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An Analysis of Object-Oriented Floating Quantifiers and Small Clauses in English*

Hideki TANAKA

1. Introduction

Some quantifiers such as all, both, and each, can occur in positions separated from the determiner position of NPs they quantify (i.e., host NPs). Such quantifiers displaced rightward are so-called floating quantifiers (henceforth FQs).

There is a distributional asymmetry between FQs from subjects (henceforth subject-oriented FQs) and FQs from objects (henceforth object-oriented FQs): Object-oriented FQs are usually disallowed.[1] The following paradigm illustrates this asymmetry:

A. Subject-oriented FQs

(1) a. The men will have all been eating. (Dougherty 1970)
b. The men will {all/both/each} drink a beer. (ibid.)

B. Object-oriented FQs

(2) a. *They read the papers both yesterday. (Fiengo-Lasnik 1976)
b. *I looked for the textbooks both quickly.

Object-oriented FQs are, however, not always illicit, as exemplified by the examples in Fiengo and Lasnik (1976), Maling (1976), and Bowers (1993):

(3) a. He gave the boys each a book.
b. The tooth fairy promised the kids each a quarter.
c. I painted the walls both red.
d. He looked the twins both in the eye (and said...).
e. We consider the men all {crazy/fools}.

These examples indicate that object-oriented FQs may be licensed in some cases despite their restricted distribution.

In this paper I will mainly concentrate on object-oriented FQs and attempt to answer the question of why the object-oriented FQs in (3), rather than (2), are permitted. My main claim is that host NPs of licit object-oriented FQs serve as subjects of small clauses but the host NPs of

illicit object-oriented FQs do not. We will demonstrate that if this is the case, we can treat object-oriented FQs along the lines of Sportiche's (1988) analysis of subject-oriented FQs.

The organization of this paper is as follows. Section 2 will be devoted to reviewing Sportiche's (1988) analysis and pointing out some problems with it. In section 3, following Suzuki (1988) and Miyagawa (1990), I will propose that small clauses are AGRPs. Adopting the Internal Subject Hypothesis (ISH) and Stowell's (1983) subject across categories proposal, I will assume that the subject of a small clause is base-generated in the SPEC position of its predicate and moves into [SPEC, AGRP]. In section 4 we will demonstrate that this ISH-based analysis of small clauses deals with object-oriented FQs along the lines of Sportiche's analysis of subject-oriented FQs. In section 5, we will attempt to extend the ISH-based analysis to another type of small clause, namely possessive small clauses, which are semantically different from typical small clauses. We will claim that if both types of small clauses are syntactically the same, we can give a unified account of object-oriented FQs in both types. In section 6, concluding remarks will be offered.

2. Sportiche's (1988) Analysis

In this section we first review Sportiche's (1988) analysis of subject-oriented FQs for the sake of argument. Next, we look at his analysis of object-oriented FQs.

2.1 Analysis of Subject-Oriented FQs

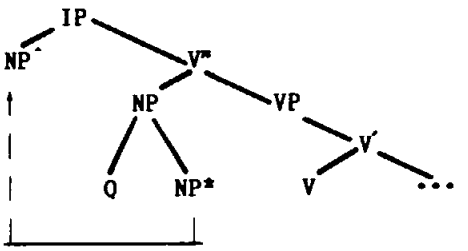
Sportiche regards subject-oriented FQs as stranded Qs, pointing out that host NPs of Qs may move upward without pied-piping them. In other words, the presence of FQs indicates that their host NPs undergo movement for some reason. On the basis of the ISH, he argues that host NPs move for Case reasons. Under the ISH, the subject of a sentence is base-generated within the predicate phrase (VP) and moves to [SPEC, IP] (cf. Kuroda (1988), Fukui (1986), Kitagawa (1986), and Koopman and Sportiche (1991)).[2]

Sportiche makes a crucial proposal on FQs:

(4) Q is adjacent to NP* and the syntactic relation between NP^ and the Q follows from the anaphoric relation between NP^ and NP*.
(Sportiche 1988: 447)

As a result, a sentence with a Q has the structure schematically illustrated below:

(5)



(Sportiche 1988: 425 with slight modifications)

In the diagram in (5), the subject is base-generated in the position NP*, and receives a θ-role from the verb at D-Structure. In English, the subject moves into the position NP^ and receives a nominative Case from INFL at S-Structure. Sportiche argues that when this movement takes place, the subject may strand a Q which is adjacent to it. Thus, he regards FQs as Qs stranded by subjects.

Let us consider the following examples:

(6) a. All the boys have read this book.
b. The boys have all read this book.

At D-Structure, the sentences in (6a-b) share the representation in (7), where the subject NP the boys occupies [SPEC, V''] with the Q all:

(7) $[_{IP}$ e$[_{I'}$ have$[_{V''}[_{NP}$ all$[_{NP*}$ the boys$]][_{VP}$ read the books$]]]]$

At S-Structure, each sentence has a distinctive representation as in (8). In (8a) the subject in NP* pied-pipes the Q and moves into the [SPEC, IP] position, leaving a trace of the whole NP. Thus, the linear order of (6a) is derived. In (8b) the subject in NP* strands the Q and leaves its own trace, hence a subject-oriented FQ appears in (6b).

(8) a. $[_{IP}[_{NP_i}$ All$[_{NP*}$ the boys$]][_{I'}$ have$[_{V''}$ t_i $[_{VP}$ read the books$]]]]$
b. $[_{IP}[_{NP*_i}$ The boys$][_{I'}$ have$[_{V''}[_{NP_i}$ all t_i $][_{VP}$ read the books$]]]]$

In both (8a) and (8b), the subjects in the position NP* leave a trace in

the V" position; consequently, even in the case of (8b), the FQ properly obtains a syntactic relation with its host NP in the position NP^.

The above is a broad-brush picture of Sportiche's analysis for subject-oriented FQs.

2.2 Analysis of Object-Oriented FQs

Sportiche notices that FQs from objects may occur, as in the following French examples:

(9) a. Jean a mis toutes les lettres dans la boîte.
John put all the letters in the box
b. Jean a mis les lettres <u>toutes</u> dans la boîte.
(Sportiche 1988: 439)

To deal with the object-oriented FQs in (9b), he makes the following claim:

(10) The presence of the Q, which quantifies over some NP^, reveals the presence of an empty NP* to which Q is adjacent.
(Sportiche 1988: 440)

On the basis of this claim, Sportiche offers the following structure for object-oriented FQs, which is parallel to the structure for subject-oriented FQs:

(11) NP^ ••• [$_{X"}$ Q [$_{NP*}$ e] XP] (ibid.)

He claims that XP is predicated of or bound by NP^, and the NP^ is a controller of the empty element in NP*. Given the basic representation in (11), (9b) has the following representation:

(12) Jean a mis [$_{NP_j}$ les lettres] [$_{P"}$ toutes [$_{NP*}$ e$_j$] [$_{PP}$ dans la boîte]].
(Sportiche 1988: 439)

Sportiche argues that an empty element occupies [SPEC, PP] and is controlled by the object NP <u>les lettres</u>.[3] Thus, the FQ <u>toutes</u> is associated with the element controlled by its host NP.

There are, however, some questions left open. First, Sportiche does not identify the empty element in (11). He merely suggests that PRO and pro could be two plausible candidates for <u>e</u>.

Secondly, Sportiche assumes that every category (XP) has a specifier

position (X^m), and he regards X^m (X=N, V, A, P) as a small clause (henceforth SCs) (cf. Stowell (1983)). However, Sportiche is faced with a problem concerning the Binding Theory. Since it is widely known that SCs serve as local domains under the Binding Theory, he should say that every X^m serves as a binding domain. This is not compatible with the widely-accepted assumption that only NP and IP can constitute binding domains (cf. Chomsky 1986a).

To answer these two questions, we make some assumptions. We adopt Stowell's (1983) claim that every category (X) has a [SPEC, XP] position. Contrary to Sportiche, we identify the XP, which corresponds to X^m in (11), not as an SC but rather as a predicate of an SC (see note 3). We assume that SCs are projections of AGRs. We also adopt Hornstein and Lighthoot's (1987) claim that PRO as well as overt NPs may function as the subject of SCs. Furthermore, we assume that SCs, like ordinary clauses, are subject to the ISH: The subject of SCs is base-generated in the SPEC position of their predicates and moves into [SPEC, AGRP]. We attribute the trigger of this movement to the Extended Projection Principle or strong [N] features of AGR (cf. Chomsky 1981, 1992).

Given these assumptions, we can answer the two questions above. (i) Traces of either overt NPs or PRO occupy [SPEC, XP], which corresponds to the NP^*-position in (11), because these elements are base-generated in and move from this position. (ii) Since the categorical status of SCs is AGRP(=IP), they serve as binding domains. This is consistent with the assumption that only IP and NP constitute binding domains.

In this section, we have reviewed Sportiche's (1988) analysis and have pointed out that his analysis of object-oriented FQs has some unsolved problems.

3. Small Clauses as AGRPs and the Internal Subject Hypothesis

Suzuki (1988) and Miyagawa (1990) propose that SCs are IPs (i.e., AGRPs). In this section, we first review some of their arguments for AGRP-analysis of SCs. Next, we argue that SCs, like ordinary clauses, are subject to the ISH: Subjects of SCs (henceforth SC-subjects) are base-generated in the SPEC position of predicates of SCs (henceforth SC-predicates) and move to [SPEC, AGRP].

3.1 Small Cluses as AGRPs

Miyagawa (1990) offers a pair of examples that indicates SCs serve as binding domains. The bracketed parts in (13) should be local domains where anaphors must be bound and pronominals be free:

(13) a. John considers [the men angry at each other].
b. *The men consider [John angry at each other]. (Safir 1983)

Given the widely-accepted assumption that only NP and IP can constitute binding domains, the sequence John angry in (13) must be either NP or IP(=AGRP). Since the sequence has a clausal meaning, it is plausible to identify the category of the sequence as AGRP.

From the facts in (14-16), Miyagawa claims that SCs parallel ordinary clauses and Exceptional Case Marking (ECM) constructions as to the occurrence of expletives:

(14) SCs
a. I consider *(it) obvious that he is lying. (Stowell 1983)
b. I consider *(it) unlikely that he will win.(Kitagawa 1985)

(15) Ordinary Clauses
a. *(It) is obvious that he is lying.
b. *(It) is unlikely that he will win.

(16) ECM Constructions
a. I consider *(it) to be obvious that he is lying.
(Stowell 1983)
b. I consider *(it) to be unlikely that he will win.

In light of the EPP, which requires every clause to take a subject, she concludes that SCs are clausal (i.e., AGRPs).

Let us turn to Suzuki's (1988) argument for AGRP-analysis of SCs. He claims that AGRP-analysis of SCs is upheld by the fact that sentential adverbs and the negative not occur in SCs:

(17) a. I consider Mary evidently proud of her family.
b. I consider that building probably under construction.
c. I consider John possibly a genius.

(18) a. I consider Mary not happy with the result.
b. I consider that car not for sale.
c. I consider John not a genius. (Suzuki 1988:61)

He suggests that the sentential adverbs and the negative not originate in the head position of IPs for scopal reasons; consequently, the data in (17-18) favor IP-analysis of SCs.[4,5]

In this subsection, we have reviewed Suzuki's and Miyagawa's arguments in favor of the IP(=AGRP)-analysis of SCs.

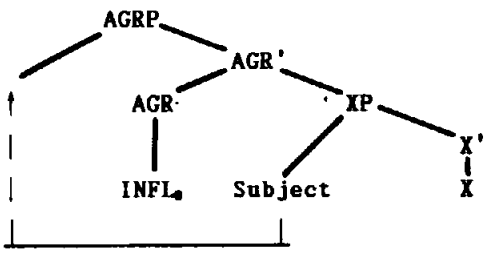
3.2 Small Clauses under the Internal Subject Hypothesis

We are in a position to analyze SCs as having the following schematic representation:

(19) $[_{IP}$ NP $[_{I'}$ INFL^0 XP]], where X = N, V, A, and P

We adopt Stowell's (1983) subject across categories proposal: "Subject position should be generalized across syntactic categories." If SCs are also subject to the ISH, SC-subjects are base-generated in [SPEC, XP] and move into the [SPEC, AGRP] to meet the requirements of the EPP or strong [N] features of AGR.[6] Accordingly, SCs may have the structure illustrated below:

(20)



The referential possibilities of anaphors in fronted VPs, which is discussed in Huang (1993), may support the ISH-based analysis of SCs in (20). Huang claims that the anaphor in a fronted complex wh-NP has a wider range of coreferential possibilities, as compared with the anaphor in a fronted VP:

(21) a. John$_j$ thought Bill$_k$ liked pictures of himself*$_{j/k}$.
b. Which pictures of himself$_{j/k}$ did John$_j$ think Bill$_k$ liked?

(22) a. John$_j$ thinks Bill$_k$ will never criticize himself*$_{j/k}$.
b. Criticize himself*$_{j/k}$ John$_j$ thinks Bill$_k$ never will.

(Bowers 1993: 623)

The pair of sentences in (21) indicates that the anaphor in a wh-moved NP has a wider range of coreferential possibilities than the anaphor in an NP

in situ. More specifically, the anaphor in a wh-moved NP may be coreferential with a matrix subject as well as an embedded subject, whereas the anaphor in an NP in situ can be coreferential only with an embedded subject. On the other hand, the pair in (22) shows that even after a VP including an anaphor undergoes VP-fronting, coreferential possibilities of the anaphor do not change.

Huang argues that if some version of the ISH is assumed, the contrast between (21b) and (22b) can be explained. Under the ISH, (22b) has the following representation:

(23) [t_k Criticize himself-$_{j/k}$] John$_j$ thinks Bill$_k$ never will t.
(Bowers 1993: 623 with slight modifications)

As we have already seen in section 2, the subject is base-generated in [SPEC, VP] and moves into the [SPEC, AGRP]. In (23) the fronted VP includes a trace of the embedded subject Bill. Consequently, the anaphor in the fronted VP should be coreferencial only with the embedded subject.

If we extend VP-fronting to a more general process such as Predicate-fronting, then we can prove our analysis in (20) to be valid by observing coreferential possibilities of anaphors in fronted SC-predicates.[7] (The bracketed portions in the (a) examples in (25-27) are assumed to form an SC in the literature.):

(24) a. John$_j$ knows that Bill$_k$ bought a picture of himself-$_{j/k}$.
b. John$_j$ knows that, a picture of himself$_{j/k}$, Bill$_k$ bought.
(25) a. John$_j$ knows that Mary made [Bill$_k$ angry with himself-$_{j/k}$].
b. John$_j$ knows that, angry with himself-$_{j/k}$, Mary made Bill$_k$.
(26) a. They$_j$ know that Mary wants [the men$_k$ off each other-$_{j/k}$'s teams].
b. They$_j$ know that, off each other-$_{j/k}$'s teams, Mary wants the men$_k$.
(27) a. John$_j$ knows that Mary finds [Bill$_k$ a master of himself-$_{j/k}$].
b. John$_j$ knows that, a master of himself-$_{j/k}$, Mary finds Bill$_k$.

The pair of sentences in (24) is the case where a verb takes not an SC but an object as its complement. In (24b) the anaphor in the fronted object is ambiguous: The anaphor may be coreferential with either the embedded subject or the matrix subject.

In contrast, in the (b) examples in (25-27), the anaphors in the fronted predicates are coreferential only with the embedded subjects. The pair in (25) shows that the predicate AP (angry with himself) contains a trace of the SC-subject (Bill). The pair in (26) shows that the predicate PP (off each other's teams) contains a trace of the SC-subject (the men). The pair in (27) shows that the predicative nominal (a master of himself) contains a trace of the SC-subject (Bill). The referential possibilities of the anaphors in (25-27) support our ISH-based analysis of SCs.

In this section, following Miyagawa (1990) and Suzuki (1988), I have proposed that SCs are AGRPs. I have also claimed that SCs are subject to the ISH like ordinary clauses. Then, I have verified that the ISH-based analysis of SCs is correct by observing coreferential possibilities of anaphors in fronted SC-predicates.

4. Small Clauses and Object-Oriented Floating Quantifiers

In this section, we argue that object-oriented FQs can be dealt with in parallel with subject-oriented FQs under the ISH-based analysis of SCs proposed in section 3.

4.1. Small Clauses

In this subsection, I concentrate on FQs in SCs. Before going into any details, let us informally define SCs as in (28):

(28) A verbless sequence involving a subject-predicate relation constitutes an SC.

Given this informal definition, a sequence should involve a subject-predicate relation to be analyzed as an SC.

Let us consider the following examples (The brackets represent SCs.):

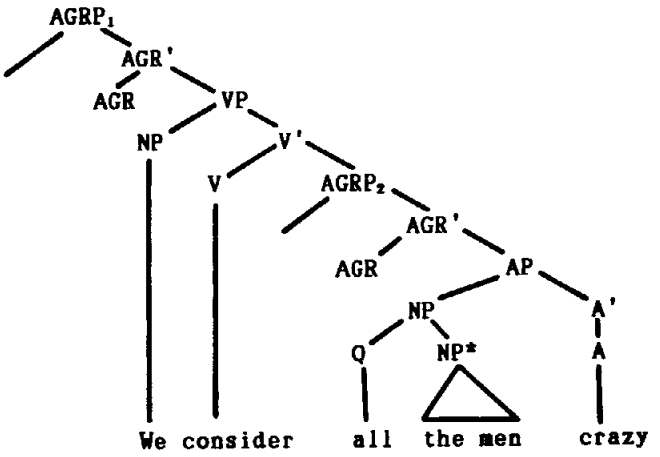
(29) a. We consider [the men all crazy]. (=3e)
b. I found [these sentences both unacceptable].
c. Her attitude made [her plans all almost impossible].
d. John regarded [his friends all as psychos].
e. The boss expected [the clerks all in the office at ten o'clock].

f. We consider [the men all fools]. (=3e)

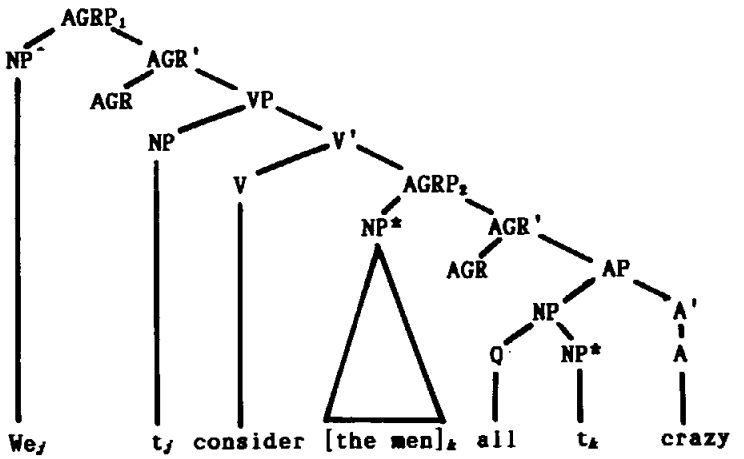
g. I saw [the kids all playing in the swimming pool].

In sentences (29a–c), we regard the bracketed portions as SCs because the adjective phrases (crazy, unacceptable, and impossible) are predicated of the objects (the suspects, these sentences, and her plans). The sentence in (29a) has the following D- and S-Structure representations:

(30) a. D-Structure



b. S-Structure



As (30a) shows, the subject (We) and the SC-subject (all the men) are respectively base-generated in [SPEC, VP] and [SPEC, AP] at D-structure. As (30b) shows, each element moves into [SPEC, $AGRP_1$] and [SPEC, $AGRP_2$] at

S-Structure to satisfy the requirement of the EPP or strong [N] features of AGR. The SC-subject strands the Q (all) when moving into [SPEC, $AGRP_2$]. As a result, the object-oriented FQ is correctly derived.

Let us turn to (29b-c). In what follows, we illustrate only internal structures of SCs for convenience' sake. The sentences in (29b-c) have the following representations:[8]

(29) b'. I found $[_{AGRP}[_{NP*}$ these sentences$][_{AP}$ both $t_i[_{A'}$ unacceptable $]]$.

c'. Her attitude made $[_{AGRP}[_{NP*}$ her plans$][_{AP}$ all $t_i[_{A'}$ almost impossible$]]$.

The SC-subjects (these sentences and her plans) strand the Qs (all) in their base positions (i.e., [SPEC, AGRP]). Thus, our ISH-based analysis of SCs correctly explains the licitness of the object-oriented FQs in (29b-c).

In sentences (29d-e), the PPs (as psychos and in the office) are predicated of the objects (his friends and the clerks). Thus, we analyze the objects and the following PPs as constituting SCs. Our analysis assigns the following representations to the sentences:

(29) d'. John regarded $[_{AGRP}[_{NP*}$ his friends$][_{PP}$ all $t_i[_{P'}$ as psychos $]]$.

e'. The boss expected $[_{AGRP}[_{NP*}$ the clerks$][_{PP}$ all $t_i[_{P'}$ in the office at ten o'clock$]]$.

The SC-subjects leave the Qs in [SPEC, PP] when moving into [SPEC, AGRP], hence the licitness of the object-oriented FQs in (29d-e).

In (29f-g), the predicative nominal (idiots) and the VP (playing in the swimming pool) are predicated of the objects (her friends and the kids). The sentences have the following representations:

(29) f'. We consider $[_{AGRP}[_{NP*}$ the men$][_{NP}$ all $t_i[_{N'}$ fools$]]$.

g'. I saw $[_{AGRP}[_{NP*}$ the kids$][_{VP}$ all $t_i[_{V'}$ play in the swimming pool$]]$.

The SC-subjects move to [SPEC, AGRP] without pied-piping the Qs; accordingly, object-oriented FQs appear. Our analysis can again give a natural account of the object-oriented FQs.

Let us look at several examples of illicit object-oriented FQs:

(31) a. *I found the missing books all.
b. *I read the papers both yesterday. (=2a)
c. *I looked for the textbooks both quickly. (=2b)
d.??I worded the letters all in a careful manner.
e. *John told the women each that Henry was crazy.

Our analysis predicts that object-oriented FQs are not allowed in (31) because the verbs do not take SC-complements. Given the informal definition of SCs in (28), it is implausible to claim that the objects and the following elements in (31) constitute SCs. This is because the post-verbal sequences in (31) appear not to include subject-predicate relations. The sentence in (31a) does not even have a post-object element. If the post-verbal strings in (31b-f) formed SCs, the following corresponding sentences would be appropriate:

(31) b'. *The papers are yesterday.
c'. *The textbooks are quickly.
d'. *The letters are in a careful manner.
e'. *The women are that Henry was crazy.

All of the sentences in (31) are deviant from normal subject-predicate relations. In contrast, sentences corresponding to the bracketed portions in (29) are grammatical:

(32) a. The men are crazy.
b. These sentences are unacceptable.
c. Her plans are almost impossible.
d. His friends are psychos.
e. The clerks are in the office at ten o'clock.
f. The men are fools.
g. The kids are playing in the swimming pool.

Given that the post-verbal strings in (31) do not constitute SCs, the sentences in (31) have the following representations, respectively:

(33) a. I [$_{VP}$found [$_{NP}$the missing books] all]
b. I [$_{VP}$read [$_{NP}$the papers] both yesterday]

c. I [$_{VP}$looked for [$_{NP}$the textbooks] both quickly]

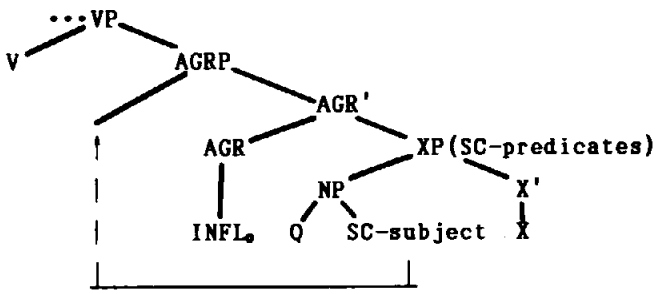
d. I [$_{VP}$worded [$_{NP}$the letters] all [$_{PP}$in a careful manner]]

e. John [$_{VP}$told [$_{NP}$the women] each [$_{CP}$that Henry was crazy]]

In (33) the object-oriented FQs are not associated with traces of their host NPs because the NPs do not move like SC-subjects at S-Structure.[9] Given Sportiche's claim in (10), FQs do not appear unless they are adjacent to empty elements (controlled by their host NPs). Thus, our analysis correctly rules out the object-oriented FQs in (31) in combination with Sportiche's claim in (10).

To sum up, when an object-oriented FQ appears in a sentence, the sentence has the structure schematically illustrated below:

(34)



The structure in (34) is compatible with Sportiche's claim in (10) because when SC-subjects move into [SPEC, AGRP], FQs are properly adjacent to resulting traces. Thus, we can give an account of object-oriented FQs in (typical) SCs, using Sportiche's analysis for subject-oriented FQs. In the next subsection, we treat object-oriented FQs in what is called the absolute <u>with</u>-constructions.

4.2 Absolute <u>With</u>-Constructions

The following sentences involve <u>with</u>-constructions:

(35) a. I don't want you preparing food with [your hands dirty].

b. With [the kitchen a mess], how can I possibly cook anything?
(Radford 1988: 328)

Beukema and Hoekstra (1984, B & H), Hoekstra (1988), and Radford (1988) claim that the bracketed strings in (35) form SCs. Let us briefly review some pieces of evidence that support the SC-analysis of <u>with</u>-constructions.

First, Radford (1988: 328) points out that what he calls subject expressions (e.g., subject idiom chunks and pleonastic pronouns) can occur immediately after the preposition with:

(36) a. With [the cat out of the bag], there's not much point in trying to hide the truth anymore.
b. What with [it raining all day long], I didn't get a chance to hang the washing out.

He says that since the cat and it have no independent (idiomatic) meanings and typically appear in subject position, the NP immediately following the preposition is not a complement of the preposition but rather a subject of a small clause complement.

Secondly, B & H (1984) and Hoekstra (1988), observing the Dutch equivalent of with-constructions, argue for the SC-analysis of the constructions. In Dutch there is a rule called R-Suppression (cf. Riemsdijk (1978)). This rule applies when prepositions take non-human personal pronouns as their complements. More specifically, the rule changes such pronouns into adverbs with R-forms, which are characterized by the phoneme /r/ and precede rather than follow the prepositions, as illustrated below:

(37) a. Jan zag het paard nadat Piet het zag.
John saw the horse after Peter it saw
b. Jan keek naar het paard nadat Piet {er naar/*naar het} keek.
John looked at the horse after Peter {there at/at it} looked
(Hoekstra 1988: 110)

In (37a) the non-human pronoun het does not change into an R-form because it is a complement of a verb rather than a preposition. Since the pronoun is taken as a complement of the preposition naar in (37b), R-Suppression obligatorily changes the pronoun into an R-form and preposes it to the left of the preposition.

If the NP immediately following the preposition in with-constructions were a complement of the preposition, R-suppression would apply to non-human pronouns following met (a Dutch counterpart of with); however, this is not consistent with the facts:

(38) a. Met dat nog allemaal te doen, kunnen we beter dor werken.
With that still all to do can we better through work
'With all that still to be done, we had better continue with our work'

b. *Daar mee nog allemaal te doen, kunnen we ....
There with still all to do, can we ....

(Hoekstra 1988: 110)

In (38a) the non-human pronoun dat is not changed into an R-form and is allowed to follow the preposition met. On the other hand, the pronoun with an R-form Daar is not allowed to precede the preposition. On the basis of this contrast, B & H and Hoekstra conclude that the NP in with-constructions is not a complement of the preposition but rather the subject of an SC-complement.

Given that with-constructions involve SCs, our ISH-based analysis of SCs predicts that FQs appear in with-constructions. This prediction is borne out by the facts:

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

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

Since, under our analysis, the SC-subjects (the flowers and the brothers) are base-generated in the SPEC position of each predicate, they may strand the Qs (all and both) when moving to [SPEC, AGRP]. Hence, FQs can appear in with-constructions.

In this subsection, we have dealt with FQs in with-constructions. Our analysis correctly predicts that FQs may occur in the constructions. In the next section, we consider relations between object-oriented FQs and what is called secondary predicates.

4.3 Secondary Predicates

In the following sentence, there is another subject-predicate relation other than the primary subject-predicate relation (i.e., John left the room):

(40) John left the room happy.

In other words, happy is also predicated of the subject John. Let us call the predicate a secondary predicate and call such an additional relation between John and happy secondary predication. Roberts (1988a) classifies secondary predicates into three types, as exemplified below. (Each pair of subscripts represents the secondary predication.):

(41) a. John$_j$ left the room happy$_j$. (=40) (Circumstantial)
b. John drank the beer$_j$ flat$_j$. (Depictive)
c. John hammered the metal$_j$ flat$_j$. (Resultative)
(Roberts 1988a: 704)

Roberts points out that the AP in (41a) is predicated of the matrix subject (John), whereas the APs in (41b-c) are predicated of the objects (the beer and the metal). The difference between depictive and resultative predicates is that the former depict a property of the direct object, whereas the latter describe a result state of the direct object which has undergone actions denoted by primary predicates.

Let us look at object-oriented FQs in sentences involving secondary predicates:

(42) a. *John$_j$ ate the carrots both naked$_j$.
b. (?)John ate the carrots$_j$ both raw$_j$.
c. John hammered the metal sheets$_j$ both flat$_j$.

Object-oriented FQs can co-occur with depictive predicates as in (42b) and resultative predicates as in (42c), but not with circumstantial predicates as in (42a).

To explain the facts in (42), let us review Rizzi's (1990) analysis. Rizzi compares SCs with secondary predicates in terms of the extractability:

(43) a. [How intelligent]$_i$ do you consider John t_i? (Small Clause)
b. [How flat]$_i$ did she hammer the metal t_i? (Resultative)
c. *[How angry]$_i$ did he telephone t_i? (Circumstantial)
d. *[How raw]$_i$ did he eat the meat t_i? (Depictive)
(Rizzi 1990: 48 with slight modifications)

This paradigm reveals that, with respect to the extractability of predicates, only resultative predicates parallel SCs. On the other hand,

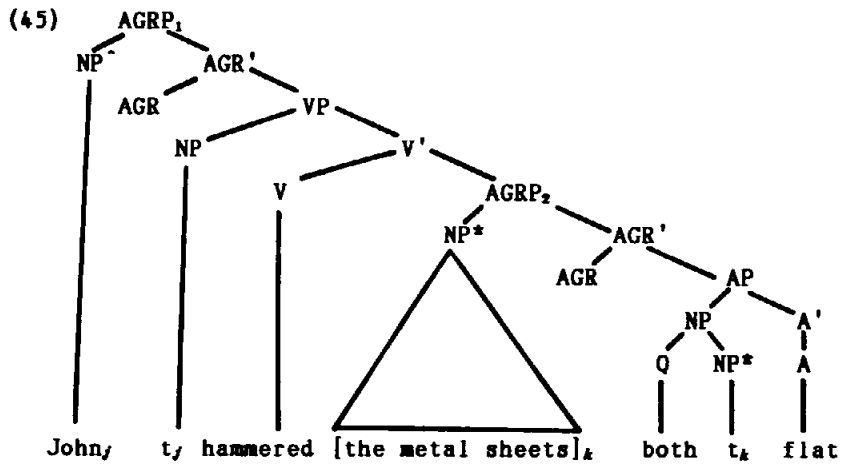
circumstantial and depictive predicates are not extractable.[18] Rizzi concludes that resultative predicates, but not depictive and circumstantial predicates, have the same structure as SCs:[11,12]

(44) a. ...[$_{VP}$[$_{V'}$ hammer [$_{SC}$ the metal flat]]] (cf. 43b)
b. ...[$_{VP}$[$_{V'}$ eat the meat] raw] (cf. 43c)
(Rizzi 1990: 49-50)

Rizzi claims that given the representations in (44), the difference in extractability can be explained by the head-government requirement on traces: Traces must be properly head-governed. He interprets properly governed as governed by X^0 within X'. In the representation in (44a), the resultative predicate (flat) is extractable because the verb (hammer) head-governs its the resulting trace within the immediate projection of the verb (i.e., V'). On the other hand, the depictive predicate (raw) in (44b) is not extractable because the verb (eat) does not properly head-govern the resulting trace and also because minimality precludes external head-government of the trace. The same explanation holds for circumstantial predicates: Resulting traces of circumstantial predicates are not properly head-governed, hence the nonextractability.

If we adopt Rizzi's claim that resultative predicates and SCs share the same structure, our analysis correctly predicts that object-oriented FQs co-occur with resultative predicates. The subject of resultative predicates moves from its base position, or [SPEC, AP], to [SPEC, AGRP]. The sentence in (42c) has the following S-Structure:

(45)



In (45) the SC-subject (the metal sheets) strands the Q in [SPEC, AP]; consequently, the object-oriented FQ occurs.

We are, however, faced with some problems to solve. First, given the representation of depictive predicates in (44b), our analysis erroneously rules out (42b). Since the object and a depictive predicate do not constitute an SC, there is no reason for the object to move at S-Structure (see note 9). Secondly, since we are based on the ISH, it is implausible to explain the facts in (42) by assuming that circumstantial and depictive predicates do not have a SPEC position, whereas resultative predicates do. Because circumstantial and depictive predicates also have subject-predicate relations with the subject or the object, these predicates should also have a SPEC position, where the subject is base-generated.

To overcome these problems, we make some modification in Rizzi's analysis of depictive (and circumstantial) predicates along the lines of Hornstein and Lighthoot (1987, H & L). They assign the following representations to depictive and circumstantial predicates:

(46) a. John INFL [$_{VP}$[$_{V'}$ate the carrots][$_{S}$PRO INFL$_{\phi}$ [$_{AP}$naked]]].
b. John INFL [$_{VP}$[$_{V'}$ ate the carrots][$_{S}$PRO INFL$_{\phi}$ [$_{AP}$raw]]].
(H & L 1987: 27 with slight modifications)

In H & L's framework, PRO may be governed contrary to the PRO Theorem, the general assumption that PRO should be always ungoverned. They claim that when PRO is governed, it behaves like an anaphor and is bound within its governing category; when PRO is ungoverned, it receives an arbitrary interpretation. Following Aoun and Sportiche (1981) and Aoun and Hornstein (1985), H & L define government as in (47a) and a governing category as in (47b):

(47) a. a (X°) governs b iff a and b share all maximal projections. If a governs XP, then a governs the corresponding X°
b. A governing category for a is the first clause or NP which contains a governor for a and a subject accessible to a.
(H & L 1987: 26)

They make some additional assumptions. First, S and S' are projections of INFL; therefore, S' is a maximal projection but S is not. Secondly, an empty INFL, written as INFL$_{\phi}$, cannot be a governor like ordinary INFL and

occurs only where there is no S' node.

Given these assumptions, PRO is governed in the matrix clause and achieves the status of anaphor in each case in (46). For this reason, the PRO must be coindexed with a c-commanding NP in its governing category. In (46a) the NP the carrots cannot c-command PRO because PRO is outside the minimal maximal projection containing the NP (i.e., the embedded VP); on the other hand, the subject John can c-command PRO because PRO is within the minimal maximal projection containing the subject NP. Consequently, only John can be coindexed with PRO, and this is consistent with the fact. In (46b) both the carrots and John can c-command PRO because PRO is within the minimal maximal projection of both of the NPs. H & L claim that John is an impossible or marked antecedent for PRO for the same reason that John is an impossible antecedent for PRO in a sentence such as John_j persuaded Bill_k [$\text{PRO}_{*j/k}$ to leave].

We adopt H & L's analysis in (46) and assume that PRO subjects, like NP subjects, move from [SPEC, AP] to [SPEC, AGRP(=S)] for the Case requirement (cf. Martin's (1992) argument of Null Case for PRO). The sentences in (42) have the following structures, respectively:

(48) a. *John^1 INFL [$_{VP}$[$_{VP}$ate the carrots][$_{AGRP}$(both) PRO^1_j INFL_0 [$_{AP}$(both) t_j naked]]].

b. John INFL [$_{VP}$[$_{V'}$ ate the carrots^1][$_{AGRP}$(both) PRO^1_j INFL_0 [$_{AP}$(both) t_j raw]]].

There are two possible positions for the FQs, as illustrated in (48). First, the PRO subject may strand the Q in [SPEC, AP]. Secondly, the PRO subject may occupy [SPEC, AGRP(=S)] with the Q, producing an apparent FQ. The surface linear order is the same for the two positions because PRO is invisible. It is beyond the task of this paper to investigate which position the object-oriented FQ occupies.[13]

Our analysis correctly predicts the licitness of (48b) because, as the pair of superscripts 1 represents, the object-oriented FQ (both) is properly associated with (the trace of) the PRO controlled by its host NP (the carrots). On the other hand, our analysis rules out the FQ (both) in (48a) because the FQ is associated with the PRO subject controlled by John, which the FQ does not quantify. Incidentally, we predict that if the FQ in (48a) quantifies the subject NP, the structure in (48a) will be

a licit one. This prediction is borne out by the fact:

(49) ?The men left the room both happy. (Bowers 1993: 630)

Our analysis assigns the licit representation in (50) to (49):

(50) ?The men^{i} [$_{VP}$[$_{VP}$left the room][$_{S}$(both) PRO^{i}$_{j}$ INFL$_{\phi}$ [$_{AP}$(both) t$_{j}$ happy]]].

The FQ (both) is properly associated with (the trace of) the PRO controlled by the subject men, satisfying Sportiche's claim in (10).

In this subsection, we have considered the relation between object-oriented FQs and three types of secondary predicates. If we adopt Rizzi's (1990) and H & L's (1987) analyses, our ISH-based analysis of SCs can explain the fact that object-oriented FQs co-occur with resultative and depictive predicates but not with circumstantial predicates.[14,15]

In this section, we have demonstrated that our ISH-based analysis of SCs gives a natural account of (object-oriented) FQs in various environments such as (typical) small clauses, absolute with-constructions, and secondary predicates. To the extent that our structural analysis of these environments where FQs appear is correct, we can deal with object-oriented FQs, using Sportiche's analyzes for subject-oriented FQs. In the next section, we attempt to extend our analysis to other constructions, namely inalienable and double object constructions.

5. Possessive Small Clauses and Object-Oriented Floating Quantifiers

Thus far, we have dealt with FQs in one particular type of SC, in which subjects and the following elements are in subject-predicate relations. There is another type of SC, which we should call possessive SCs. Possessive SCs are different from typical SCs in the sense that the former denote possessive relations (cf. Hoekstra (1988)). In other words, in possessive SCs, SC-subjects and its predicates (in a broad sense) are in possessor-possessee relations.

In this section, we point out that inalienable and double object constructions include possessive SCs. We argue that if this type of SC is syntactically the same as typical SCs discussed in section 4, we can give a unified account of FQs in both types.

5.1 Inalienable Constructions

Roughly speaking, sentences which involve a whole-part relation between two elements have inalienable constructions. The following examples may involve such a relation between the subject and the object:

(51) a. The children raised a hand.
b. The children moved an arm.
(Vergnaud and Zubizarreta 1992: 636)

As Vergnaud and Zubizarreta (1992, V & Z) point out, the singular object NPs (a hand and an arm) refer to "an integral part of each of the individuals" referred to by the subject (the children) in the inalienable interpretation. Thus, the sentences in (51) can be paraphrased as Each of the children raised his/her hand and Each of the children moved his/her hand, respectively.

There is another type of inalienable construction. Such verbs as kiss, look, and hit can take locative prepositional phrases as their inalienable argument, as exemplified below:

(52) a. John kissed the children on the cheek. (V & Z 1992: 638)
b. Mary punched the two boys on the nose. (ibid.)
c. He looked the twins in the eye.

Following V & Z, let us call constructions such as those in (52) the PP constructions. The PP constructions share the following property with (51): Although NPs in inalienable phrases are in singular forms (e.g., on the cheek and in the eye), the phrases imply the existence of a plurality of what they denote. In other words, being associated with the object in a plural form, the singular NPs become notionally plural. This property is shown in the following paraphrases of corresponding sentences in (52):

(53) a. John kissed the children's cheeks. (V & Z 1992: 638)
b. Mary punched on the two boys' noses. (ibid.)
c. He looked at the twins' eyes.

The head nouns in the objects (which correspond to the singular NPs in the inalienable phrases in (52)) are plural.

We will regard as a kind of subject-predicate relation a possessor-possessee relation between the objects and the inalienable phrases as in

(52). Assuming that possessive relations, like subject-predicate relations, are realized as SCs, we can claim that verbs in the PP constructions take SC-complements. If we are on the right track, our analysis predicts that object-oriented FQs may appear. This prediction is borne out by the facts:

(54) a. He looked the twins both in the eye (and said...). (=3d)
(Mailing 1976: 715)

b. John kissed the children all on the cheek.

c. Mary punched the two boys both on the nose.

d. I grabbed the pickpockets both by the arm.

Our analysis assigns the following licit representations to (54):

(55) a. He looked [$_{AGRP}$the twins$_i$ [$_{PP}$both t$_i$ [$_{P'}$ in the eye]]].

b. John kissed [$_{AGRP}$the children$_i$ [$_{PP}$all t$_i$ [$_{P'}$ on the cheek]]].

c. Mary punched [$_{AGRP}$the two boys$_i$ [$_{PP}$both t$_i$ [$_{P'}$ on the nose]]].

d. I grabbed [$_{AGRP}$the pickpockets$_i$ [$_{PP}$both t$_i$ [$_{P'}$ by the arm]]].

In the representations in (55), each of the SC-subjects (the twins, the children, the two boys, and the pickpockets) is base-generated in the SPEC position of the SC-predicates (i.e., the inalienable phrases). The SC-subjects move to [SPEC, AGRP], stranding the Qs. As a result, the object-oriented FQs appear.

In this subsection, we have considered object-oriented FQs in the PP constructions. If it is the case that the PP constructions involve SC-complements, our analysis can properly treat FQs from the object NPs (i.e., the possessor of the inalienable phrase).

5.2 Double Object Constructions

Kayne (1984) proposes that double object constructions (DOCs) include SCs.[16] The essential motivation of his proposal is the observation of derived nominals of DOCs. He claims that the following derived nominals of passivized DOCs are ungrammatical because of a violation of the Empty Category Principle (ECP):

(56) a. Mary was given the letter by her teacher.

b. *[Mary's]$_i$ gift [$_{S}$t$_i$ of the letter] by her teacher

(57) a. She was offered a crayon by her classmate.

b. *[her]$_i$ offer [$_{st_i}$ of a crayon] by her classmate

(Kayne 1984: 146)

He also claims that the derived nominals in (56b) and (57b) undergo a passivization like (56a) and (57a). Assuming that N cannot govern across a sentential boundary (S or S'), he attributes the ungrammaticality of the derived nominals to the existence of a boundary node between the traces (of Recipient) and the Ns (gift and offer). In other words, the boundary node (S) prevents the Ns from properly governing the traces, hence an ECP violation.

Kayne points out that the derived nominals in (56-57) parallel in grammaticality the derived nominals of sentences involving an embedded S (namely, an SC under our analysis):

(58) a. Mary$_i$ was believed [$_{sc_i}$ a genius] by John.

b. *Mary's belief a genius by John

(59) a. She$_i$ was assumed [$_{sc_i}$ dangerous] by the police.

b. *Her assumption dangerous by the police

(60) a. She$_i$ was considered [$_{sc_i}$ a genius] by her superiors.

b. *Her consideration a genius by her superiors

(Kayne 1984: 145-146 with modifications)

The ungrammaticality of the derived nominals in the (b) examples in (58-60) can be explained in the same way as (56b) and (57b). The traces left by SC-subjects (Mary and She) are not properly governed in the embedded Ss because the head Ns (belief, assumption, and consideration) cannot govern across a sentential boundary.

The grammatical parallelism between the derived nominals in (56-57) and those in (58-60) indicates that DOCs have the same structure as the (a) examples in (58-60): The direct and indirect objects in DOCs constitute SCs. DOCs have the schematic structure: NP V [$_{sc}$NP NP]. It should be noted that this type of SC is possessive SCs because SC-objects and the following predicates are in possessor-possessee relations. If Kayne is correct, our ISH-based analysis of SCs predicts that FQs from indirect objects (i.e., SC-subjects) may appear. This prediction is borne out by the facts:

(61) a. I gave the children all some candy to keep them quiet.
b. I gave the boys each a book. (=3a)
c. John sent his friends all a package.
d. The tooth fairy promised the kids each a quarter. (=3b)

Our analysis assigns the following licit structures to the sentences in (61):

(62) a. I gave [$_{AGRP}$the children$_i$ [$_{NP}$all t_i [$_{N'}$ some candy]]]....
b. I gave [$_{AGRP}$the boys$_i$ [$_{NP}$each t_i [$_{N'}$ a book]]].
c. John sent [$_{AGRP}$his friends$_i$ [$_{NP}$all t_i [$_{N'}$ a package]]].
c. The tooth fairy promised [$_{AGRP}$the kids$_i$ [$_{NP}$all t_i [$_{N'}$ a quarter]]].

In (62) the SC-subjects (the children, the boys, his friends, and the kids) strand the Qs in [SPEC, NP] when moving to [SPEC, AGRP]. Thus, the object-oriented FQs occur.

In this section we have attempted to treat object-oriented FQs in possessive SCs, using the same analysis as FQs in typical SCs discussed in section 4. Possessive SCs are semantically different from typical SCs; however, this does not necessarily mean that syntactic structures of both types should be different (see note 12). If these two kinds of SCs are syntactically the same, i.e., both of them are realized as AGRPs, we can give a unified account of object-oriented FQs in both types of SCs.

6. Concluding Remarks

In this paper, we have proposed to analyze SCs as AGRPs, following Suzuki (1988) and Miyagawa (1990). We have assumed that Stowell's subject across categories proposal is the case and that SCs are subject to the Internal Subject Hypothesis. Thus, every SC-subject is base-generated in the SPEC of SC-predicates and moves into [SPEC, AGRP] to meet the requirement of the EPP or strong [N] features of AGR.

On the basis of the ISH-based analysis of SCs, we have dealt with object-oriented FQs in various environments such as typical small clauses, absolute with-constructions, and secondary predicates. Furthermore, we have extended our analysis to object-oriented FQs in the constructions involving possessive SCs: inalienable and double object constructions. If

it is the case that possessive SCs, like typical SCs, are realized as AGRPs, we can treat FQs in both trpes of SCs in the same way. If the ISH-based analysis of SCs and the structural analysis of the above-mentioned environments are correct, we can deal with various FQs along the lines of Sportiche's (1988) analysis.

NOTES

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[1] With respect to FQs from pronouns, a subject-object asymmetry does not appear:

(i) a. I saw {*the men/them} all yesterday.
    b. I found {*the textbooks/them} both quickly.
    c. I saw {*the girls/them} both.

Since FQs from pronouns behave differently from FQs from common nouns, we do not deal with the former in this paper.

[2] There are slight differences in the literature as to the position where the subject is base-generated. For instance, in Kuroda (1988) the subject occupies [SPEC, VP] at D-Structure, whereas in Koopman and Sportiche (1991) it occupies [SPEC, V"], which is located higher than [SPEC, VP]. Because this issue is not crucially relevant to our discussion, we will not discuss this issue.

[3] Sportiche assumes that every category XP (X=C, I, N, V, P, A) may contain a <u>specifier</u> (X") position other than [SPEC, XP]. Since it is not certain whether such a position exists across categories, we tentatively

take the more standard position which is consistent with the X-bar schema: Every XP has only one SPEC position.

[4] Nakajima (1991) claims that sentential adverbs do not occur in SCs on the basis of the following fact:

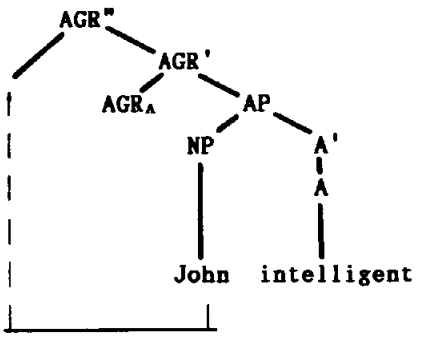
(i)?*John considers [Mary probably scared of snakes]--certainly, she is scared of snakes.

He says that the adverb probably functions as a sentential adverb because it is used in contrast with the sentential adverb certainly. Thus, the ungrammaticality of (i) indicates that sentential adverbs do not co-occur with SCs. If Nakajima is correct, the examples in (17) are grammatical not because SCs are AGRPs but because the adverbs are interpreted as phrasal adverbs. For this reason, the examples do not count as evidence in favor of AGRP-analysis of SCs.

[5] Yukio Hirose (personal communication) points out to me that since the negative not may be constituent negation, the data in (18) cannot be used as evidence in support of the AGRP-analysis of SCs. In fact, Suzuki (1991) claims that the negation in SCs is restricted to constituent (or predicate) negation. See Suzuki (1991) for details. I thank Mikinari Matsuoka for bringing this work to my attention.

[6] Chomsky (1992) analyzes predicate adjectives in a similar fashion. He assumes that a sequence such as John intelligent has the following underlying structure when taken as an SC-complement:

(i)



(Chomsky 1992: 12 with a slight modification)

In diagram (i), AGR$_A$ represents a collection of ϕ-features associated with an adjective. Chomsky claims that the SC-subject John raises to [SPEC,

AGRP] in the overt syntax. Under our ISH-based analysis of SCs, other lexical categories (i.e., NP, VP, and PP) are also analyzed in the same way.

[7] Hidehito Hoshi (personal communication) points out to me that Predicate-fronting may support our ISH-based analysis of SCs.

[8] We assume that predicate modifiers occupy the adjoined position of V' rather than the SPEC position of SC-predicates.

[9] Contrary to Johnson (1991) and Koizumi (1993), we take the position that objects do not move into [SPEC, AGRoP] until LF.

[10] Hoshi (1991) claims that depictive predicates are basically extractable. In this paper we will leave open the question of whether the depictive predicates are extractable.

[11] Rizzi does not discuss the position of circumstantial predicates in detail. He suggests, citing Roberts (1988a), that the circumstantial predicates may occupy the same position as depictive predicates.

[12] Yukio Hirose (personal communication) suggests that it is implausible to analyze as an SC the post-verbal sequence in a sentence such as John hammered the metal flat. He suggests that the essential motivation of analyzing a given sequence as an SC is that the sequence has a propositional meaning. It is difficult to imagine that the sequence metal flat is propositional.

Under our analysis, however, we take the position that when a verb takes an SC-complement, the meaning of the SC depends on the verb. In other words, a verb taking an SC does not immediately mean that the SC is propositional. For instance, when verbs such as consider and expect take SC-complements, the SCs bear propositional meanings. On the other hand, when verbs such as hammer and paint take SC-complements, the SCs bear result state meanings. In this way, we assume that the meaning of SCs is selected by verbs which take them as complements.

I would like to thank Koichi Takezawa and Katsuo Ichinohe for helpful suggestions on this issue.

[13] Sportiche (1988) observes that, in both French and English, pre-Infl Qs (i.e., Qs preceding the infinitive to) are degraded in control

constructions, as compared with pre-Infl Qs in raising constructions. My informant's judgments of pre-Infl Qs are compatible with Sportiche's observation:

(i) a. ?They$_j$ seemed all t"$_j$ to t'$_j$ have t$_j$ left at the same time.
b. They$_j$ seemed t"$_j$ to all t'$_j$ have t$_j$ left at the same time.

(ii) a. *It would have been necessary all PRO$_j$ to t$_j$ leave at the same time.
b. It would have been necessary PRO$_j$ to all t$_j$ leave at the same time.

(Sportiche 1988: 438, 444 with modifications)

This contrast appears to indicate that PRO cannot pied-pipe a Q. If this is the case, the FQs in control constructions such as those in (48) occupy [SPEC, AP] rather than [SPEC, AGRP].

[14] It should be noted that even after we adopt H & L analysis, Rizzi's argument of the proper-head-government requirement on traces seems to be appropriate at least with respect to depictive predicates. Under H & L's analysis, the sentences in (43c-d) have the following structures:

(i) a. *[How angry]$_j$ did you^i [$_{VP}$[$_{VP}$meet Bill][$_{S}$PRO^i INFL$_\bullet$ t$_j$]].
b. *[How raw]$_j$ did he [$_{VP}$[$_{V'}$ eat the meat^i][$_{S}$PRO^i INFL$_\bullet$ t$_j$]].

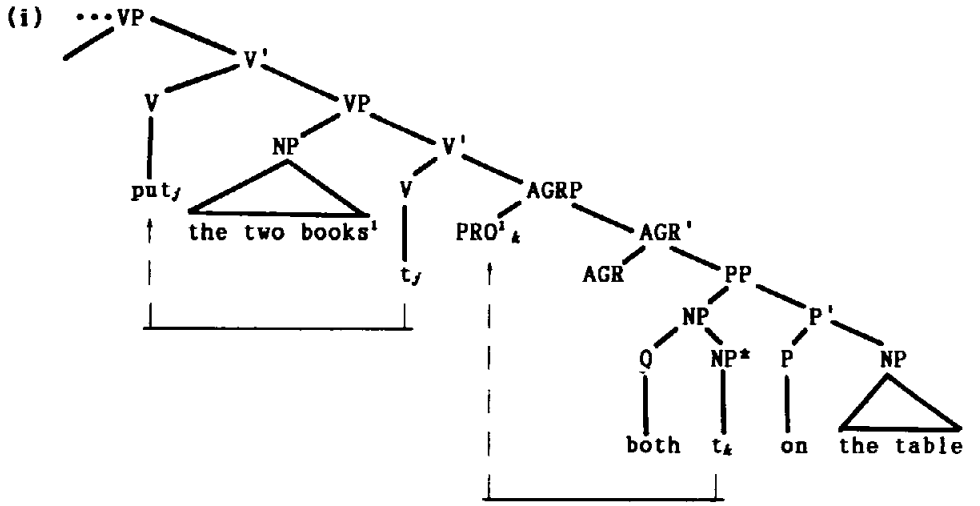
As we have seen in the text, H & L assume that INFL$_\bullet$ cannot function as a governor. In the case of (ib), a potential head-governor of t$_j$ is the verb eat; however, the trace is not head-governed because it is outside V' and also because minimality protects the trace from external head-government.

The sentence in (ia) causes a problem. According to Rizzi, the adjoined position of VP is properly head-governed by T$^\bullet$. If this is the case, we incorrectly predict that the circumstantial predicate in (ia) can be extracted. Rizzi's head-government requirement, thus, casts doubts on the position of circumstantial predicates. However, this does not necessarily mean that our SC-analysis of the circumstantial predicates is untenable. Although we will not discuss this issue, it seems to be necessary to either reconsider the position of circumstantial predicates or modify the definition of head-government.

[15] If H & L's claim that PRO may function as an SC-subject is the case, we can extend our analysis to FQs in ditransitive constructions as in (i):

(i) a. She put the two books both on the table. (Bowers 1993: 624)
b. Cinderella's fairy godmother turned the pumpkins all into handsome coaches. (Maling 1976: 715)

Bowers (1993) suggests that ditransitive verbs such as put and turn take as their complements an object and an SC whose PRO subject is controlled by the object. Assuming that Bowers is correct, we can deal with FQs in ditransitive constructions along the lines of Larson's (1988) analysis of double complement constructions. The pertinent portion of the structure of (ia) is illustrated below:



The ditransitive verb put moves into the head of the upper VP to assign a Case to the object the two books. As the pair of subscripts 1 represents, the SC-subject (PRO) is controlled by the object. The PRO subject strands the Q both when moving to [SPEC, AGRP]; consequently, an object-oriented FQ appears. The FQ is associated with the trace of the PRO which the FQ quantifies, satisfying Sportiche's claim in (10).

The same explanation holds for (ib). The sentence in (ib) has the following representation:

(ii) Cinderella's fairy godmother turned$_j$ [the pumpkins^1 [$_{VP}$ t$_j$ [$_{AGRP}$PRO^1_k [$_{AGR'}$ INFL$_\phi$ [$_{PP}$all t$_k$ [$_P$into handsome coaches]]]]]]

The SC-subject (PRO), which is controlled by the object the pumpkins, strands the Q in [SPEC, PP]; hence, an object-oriented FQ appears. The FQ is properly adjacent to a trace of the PRO subject, satisfying Sportiche's claim in (10).

Thus, to the extent that Bowers and Larson are correct, our analysis can give an account of FQs in ditransitive constructions.

[16] The coreferential possibilities do not appear to support the SC-analysis of DOCs:

(i) a. John$_j$ knows that Mary gave Bill$_k$ a picture of himself=$_{j/k}$.
b. John$_j$ knows that, a picture of himself$_{j/k}$, Mary gave Bill$_k$.

(ii) a. John$_j$ knows that Mary made Bill$_k$ a statue of himself=$_{j/k}$.
b. John$_j$ knows that, a statue of himself$_{j/k}$, Mary made Bill$_k$.

As (ib) and (iib) show, the anaphors in the fronted direct objects are coreferential with the matrix subjects John as well as the indirect objects Bill. Along the lines of our discussion in section 3, this ambiguity of the anaphors indicates that the fronted phrases do not contain traces of the indirect objects. In other words, the indirect objects do not occupy the SPEC of the direct objects at D-Structure. However, since it is widely observed that DOCs have a binding property distinct from other constructions, it might be rash to conclude only from the facts in (i-ii) that DOCs do not involve SCs. We leave this issue for future research.

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University of Tsukuba