that when FQs appear, X'-predicates are firstly linked to the FQs as "subjecthood-sharers," and then the FQs link the predicates to (traces of) host NPs via modification relations.

Since a thorough study of the semantic properties of FQs is not a main concern of this paper, we simply point out the examples that seem to provide support for our view of FQs as subjecthood-shares. The following examples indicate that FQs can appear with the partitive of-phrase and behave like appositives (cf. Jespersen (1933)):

(35) a. The children are all (of them) doing their best.

b. We are all (of us) drunk.

Based on these examples, we assume that the FQs (with the partitive of-phrase) share with their host NPs the role of the subject of the predicates, doing their best and drunk. These FQs bearing some kind of subjecthood should precede the predicate of the real subjects (i.e., their host NPs) because as Rothstein (1983) claims, English is a language such

that predicates are linked to their subjects from right to left.[12] Thus, the predicates of host NPs are firstly linked to the FQs.

It should be noticed, however, that these FQs cannot substitute for the real subjects (the children and we). This is because the FQs are elements adjoined to X´-predicates. In this sense, the FQs are obviously distinct from the real subjects occupying the specifier position. Thus, the linking process should not be terminated at the FQs. The FQs also link the predicates to the host NPs (i.e., the real subjects). We assume that this linking is established via modification relations between the FQs and the host NPs.

If we are correct in assuming the above semantic property of FQs, sentences with an FQ in general undergo the following process: (i) predicates of host NPs are linked to FQs bearing some sort of subjecthood from right to left; (i) the FQs link the predicates to their host NPs via modification relations between the FQs and their host NPs.

This subsection has discussed the syntactic properties of FQs that realize as the requirement in (24´). We have claimed that an FQ is licensed by a syntactic predication relation (i.e., a local relation between the highest bar-level projection of a category and its Spec). We have also touched on the semantic property of FQs, according to which FQs function not only as modifiers but also as subjecthood-sharers. Then we have illustrated that this semantic property causes FQs to be only left-adjoined to predicates of their host NPs.

4.3 The Predication-Based analysis of FQs and "Syntactic" Predicates

4.3.1 The Predication-Based analysis of FQs

Based on the properties of FQs discussed in 4.2, we propose an alternative analysis of FQs called "predication-based analysis."

(36) a. An FQ is left-adjoined to a syntactic predicate of its host NP.

b. α is a syntactic predicate of β iff α is an X´ and is in a mutual c-command relation with β an element in [Spec, XP], where X is a lexical or non-lexical category.

The clause in (36a) posits that FQs are base-generated in left-adjoined positions to syntactic predicates of their host NPs. In this sense, FQs

do not literally "float off" their host NPs; however, we continue to use the term, "FQs," for convenience sake. As discussed in 4.2, FQs function as subjecthood-sharers; therefore, they should precede syntactic predicates of their host NPs.

The notion of syntactic predicates defined in (36b) is used simply to express a local relation holding between topmost bar-level projections and their Spec positions. Thus, although we provide some independent support for the purely syntactic notion of predicate, we will not extensively discuss its properties.

As an immediate consequence of (36), we predict that every $\bar{X}$-projection whose specifier position is landed by the subject in the course of derivation serves as a syntactic predicate of the subject. Thus, a subject may have more than one "$\bar{X}$-predicate" between the main predicate (the external θ-role assigner) and the $\bar{I}$-predicate.[13]

For instance, our analysis, like Heycock's (1994), claims that there are three predicates in the following sentence:[14]

(37) $[_{IP}Mary_i [_{I'} may [_{VP} t_i "[_{V'} be [_{AP} t_i '[_{A'} mistaken t_i]]]]]]$

Mary (i.e., the subject of the highest predicate ($\bar{I}$: may be mistaken)) is also the subject of each of the lower predicates ($\bar{V}$: be mistaken and $\bar{A}$: mistaken). Thus, the higher predicate involves the two lower predicates. Out of these three predicates, only the $\bar{A}$-predicate assigns a θ-role to the subject.

It should be noted that given the purely syntactic status of predicates, an $\bar{X}$-projection may serve as a syntactic predicate of an element in [Spec, XP] even if the projection does not assign a θ-role to the element. One might argue that because raising verbs like seem count as syntactic predicates, our predication-based analysis is at variance with the so-called raising analysis, according to which the subject moves from a deeper θ-position to the surface θ-bar position. Consider the sentence in (38a), which has the S-structure representation in (38b).

(38) a. The students seem honest.

b. $[_{IP} [The students]_j [_{I'} [_{VP} seem [_{AP} t_j [_{A'} honest]]]]]$

The predication-based analysis regards $\bar{I}$ as a syntactic predicate of the subject NP the students; however, the $\bar{I}$-predicate does not assign a θ-

role to the subject. The subject NP, therefore, should originate in [Spec, AP], or it will violate the θ-Criterion: each argument bears one and only one θ-role, and each θ-role is assigned to one and only one argument (Chomsky 1981). Thus, the raising analysis is not incompatible with our analysis, but is rather presupposed by our analysis.

Before applying our analysis to various kinds of FQs, we digress to provide independent evidence for the need of the purely syntactic notion of predicates.

4.3.2 Evidence for a Syntactic Notion of Predicate

The syntactic notion of predicate we used in 4.2.1 to refer to a Spec-X' relation is borrowed from Rothstein (1983), Heycock (1994), and Baltin (1995). Syntactic predicates are distinct from semantic predicates in that the former is independent of θ-role assignment unlike the latter.

Baltin argues that as far as the semantic aspects are concerned, the following pair of sentences (Baltin's (89a) and (90)) seem to be quite different from each other:

(39) a. John visited Sally.

    b. It seems that Fred is crazy.

The element <u>visited Sally</u> can be viewed as a property ascribed to the subject; thus, the meaning of (39a) is almost identical to that of the sentence, <u>John has the property of having visited Sally</u>. It makes no sense, on the other hand, to say that the expletive subject <u>it</u> in (39b) has the property of seeming that Fred is crazy, since expletives cannot be naturally claimed to have semantic properties. Baltin argues that despite the semantic difference between (39a) and (39b), there is good reason to regard the element <u>seems that Fred is crazy</u> as a predicate like the one in (39a). VP-ellipsis, which can be formulated as predicate ellipsis, apply to (39b) as well as (39a).

VP-ellipsis is indifferent to the category V and applies as far as the antecedent is predicative, as shown in (40) (Baltin's (91-94)).

(40) a. I consider Fred [an excellent teacher], but I don't think that Mary is e.

    b. I consider Fred [crazy], but I don't think that Mary is e.

    c. I wanted Sally [in Boston], but she's not e.

d. *I looked for [an excellent teacher for my children], but I
don't think that Fred IS e.

VP-ellipsis can apply to (40a-c) since the antecedents for the ellipses
(e) are predicative: in (40a), the antecedent is a predicate nominal; in
(40b), it is an AP; in (40c), it is a PP. On the other hand, (40d) is
ruled out since the antecedent is a referential NP.

The raising verb <u>seem</u> licences the ellipsis even though it does not
count as a predicate in the semantic sense, as follows (Baltin's (96)):

(41) Speaker A: It [seems that Sally is crazy].

Speaker B: It certainly does e.

Baltin argues that this fact can be captured if the elements in (39),
<u>visited Sally</u> and <u>seems that Fred is crazy</u>, are both syntactic predicates.
Thus, the raising verb <u>seem</u>, though not a θ-role assigner, can serve as a
syntactic predicate.

I claim that the same argument holds true of complex verb phrases
like the one in (42) cited from Quirk et al. (1985:82-83).

(42) Speaker A: Have they [been [paying you for the work]]?

Speaker B: (i) Yes, they have e.

(ï) Yes, they have been e.

There are two possible answers for Speaker B, depending on the scope VP-
ellipsis may apply to. In (ï), the lowest predicate (i.e., the θ-role
assigning predicate) is omitted; whereas, in (i), a larger predicate is
elided by VP-ellipsis. Along the line of Baltin's argument discussed
above, the two possibilities of the scope VP-ellipsis affects indicate
that the θ-role assigning predicate <u>paying you for the work</u> is embedded in
the larger (syntactic) predicate <u>been paying you for the work</u>. Thus, (42)
provides support for our analysis where a simple sentence involves more
than one predicate and where predication is not a sub-type of θ-role
assignment.

In this section, we have cited Baltin's argument in favor of a
syntactic notion of predicate. By introducing a syntactic notion of
predicate, we can explain the fact that the two semantically distinct
types of expressions behave similarly in the contexts VP-ellipsis applies
to. Extending the argument to complex verb phrases, we have also shown

that the fact that there are alternative possibilities for the scope VP-ellipsis affects provides support for the syntactic notion of predicate.

4.4 FQs under the Predication-Based Analysis

This subsection applies the predication-based analysis to various kinds of FQs. First, we consider the two kinds of FQs problematic for the (extended) stranding analysis: pre-Infl and post-verbal FQs. Secondly, we show that the alternative analysis adequately deals with other FQs, some of which pose problems for the (extended) stranding analysis.

4.4.1 Pre-Infl and Post-Verbal FQs

Let us consider the sentence in (43a). Our analysis assigns the S-structure in (43b) to this sentence:

(43) a. The men will all leave the room.

b. $[_{IP}$ [The men]$_j$ $[_{I'}$ will $[_{VP}$ t$_j$ $[_{V'}$ all $[_{V'}$ leave the room]]]]].

The FQ all fulfills (36a): the FQ all is left-adjoined to the syntactic predicate of the trace (of its host NP (the men)). In this case, the lower V' assigns the external θ-role to the trace of the host NP in [Spec, VP].

Under our definition of syntactic predicates in (36b), (43) involves another predicate: I'. Recall that although the I' does not assign a θ-role, it nevertheless counts as a syntactic predicate. Given that the subject NP and the I' are in a syntactic predication relation, the predication-based analysis predicts that an FQ from the subject NP can occur in an adjoined position to the I'-predicate. This prediction is borne out by (44a), whose S-structure is given in (44b).

(44) a. The men all will leave the room.

b. $[_{IP}$ [The men]$_j$ $[_{I'}$ all $[_{I'}$ will $[_{VP}$ t$_j$ $[_{V'}$ leave the room]]]]].

The FQ in (44a) is a pre-Infl FQ which raises a serious difficulty for the (extended) stranding analysis, as discussed in Section 3.2. Our predication-based analysis, on the other hand, does not face such a problem. The FQ occupies an adjoined position to the syntactic predicate I'. This adjunction is permitted, since the I'-projection is a syntactic predicate of the NP in [Spec, IP] under our definition of syntactic predicates. Thus, the present analysis treats pre-Infl FQs similarly to

the way that it treats (43a).[15]

The present analysis also explains the ungrammaticality of post-verbal FQs illustrated in (45), which cast doubt on the stranding analysis as we have seen in section 3.1.

(45) a. *The children were seen all.

b. *The children have arrived all.

The FQs all in these examples are "right-adjoined" to V -predicates, as in the following S-structures:

(46) a. [The children]$_j$ were [$_{VP}$ t$_j$ [v [v· seen t$_j$] all]]].

b. [The children]$_j$ have [$_{VP}$ t$_j$ [v [v· arrived t$_j$] all]]].

The right-adjoined FQs do not satisfy the requirement of the predication-based analysis that FQs be "left-adjoined" to syntactic predicates; hence, the sentences in (45) should be ruled out.

It is worth mentioning Akiyama's (1994) treatment of VP- and sentence-final Qs. Citing the following example in Poutsma (1904-29:1065), Akiyama claims that the Q (both) is a right-adjoined FQ:

(47) We were very merry both.

Our analysis disallows right-adjoined FQs as in (47) because of the FQ's semantic property: subjecthood-sharers. Given this property, FQs should always precede syntactic predicates of their host NPs. Hence, we claim contra Akiyama (1994) that the Q in (47) is not an FQ. Indeed, my informants' acceptability judgment of (47) is not as good as Poutsma claims. If possible, they say, (47) would need to be spoken with strong comma intonation (i.e., there needs to be a pause before the Q). Hence, we regard the putative FQ in (47) as an afterthought. The same point is made by Doetjes (1992).[16]

It should be also mentioned that as the structural representations in (46) illustrate, we assume with Burton and Grimshaw (1992) that the subject in passive and unaccusative constructions moves into [Spec, IP] by way of [Spec, VP], as follows:

(48) a. [$_{IP}$ [The children]$_j$ [$_{I'}$ were [$_{VP}$ t$_j$ [v· seen t$_j$]]]]].

b. [$_{IP}$ [The children]$_j$ [$_{I'}$ have [$_{VP}$ t$_j$ [v· arrived t$_j$]]]]].

We regard the V -projections as syntactic predicates of the traces (of the

derived subjects) in [Spec, VP]. Thus, we predict that an FQ can be left-adjoined to the V'-predicates in (48). This prediction is borne out by the following data:

(49) a. The children were all seen.

b. The children have all arrived.

Before going on to the next subsection, let us discuss the issue of overgeneration under the predication-based analysis. Since a syntactic predication relation can license an FQ under our analysis, we predict that a sentence may involve several FQs each of which is left-adjoined to a different syntactic predicate X'. However, neither sentences with more than one FQ nor sentences with an FQ and a "non-floated" Q are allowed, as in (50).

(50) a. *The kids all were each given some candy.

b. *All (of) the kids were each given some candy.

We suggest that sentences like (50a-b) indeed satisfy syntactic requirements for FQs. Namely, the FQs in (50) are adequately left-adjoined to the syntactic predicates of their host NPs.

We ascribe the ungrammaticality of (50) to a violation of interpretation rules. Since FQs are, by definition, a type of quantifiers, they should modify their host NPs; however, the modification relations involved in (50) are banned, as shown by the following ungrammatical sentence:

(51) *Each (of) all (of) the kids was given some candy.

Both (50) and (51) are the same in that the subject NPs are modified by more than one strong quantifier (each and all). Hence, we conclude that whatever the reason may be, the sentences in (50) are ruled out for the same reason that (51) is ruled out.

In what follows, we apply the predication-based analysis to other kinds of FQs the (extended) stranding analysis may deal with. We show that our analysis can adequately deal with the FQs.

4.4.2 FQs in Small Clauses

Let us analyze FQs in SCs like those in (52) under the predication-based analysis.

(52) a. I consider the men all crazy.

    b. I saw the kids all playing tennis.

    c. John regarded his friends all as psychos.

    d. I consider the men all fools.

    e. She was sitting with the flowers all in her hands.

The relevant S-structure representations of (52) are given in (53).

(53) a. I consider $[_{IP}$ [the men]$_j$ $[_{I'}$ (all) INFL$_0$ $[_{AP}$ t$_j$ $[_{A'}$ (all) $[_{A'}$ crazy]]]]]].

    b. I saw $[_{IP}$ [the kids]$_j$ $[_{I'}$ (all) INFL$_0$ $[_{VP}$ t$_j$ (all) $[_{V'}$ playing tennis]]]]].

    c. John regarded $[_{IP}$ [his friends]$_j$ $[_{I'}$ (all) INFL$_0$ $[_{PP}$ t$_j$ (all) $[_{P'}$ as psychos]]]]].

    d. I consider $[_{IP}$ [the men]$_j$ $[_{I'}$ (all) INFL$_0$ $[_{NP}$ t$_j$ (all) $[_{N'}$ fools]]]].

    e. She was sitting with $[_{IP}$ [the flowers]$_j$ $[_{I'}$ (all) INFL$_0$ $[_{PP}$ t$_j$ (all) $[_{P'}$ in her hands]]]]].

As these representations illustrate, the SC-subjects in each sentence have two instances of syntactic predication: in (53a), both A′ and I′ are syntactic predicates of (a trace of) the SC-subject the men; in (53b), both V′ and I′ are syntactic predicates of (a trace of) the SC-subject the kids; in (53c, e), both P′ and I′ are syntactic predicates of (a trace of) the SC-subject; in (53d), both N′ and I′ are syntactic predicates of (a trace of) the SC-subject.[17] Consequently, as the parenthesized FQs in (53) illustrate, we claim that there are two possible positions in which an FQ may occur: the left-adjoined positions to each syntactic predicate. Note, however, that since INFL$_0$ is phonetically null, the linear order does not change regardless of whether an FQ is adjoined to X′ (X=A,V,P,N) or to I′.

An important issue comes to the fore when we claim that SCs involve two possible adjunction sites for an FQ. Namely, when an FQ is adjoined to the I′-predicate in an SC, we predict that the SC-predicate can be fronted; however, this is not borne out.

(54) *$[_{AP}$ t$_k$ $[_{A'}$ Angry with themselves]]$_i$, I consider $[_{IP}$ [the students]$_k$ $[_{I'}$ all $[_{I'}$ INFL$_0$ t$_i$]]]].

cf.   Angry with themselves, I consider the students.

Our analysis sanctions the two adjoined sites for an FQ: A' and I'. However, (54) shows that the FQ adjoined to I'-predicate is not allowed.

A pre-Infl FQ is, on the other hand, permitted when the head I is occupied by an auxiliary, as in (55).

(55) $[_{VP}t_k$ Play tennis$]_i$, $[[$the students$]_i$ $[_{I'}$ all $[_{I'}$ did $t_i]]]$.

Given this, the deviancy of (54) seems to suggest that when the head of an X'-projection to which an FQ is adjoined is phonetically null, the acceptability of the FQ is affected by the content of the complement taken by the head. More specifically, the unacceptability of (54) is due to the inability of predicate traces to license an FQ. To the contrary, when the head of the X'-projection in question is occupied by an overt element, as in (55), the grammaticality of the pre-Infl FQ is not affected even though the head takes a predicate trace.

Thus, for some reasons unclear to us, when an FQ is adjoined to a syntactic predicate whose head is phonetically null, the content of the complement taken by the null head participates in licensing the FQ. This property of FQs plays a crucial role to decide the grammaticality of FQs from the (direct) object in dative constructions we will discuss below.

4.4.3 FQs in Dative Constructions

Larson (1988; 1990) analyzes dative constructions as involving "VP-shell" structures. For instance, let us take the sentence, John gave a record to Mary, which has the following S-structure representation:

(56)
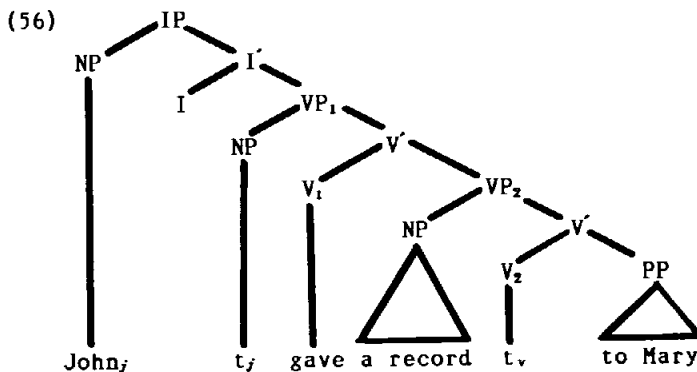
The verb gave originates in V_2 and moves into V_1. The verb and the PP

form a complex predicate (give to Mary) at D-structure, and the complex V´ -predicate theta-marks the indirect object a record in [Spec, VP$_2$].

If we adopt Larson's analysis, our predication-based analysis assigns the S-structure in (57b) to the to-dative construction like (57a) which involves an FQ from the (direct) object.

(57) a. I gave the books all to Mary.

b. I$_j$ [$_{VP1}$ t$_j$ [$_{V'}$ gave$_k$ [$_{VP2}$ the books [$_{V'}$ all [$_{V2'}$ t$_k$ to Mary]]]]].

As Larson views the V$_2$´ -projection (gave to Mary) as a complex predicate, we also analyze the V$_2$´ -projection as a syntactic predicate of the host NP the books; hence, an FQ can be left-adjoined to the V$_2$´ -predicate. Thus, on the face of it, our predication-based analysis correctly predicts that the FQ from the (direct) object is allowed.

It should be noticed, however, that in (57), the head of the V$_2$´ - predicate to which the FQ is adjoined raises to the higher head V$_1$. In other words, the FQ is adjoined to the syntactic predicate whose head is phonetically null at S-structure. This is reminiscent of the argument in the previous subsection that when an FQ is adjoined to a syntactic predicate with an empty head, the acceptability of the FQ depends on the content of the complement taken by the empty head.

We have observed in the last subsection that when a syntactic predicate with an empty head takes a predicate trace, a pre-Infl FQ adjoined to the predicate is not allowed. In the case of (57), the syntactic predicate with an empty head takes the to-phrase (to Mary) as its complement. Then, the acceptability of the FQ in (57) seems to indicate that the to-phrase taken by the syntactic predicate with a null head is, unlike predicate traces, classified as an adequate complement that can license an FQ.

Now, our immediate concern is what kind of complements can license FQs adjoined to syntactic predicates with empty heads. To answer this question, we consider the following data despite there having been little discussion about it since Fiengo and Lasnik (1976):

(58) a. *I bought [the books] all for Mary.

b. I$_j$ [$_{VP1}$ t$_j$ [$_{V1'}$ bought$_k$ [$_{VP2}$ the books [$_{V'}$ all [$_{V2'}$ t$_k$ for Mary]]]]].

As (58a) shows, the FQ from the (direct) object in the for-dative is not

permitted. Thus, there is a contrast in acceptability between the FQ in the to-dative (as in (57a)) and the FQ in the for-dative (as in (58a)).

According to Larson, however, the for-dative in (58a) has the VP-shell structure in (58b), which is exactly the same as the structure of to-datives in (57b). Consequently, our analysis which appeals to a Spec-X' relation to license an FQ erroneously predicts, as it stands, that the FQ in (58a) is adequately adjoined to the syntactic predicate (V_2') of its host NP in [Spec, VP_2].

To overcome this difficulty, we exploit the crucial difference between to-datives like (57a) and for-datives like (58a), namely to- and for-phrases. Jackendoff (1990) claims that the for-phrase is an adjunct unlike the to-phrase. He provides two pieces of support for this claim: (i) the Beneficiary NP is not an essential part of the action denoted by the for-dative; therefore, it does not receive a θ-role from the verb; (ii) if Larson's structurally parallel treatment of to- and for-datives were correct, both types would behave similarly with respect to Dative Shift; however, only a subset of for-datives have corresponding Beneficiary double object constructions, whereas Recipient double object constructions are productively derived from their corresponding to-datives.

If Jackendoff is correct in claiming that the for-phrase is invariably an adjunct unlike the to-phrase, we will have the key to the difficulty raised by the contrast between (57a) and (58a). Namely, we may stipulate that an FQ adjoined to a "null-head" syntactic predicate is allowed only when the null head takes an argument as its complement. Besides, as we have seen in 4.4.2, traces left by predicate fronting cannot license an FQ adjoined to the I'-predicate with a null head. Hence, the following requirement seems to govern FQs adjoined to syntactic predicates with empty heads:[18]

(59) An FQ adjoined to a "null-head" syntactic predicate is licensed only when the null head takes an overt argument as its complement.

Given (59), our account of the contrast in question is as follows. The FQ in the to-dative and the FQ in the for-dative are both adjoined to the syntactic predicate V' with null heads; however, only the former is allowed because the null head takes an argument (i.e., the to-phrase) as

its complement.[18]

The (extended) stranding analysis probably has difficulties in accounting for the above-mentioned contrast between FQs in the to-dative and FQs in the for-dative. To deal with the contrast, the analysis should propose distinct structures for the two kinds of dative constructions. More precisely, the indirect object in the to-dative should undergo movement to guarantee that an FQ from the (direct) object may occur. The indirect object in the for-dative, on the other hand, should remain in its base position, so that an FQ cannot occur. To assume such distinct structures for the two datives is incompatible with Larson's approach, in which the two datives share an identical structure regardless of the difference in the argument/adjunct distinction between the to-phrase and the for-phrase.

Our analysis, on the other hand, can account for the contrast without recourse to any structural difference although we need to stipulate the condition in (59). However, this condition is not assumed only for this particular case. Rather, it is also necessary to deal with FQs in SCs, as discussed in the last subsection. Thus, it seems to be reasonable to conclude that our analysis is to be preferred to the (extended) stranding analysis.

4.4.4 FQs in Resultative and Inalienable Possession Constructions

Larson (1990) argues that resultative constructions also have VP-shell structures like dative constructions.[20] If he is correct, the sentence with a resultative in (60a) has the S-structure in (60b).

(60) a. I hammered [the metal sheets] all flat.

b. I_j [$_{VP_1}$ t_j [$_{V'}$ hammered$_k$ [$_{VP_2}$ the metal sheets [$_{V'}$ all [$_{V_2'}$ t_k flat]]]]].

The verb hammered originates in V_2 and constitutes a complex predicate with flat. Thus, under the predication-based analysis, the host NP in [Spec, VP_2] and the V_2'-predicate are in a syntactic predication relation. Consequently, an FQ can be left-adjoined to the syntactic predicate (flat). Notice that the same argument in 4.4.3 carries over: since the head of the syntactic predicate to which the FQ is adjoined is empty, the complement taken by the empty head should be an overt argument. We assume

with Carrier and Randall (1992) that the resultative (_flat_) is an element selected by the verb (i.e., an overt argument of the verb). Hence, the FQ meets the requirement in (59).

Let us go on to FQs in Inalienable Possession Constructions (IPCs). Maling (1976) observes that IPCs allow FQs from the direct object, as in (61).

(61) a. He looked the twins both in the eye.

b. John kissed the children all on the cheek.

If IPCs have VP-shell structures, our analysis proposes the following S-structures for (61):[21]

(62) a. He$_j$ [$_{VP_1}$ t$_j$ [$_{V'}$ looked$_k$ [$_{VP_2}$ the twins [$_{V'}$ both [$_{V_2'}$ t$_k$ in the eye]]]]].

b. John$_j$ [$_{VP_1}$ t$_j$ [$_{V'}$ kissed$_k$ [$_{VP_2}$ the children [$_{V'}$ all [$_{V_2'}$ t$_k$ on the cheek]]]]].

The V$_2$'s are syntactic predicates of the NPs in [Spec, VP$_2$] (i.e., _the twins_ and _the children_); hence, the FQs from these NPs are correctly licensed by these predicates. Again, the heads of the syntactic predicates are empty; thus, the inalienable phrases (_in the eye_ and _on the cheek_) should be elements selected by the verbs in order for the FQs in (62) to satisfy the requirement in (59).

There is some evidence for the argument status of the inalienable phrase. First, the inalienable phrase (_in the eye_) cannot omitted, as in (63).

(63) I looked the boys *(in the eye).

When the verb (_look_) occurs in the IPC, its complement usually lacks the preposition _at_ and requires the inalienable phrase. This fact indicates that the inalienable phrase is an argument of the verb _look_.

Secondly, as Massam (1989) points out, verbs may not freely appear in the IPC, as in (64) (cited from his (12)).

(64) a. She {hit/touched/punched/wounded} the child {in/on} the head.

b. *She {watched/saw/liked} the child {in/on} the arm.

c. *He {destroyed/killed/created} the child {in/on} the head.

According to him, only "verbs which physically affect but do not transform their objects" are allowed to occur in the IPC, as in (64a); on the other hand, "verbs which have no physical affect on their objects" and "verbs which entirely transform their objects" cannot appear in the IPC, as in (64b-c). Put another way, the class of verbs that is compatible with the IPC needs to "involve some degree of affectedness" unlike the class in (64b), "but not to the extent of the class in (64c) which bring about a total change of state." This fact strongly indicates that the inalienable phrase is selected only by a limited class of verbs.

These pieces of evidence lead us to conclude that the inalienable phrase is an argument of the verb. Consequently, the FQs adjoined to the syntactic predicates with null heads satisfy the requirement in (59).

We have so far dealt only with FQs which are adjoined to "null-head" predicates. Let us consider the case in which an FQ occurs in a sentence with a monotransitive verb and a pure adjunct like yesterday, as in (65).

(65) *John saw the students both yesterday.

Larson attempts to extend his VP-shell analysis of ditransitive verbs to monotransitive verbs as in (65). Hence, Larson's analysis assigns to (65) the following VP-shell structure which completely parallels the structure of dative constructions.

(66) John$_j$ [$_{VP1}$ t$_j$ [$_{V'}$ saw$_k$ [$_{VP2}$ the students [$_{V'}$ both [$_{V_2'}$ t$_k$ yesterday]]]]].

In the VP-shell structure in (66), the verb saw constitutes the V_2'-projection with yesterday. Thus, our analysis regards the V_2' as a syntactic predicate of the students in [Spec, VP$_2$]; however, in this case, an FQ is adjoined to the V_2'-predicate with an empty head. As a result, we should pay attention to the complement taken by the empty head. Since yesterday is a pure adjunct like the for-phrase discussed in 4.4.3, our prediction is straightforward: the FQ does not fulfill the requirement in (59), causing the unacceptability of (65).[22]

4.4.5 FQs in Double Object Constructions

Let us now consider FQs in double object constructions (DOCs). Larson claims that DOCs are derived from their corresponding dative

constructions. Let us consider the DOC, I gave the men some cookies. The underlying structure of this sentence is the following to-dative construction (irrelevant details omitted):

(67)

```
        ··· VP₁
      NP        V´
          V         VP₂
                NP       V´
                       V     PP
        gave some cookies  tᵥ  to the men
```
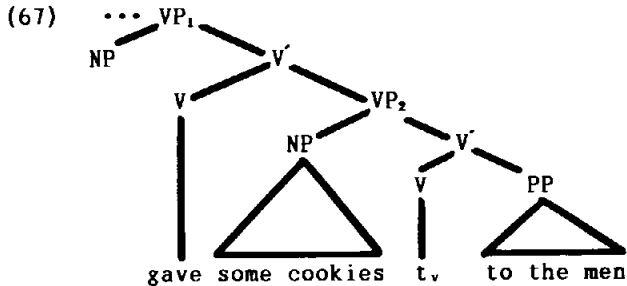
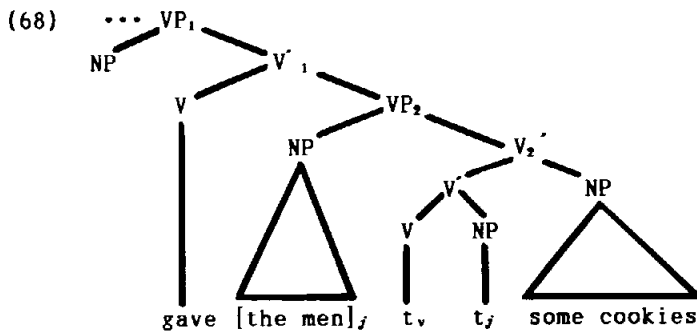Larson claims that DOCs are derived via a kind of passive formation: Argument Demotion and Case suppression. The resulting structure is as follows:

(68)

```
        ··· VP₁
      NP        V´₁
          V         VP₂
                NP       V₂´
                      V´     NP
                    V   NP
        gave [the men]ⱼ  tᵥ  tⱼ  some cookies
```

Given this structure, we expect that the NP in [Spec, VP₂] and the V₂´ - projection are in a subject-predicate relation despite the inability of the V₂´ -predicate to assign an external θ-role to the NP.

Thus, we predict that an FQ from the indirect object is allowed. This is borne out by (69a) whose relevant S-structure is given in (69b).

(69) a. I gave the men all some cookies.

b. Iⱼ [ᵥₚ₁ tⱼ [ᵥ´ gave [ᵥₚ₂ [the men]ₖ [ᵥ´ all [ᵥ₂´ tᵥ tₖ some cookies]]]]].

As (69b) illustrates, the FQ all is adequately left-adjoined to the syntactic predicate (V₂´) of the host NP (the men).

What is seemingly problematic is that the null head of the syntactic predicate does not even take an overt element as its complement. The

indirect object NP taken by the head V_2 also moves to the [Spec, VP_2]. It follows that the FQ is adjoined to the syntactic predicate without the head and the complement; therefore, the FQ fails to meet the requirement that the complement taken by the null head be an overt argument. Probably, the requirement is too strong; therefore, it should be weakened, as follows:

> (70) An FQ adjoined to a "null-head" syntactic predicate is licensed only when the predicate contains an overt argument.

Given this alternative requirement, the "demoted" object (i.e., direct object) still counts as an argument of the ditransitive verb (give); therefore, the $V_2{}'$ -predicate is classified as a syntactic predicate containing an argument. Hence, the FQ from the indirect object in (69a) is allowed.[23] This revision of the requirement of (59) does not affect the earlier arguments since the predicates satisfying the stronger requirement necessarily satisfy (70).

5. Concluding Remarks

This article has shown that the (extended) stranding analysis cannot explain the acceptability of the following two kinds of FQs: post-verbal and pre-Infl FQs. To account for these problematic FQs, we have proposed an alternative analysis crucially based on a local relation between Spec and the topmost X' -projection. We refer to this local relation as a syntactic predication relation by adopting the syntactic notion of predicates advocated in Rothstein (1983), Heycock (1994), and Baltin (1995). Under the alternative, FQs should be left-adjoined to syntactic predicates because of their semantic property of sharing the subjecthood with their host NPs.

Furthermore, we have shown that the predication-based analysis adequately treats FQs other than the above two types: FQs in SCs, dative and resultative constructions, IPCs, and DOCs. To deal with FQs adjoined to syntactic predicates with empty heads, we need to assume the additional condition in (70). At the moment, we are not sure which is the origin of the condition, leaving this problem to future research. However, once the condition is assumed, our analysis can uniformly treat various FQs.

On the other hand, the (extended) stranding analysis would have to appeal to structural differences to deal with the contrast between FQs in the to-dative and FQs in the for-dative, as mentioned in 4.4.3. However, proposing for the for-dative a structure distinct from that of the to-dative invalidates Larson's structurally parallel treatment of the two dative constructions. Thus, the stranding analysis needs an independent mechanism to derive Beneficiary DOCs.

Consequently, our analysis is superior to the (extended) stranding analysis at least with respect to the treatment of pre-Infl and post-verbal FQs and FQs in the dative construction. Our analysis can also adequately account for the remaining FQs that may be dealt with under the (extended) stranding analysis.

Notes

*This paper is a revised version of part of my MA Thesis submitted to the University of Tsukuba in December 1994. After an earlier draft of this paper had been written, I learned that Baltin (1995) proposes an approach quite similar to ours. I quoted as a support for our analysis a part of his argument for a syntactic notion of predicate, though limit of time precludes me from comparing his analysis with ours in detail.

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[1] FQs which are, according to Maling (1976), postposed within NPs as in (i), lie outside of the scope of this study.

(i) John saw [$_{NP}$ them all].

[2] Several other analyses have also been proposed. None of the

analyses are, however, without problems. For their problems, see Akiyama (1994) and Tanaka (1994b).

[3] There are slight differences in the literature as to the base position of the subject. We take sides with Kuroda (1988), who claims that the base-position of subjects is [Spec, VP].

[4] Since predicates of SCs comprise four categories (i.e., A, N, P, V), it is more accurate to use the term, "(Predicate-)Internal Subject Hypothesis (ISH)." Of course, the term, "VPISH," is appropriate when predicates of SCs are VPs.

[5] Chomsky (1993:8-9) proposes an analysis of predicate adjectives similar to ours. He assumes that the bracketed sequence in the sentence, I consider [John intelligent], has the following underlying structure:

(i) $\cdots$ [$_{AGRP}$John$_j$ [$_{AGR'}$ AGR [$_{APt_j}$ [$_{A'}$ intelligent]]]]

He claims that the SC-subject John raises to [Spec, AGRP] in the overt syntax (the category AGRP corresponds to IP under our analysis).

It should be noted, however, that Chomsky also claims that the SC-predicate intelligent raises up to the AGR. The acceptability of (i) constitutes a challenge for this claim:

(i) [$_{AGR'}$ Intelligent]$_i$, I consider [$_{AGRP}$John t$_i$].

If Chomsky's claim is correct, the fronted category should be AGR' since the SC-subject John occupies [Spec, AGRP]. This structure, however, runs afoul of the widely-accepted assumption that bar-level projections cannot undergo movement. Thus, it is dubious that SC-predicates overtly move up to AGR. Instead, we assume that the SC-predicate intelligent in (i) remains in the head A at least at S-structure.

[6] Sportiche (1988:438, 444) observes that PRO pied-pipes a Q only marginally. Baltin (1995), on the other hand, argues that PRO subjects do not move to higher Spec positions. We assume with Sportiche that PRO, like overt subjects, moves up to [Spec, IP].

[7] As we will see in 4.4.1, we assume that the derived subjects move into the surface position by way of [Spec, VP]. See the argument there.

[8] According to L&S (1992:80), there are two distinct types of topicalization: (a) topicalization involving movement, which is allowed by adjunction of a topic to IP, as in (i); (b) topicalization not involving

movement, which is allowed by base-generation of a topic in [Spec, TopP], as in (i).

(i) [$_{IP}$ [The problems]$_i$, [$_{IP}$ the students solved t$_i$]].

(ii) [$_{TopP}$ The problems, [$_{CP}$ [$_{IP}$ the students solved them]]].

[9] Sportiche also provides an alternative solution: pre-Infl FQs are adjoined to the head I. Under this solution, the relevant S-structure of the sentence, The students all will have solved the problem, is as follows:

(i) [$_{IP}$ [The students]$_j$ [$_{I'}$ [all will] [$_{VP}$ t$_j$ have solved the problems]]].

The FQ all is adjoined to will in this structure. If (i) is correct, it is mysterious why the auxiliary will cannot pied-pipe the FQ when subject-aux inversion takes place.

(ii) *[$_{CP}$ [All will]$_j$ [$_{IP}$ the students [$_{I'}$ t$_j$ [$_{VP}$ have solved the problems]]]].

cf. Will the students all have solved the problems?

Thus, the unacceptability of (ii) may cast doubt on the alternative solution. (This alternative solution is also at variance with our claim in section 4.1 that FQs cannot be adjoined to heads. See the argument there.) Thus, we conclude that neither of Sportiche's solutions is satisfactory.

[10] It should be noted that we here use the term, "predicates," to refer to predicates in the semantic sense. This term, therefore, should be distinguished from the term, "syntactic predicates," which will be introduced later in the text.

[11] Rothstein (1983) and Heycock (1994) allow only maximal projections to serve as syntactic predicates, while Baltin permits bar-level projections to function as syntactic predicates. In this respect, our approach is similar to Baltin's.

The choice of theory determines the bar level of a syntactic predicate. For instance, if one (like us) adopts Kuroda's VPISH, according to which the base position of the subject is [Spec, VP], predicates then should be V$'$-projections. On the other hand, if one

assumes with Koopman and Sportiche (1991) and Heycock (1994) that the subject starts from the position outside of the VP, then the predicate is the VP. This difference in the bar level of the syntactic predicate carries over to SCs and other categories that may serve as syntactic predicates.

Since we will claim in the text that FQs are left-adjoined to syntactic predicates of their host NPs, whichever version of VPISH one assumes, our analysis remain valid. If the level of projection of syntactic predicates is XP, all we have to do is shift from X' to XP the level of projection to which an FQ is adjoined.

[12] We distinguish the FQ in (35) from afterthoughts exemplified in (i).

    (i) a. The children are doing their best, all of them.

        b. We are drunk, all of us.

See the argument in section 4.4.1.

[13] For reasons unclear to us, C' seems not to function as a syntactic predicate of an element in [Spec, CP], as in (i).

    (i) *the books $[_{CP}Op_i [_{C'} all [_{C'} that [_{IP} t_i$ are read by John]]]]

Our predication-based analysis, as it stands, predicts that C' is a syntactic predicate of the operator (Op) because the C' is in a Spec-X' relation with the Op. Hence, an FQ from the operator would be wrongly allowed. One potential solution to this problem is to assume that elements in A'-positions cannot serve as subjects of syntactic predicates.

[14] The structure in (37) is a slightly different from the one Heycock (1994) proposes. She assumes with Koopman and Sportiche (1991) that the level of projection of syntactic predicates is XP (but not X'). Thus, her original structure of (37) is as follows:

    (i) $[_{IP}Mary_i [_{I'}may [_{VP} t_i' [_{VP} be [_{AP} t_i [_{AP} mistaken]]]]]]$.

See also note 11.

[15] There remains a problem concerning French pre-Infl FQs that seemingly casts doubt on our analysis. French pre-Infl FQs are not permitted like English ones, as in (i).

(i) *[$_{IP}$Les enfants tous [$_{I'}$vont partir]].

the children all   go   leave

'The children all will leave'

The FQ preceding the auxiliary <u>vont</u> is not allowed. To account for (i), we claim that there is an independent factor that disallows the FQ. Namely, the adverbial status of FQs precludes French FQs from appearing in the pre-Infl position. As Pollock (1989) claims, the pre-Infl position in French is not available for adverbs, as in (i).

(i) *[$_{IP}$Les enfants bientôt [$_{I'}$vont partir]].

'The children soon will go'

Thus, we conclude that French pre-Infl FQs are not allowed because the position is not available for adverbs.

[16] It should be noted, however, that <u>each</u> may appear post-verbally, as in (i).

(i) The men saw two women each.

We follow Safir and Stowell (1987) in differentiating this usage of <u>each</u> from adverbial usage of <u>each</u> (i.e., FQs). They claim that the former type of <u>each</u> is adjoined to VPs, whereas the latter type modifies two nominals (in this case, the subject and the object) simultaneously.

[17] We assume that the subject of predicate nominals originates in [Spec, NP]; however, the following example seems to pose a problem for this claim:

(i) I consider the men all [$_{NP}$John's [$_{N'}$friends]].

Since the possessor phrase (<u>John</u>) preempts [Spec, NP], the SC-subject (<u>the men</u>) cannot originate in this position. One possible solution to this problem is to assume that there is a functional category FP which immediately dominates the predicate nominal (<u>John's friends</u>). Then, the relevant S-structure of (i) is as follows:

(i) •••[$_{IP}$[the men]$_j$ [$_{I'}$ (all)[$_{I'}$ INFL$_0$ [$_{FP}$t$_j$ [$_{F'}$ (all)[$_{F'}$ [$_{NP}$John's [$_{N'}$ friends]]]]]]]].

The SC-subject moves from [Spec, FP] to [Spec, IP]. The subject has a syntactic predication relation both with F' and with I'. Thus, there are

two possible positions in which an FQ may occur. Lack of space precludes us discussing the categorial status of FP; however, some category like FP is independently necessary to deal with the following example with the SC-predicate fronted:

(ɪ) $[_{FP}t_j[_{F'}[_{NP}$John's friends]$]]_k$,$[_{IP}$I consider$[$Bill$_j$ $t_k]]$.

Given that the ISH is assumed, and that only maximal projections and heads can move, we cannot account for this example without appealing to the presence of the category FP.

[18] We assume that SC-predicates are selected by the phonetically null head I. In this sense, we regard SC-predicates as overt arguments of the head I. Given this assumption, FQs adjoined to the "null-head" I'-predicate in SCs successfully meet the requirement in (59). Consider:

(i) I consider $[_{SC(=IP)}$ [the students]$_i$ $[_{I'}$all$[_{I'}$ INFL$_0$ $[_{AP}t_i$ honest $]]]]$.

The phonetically-null head I takes the SC-predicate <u>honest</u> (i.e., an overt argument) as its complement. The same explanation holds for FQs adjoined to the I'-predicate in ordinary sentences without auxiliaries like (i).

(i) $[_{IP}$[the students]$_i$ $[_{I'}$all$[_{I'}$ INFL$[_{VP}t_i$ played tennis]$]]]$.

The empty head I in (i) takes the predicate (i.e., an overt argument) as its complement.

[19] There are some problematic data which indicate that FQs in the <u>to</u>-dative are not always allowed. Consider the following examples:

(i) a.?*John pushed the carts both to the parking lot.

b. *I explained the facts both to my parents.

c. *Mary donated her books all to the library.

It seems that some kinds of semantic factors cause the unacceptability of (i). As we have seen in 4.4.1, semantic factors may cause syntactically-licensed FQs to be disallowed. We are not sure of the exact factors at the moment, leaving this issue unsolved.

[20] Larson (1990:628-629) suggests that depictive predicates, like resultatives, have the VP-shell structure. On the other hand, Hornstein and Lighthoot (1987), as cited in (11) in the text, claim that depictive (and circumstantial) predicates form SCs with PRO subjects. Whichever

analysis is adopted, the predication-based analysis predicts that FQs from the object are allowed to co-occur with depictive predicates.

(i)   John [$_{VP_1}$ ate$_j$ [$_{VP_2}$ the carrots [$_{V'}$ both [$_{V'}$ t$_j$ raw]]]].

(i)   John [$_{VP}$ [$_{V'}$ ate$_j$ [the carrots]^1 [$_{IP}$ PRO$_j$ ^{1} [$_{I'}$ (both) [$_{I'}$ INFL$_0$ [$_{AP}$ t$_j$ [$_{A'}$ (both) [$_{A'}$ raw]]]]]]]].

In Larson's VP-shell structure in (i), the V_2'-projection (ate raw) is a syntactic predicate of the object the carrots in [Spec, VP$_2$]; therefore, the V_2'-predicate licenses an FQ from the object. In Hornstein and Lighthoot's structure in (i), on the other hand, the PRO subject is in a syntactic predication relation both with A′ and with I′; consequently, there are two possible positions where an FQ may be licensed.

[21]   The following data show IPCs behave like double object constructions when gaps are involved.

(i) a.   John gave a record to Mary, and Bill e a tape.

[e=gave to Mary]

b.   *John gave a record to Mary, and Bill e to Alice.

[e=gave a record]

(i) a. (?)John kissed Mary on the cheek, and Tony e Nancy.

[e=kissed on the cheek]

b.   #John kissed Mary on the cheek, and Tony e on the forehead.

[e=kissed Mary]

If Larson is correct in claiming that gapping can be used as a constituency test, the parallelism between (i) and (i) provides evidence that IPCs have VP-shell structures. More specifically, the sequences gave to Mary and kiss on the cheek in the first conjunct of (ia) and (ia) form a constituent, respectively.

Besides, a sentence with a pure adjunct like yesterday, parallels DOCs and IPCs with respect to gapping.

(i) a. (?)John hit Mary yesterday, and Tony e Nancy. [e=hit yesterday]

b.   #John hit Mary yesterday, and Tony e today. [e=hit Mary]

This parallelism seems to provide support for Larson's treatment of sentences with a monotransitive and an adjunct in a manner similar to the treatment of dative constructions.

[22] For reasons unknown to us, even subcategorized adverbs cannot license an FQ when they are included in syntactic predicates with null heads, as in (i).

(i) a. *John worded the letters both carefully.

    b. *The ladies at the party dressed all elegantly.

If the examples, as we have assumed, have VP-shell structures, then we erroneously predict that the FQs in (i) are allowed since the empty-headed V'-predicates include the subcategorized adverbs (i.e., arguments). Thus, (i) may constitute counterexamples to our analysis.

    There is, however, an alternative way to account for the deviancy of the FQs preceding any kinds of adverbs--namely, rejecting the VP-shell structure of sentences with a monotransitive and an adverb. Instead, we may adopt a rather conventional approach to adverbs, according to which adverbs occupy higher adjoined positions. If we take this approach, the sentence, *I saw the boys both yesterday, will have a structure something like (ï) (irrelevant parts omitted):

(ï) *I [vp [v' saw the boys] both yesterday].

In this structure, the pure adjunct yesterday is right-adjoined to the V'-projection. Given this structural representation, we can rule out this sentence straightforwardly. This is because the host NP and the adverb are not in a Spec-X' relation and because the host NP fails to c-command the FQ. Since there is controversy concerning Larson's neutralizing the structural distinction between arguments and adjuncts, we need further inquiry to decide between these two complementary approaches. Thus, we leave this issue to future research. See also note 21.

[23] Although we follow Jackendoff (1990) in regarding the for-phrase as an adjunct, this does not mean that we reject the VP-shell analysis of the for-dative. Under Larson's analysis, whether an element is an argument or an adjunct does not result in any structural difference. In other words, the verb takes an element as its complement regardless of its argument status.

    We have ascribed the deviancy of FQs preceding the for-phrase to the adjunct status of the for-phrase; however, the phrase structurally occupies the same position as to-phrase. Thus, the for-dative can also

undergo Dative Shift. In Beneficiary DOCs, the "demoted" direct object is an argument like the direct object in Recipient DOCs; therefore, we predict that an FQ adjoined to the "null-head" syntactic predicate V' fulfills the requirement in (70). This prediction is borne out by the acceptability of (i).

(i) I bought the men all some candy.

References

Akiyama, Masahiro (1994) "On Quantifier Floating," English Linguistics 11, 100-123.

Baltin, Mark R. (1982) "A Landing Site Theory of Movement Rules," Linguistic Inquiry 13, 1-38.

Baltin, Mark R. (1995) "Floating Quantifiers, PRO, and Predication," Linguistic Inquiry 26, 199-248.

Bowers, John (1993) "The Syntax of Predication," Linguistic Inquiry 24, 591-656.

Burton, Strang and Jane Grimshaw (1992) "Coordination and VP-Internal Subjects," Linguistic Inquiry 23, 305-313.

Carrier, Jill and Janet H. Randall (1992) "The Argument Structure and Syntactic Structure of Resultatives," Linguistic Inquiry 23, 173-234.

Chomsky, Noam (1981) Lectures on Governing and Binding, Foris, Dordrecht.

Chomsky, Noam (1993) "A Minimalist Program for Linguistic Theory," The View from Building 20: Essays in Linguistics in Honor of Sylvain Brombergerin, eds. by Kenneth Hale and Samuel J. Keyser, 1-52, MIT Press, Cambridge, MA.

Doetjes, Jenny (1992) "Rightward Floating Quantifiers Float to the Left," The Linguistic Review 9, 313-332.

Fiengo, Robert and Howard Lasnik (1976) "Some Issues in the Theory of Transformations," Linguistic Inquiry 7, 182-191.

Heycock, Caroline B. (1994) Layers of Predication: the Non-lexical Syntax of Clauses, Garland, New York.

Hornstein, Norbert and David Lighthoot (1987) "Predication and PRO," Language 63, 23-52.

Jackendoff, Ray (1990) "On Larson's Analysis of the Double Object Construction," Linguistic Inquiry 21, 427-456.

Jaeggli, Oswald (1982) Topics in Romance Syntax, Foris, Dordrecht.

Jespersen, Otto (1933) A Modern English Grammar on Historical Principles, vol. 7, George Allen & Unwin, London.

Keyser, Samuel J. and Thomas Roeper (1984) "On the Middle and Ergative Constructions," Linguistic Inquiry 15, 381-416.

Koopman, Hilda and Dominique Sportiche (1991) "The Position of Subjects," Lingua 85, 211-258.

Kuroda, Shige-Yuki (1988) "Whether We Agree or Not: A Comparative Syntax of English and Japanese," Lingvisticae Investigationes 12, 1-47.

Lasnik, Howard and Mamoru Saito (1992) Move α: Conditions on Its Application and Output, MIT Press, Cambridge, MA.

Larson, Richard K. (1988) "On the Double Object Construction," Linguistic Inquiry 19, 335-391.

Larson, Richard K. (1990) "Double Objects Revisited: Reply to Jackendoff," Linguistic Inquiry 21, 589-632.

Maling, Joan M. (1976) "Notes on Quantifier Postposing," Linguistic Inquiry 7, 708-718.

Martin, Roger (1992) "On the Distribution and Case Feature of PRO," Ms., University of Connecticut.

Massam, Diane (1989) "Par/Whole Constructions in English," WCCFL 8, 236-246.

Pollock, Jean-Yves (1989) "Verb Movement, Universal Grammar, and the Structure of IP," Linguistic Inquiry 20, 365-424.

Poutsma, Hendrik (1904-29) A Grammar of Late Modern English, Noordhoff, Groningen.

Quirk, Randolph, Sidney Greenbaum, Geoffrey Leech, and Jan Svartvik (1985) A Comprehensive Grammar of the English Language, Longman, London.

Radford, Andrew (1988) Transformational Grammar: A First Course, Cambridge University Press, London.

Rizzi, Luigi (1990) Relativized Minimality, MIT Press, Cambridge, MA.

Roberts, Ian (1988) "Predicative APs," Linguistic Inquiry 19, 703-710.

Rothstein, Susan (1983) "The Syntactic Forms of Predication," Doctoral dissertation, MIT.

Safir, Ken and Tim Stowell (1987) "Binominal Each," NELS 18, 426-450.

Sportiche, Dominique (1988) "A Theory of Floating Quantifiers and Its Corollaries for Constituent Structure," Linguistic Inquiry 19, 425-449.

Tanaka, Hideki (1994a) "An Analysis of Object-Oriented Floating Quantifiers and Small Clauses in English," Tsukuba English Studies 13, 147-178, University of Tsukuba.

Tanaka, Hideki (1994b) "Stranding vs. Base Analyses of English Floating Quantifiers," MA Thesis, University of Tsukuba.

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