Scope Ambiguity and 'Scrambling'

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1. Outline

Wide-scope distributive readings (henceforth DR) exemplified in (1b) and (1c) are among the phenomena that have been extensively discussed in the literature, particularly in the context of the investigation of the properties of LF.

(1) a. (At least) two students visited three professors (under discussion).
   b. \( \exists X (X \subseteq \text{student} \land |X| = 2) \forall x (x \in X) [\exists Y (Y \subseteq \text{professor} \land |Y| = 3) \forall y (y \in Y) [x \text{ visited } y]] \)
   c. \( \exists Y (Y \subseteq \text{professor} \land |Y| = 3) \forall y (y \in Y) [\exists X (X \subseteq \text{student} \land |X| = 2) \forall x (x \in X) [x \text{ visited } y]] \)

In Japanese syntax, DRs have been used crucially for the investigation of the nature of 'scrambling'. Hoji (85), drawing from Kuroda's (69/70) observations, puts forth the generalizations as summarized in (2).

(2) The Standard Generalizations on Quantifier Scope in Japanese\(^3\)

<table>
<thead>
<tr>
<th></th>
<th>(i) SUB&gt;OBJ</th>
<th>(ii) OBJ&gt;SUB</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>SUB OBJ VERB</td>
<td>YES</td>
</tr>
<tr>
<td>b</td>
<td>OBJ SUB VERB</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>(Kuroda 69/70, Hoji 85)</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>SUB DAT ACC VERB</td>
<td>YES</td>
</tr>
<tr>
<td>d</td>
<td>SUB ACC DAT VERB</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>(Hoji 85)</td>
<td></td>
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</tbody>
</table>

* I am indebted to Hajime Hoji and Ayumi Ueyama for the extensive discussion of the materials presented here and much encouragement. Among the people who helped me complete this paper are Teruhiko Fukaya, Shadi Ganjavi, Kiyoko Kataoka, and Yukiko Tsuboi, to whom I am also grateful.

1 Throughout the paper, I eliminate the first two digits of the year of publication.
2 \( \alpha > \beta \) signifies the DR for \( \alpha \) over \( \beta \).
3 YES/NO signifies that the surface order listed at the left of the same row has/lacks the DR listed at the top of the same column.
Hoji maintains that the extra scope order, i.e. the Obj>Sub in (2b) and the Acc>Dat in (2d), is a consequence of syntactic movement, taking Sub Obj Verb and Sub Dat Acc Verb to be the 'base orders'.

Subsequent to Hoji 85, several researchers have challenged the generalizations in (2). Kitagawa (90) and Kuno et al. (99)\(^4\) claim that Obj>Sub is available in (3a) and Kuroda (93), Kitagawa (94), and Miyagawa (97) claim that the Acc>Dat is possible in (3c).

### (3) Alternative Generalizations

<table>
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<tbody>
<tr>
<td>a</td>
<td>Sub Obj Verb</td>
<td>YES</td>
</tr>
<tr>
<td>b</td>
<td>Obj Sub Verb</td>
<td>YES</td>
</tr>
</tbody>
</table>

\(^4\) Kitagawa (90) reports that Obj>Sub in (3a) is available only marginally. But he attributes the marginality to a non-syntactic reason (due to the PF/LF mismatch (p.28)), and the grammar proposed in Kitagawa 90 derives Sub>Obj and Obj>Sub in (3a) on a par with each other. I thus understand that Kitagawa (90) claims Obj>Sub to be available in (3a).

Although the works mentioned above hold different views in regard to the generalizations of DRs and the derivation of the relevant surface orders, they all share one crucial assumption, viz., that all instances of DRs are uniformly derived based upon LF properties. It is argued in Hayashishita 99 and 00 (henceforth H:99 and H:00, respectively), however, that there are two kinds of DRs: \(\alpha>\beta\) due to LF properties (henceforth LF\(_{DR<\alpha, \beta}\)) and \(\alpha>\beta\) due to a post-LF cognitive representation (henceforth PostLF\(_{DR<\alpha, \beta}\)). The aim of this paper is to consider all the DRs in (3) in the light of this LF\(_{DR}\)/PostLF\(_{DR}\) distinction.

Section 2 examines whether the DRs in (3) obtains in the PostLF\(_{DR}\)-free environments. The results to be presented are summarized in (4),\(^5,6\)

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4 Kitagawa (90) reports that Obj>Sub in (3a) is available only marginally. But he attributes the marginality to a non-syntactic reason due to the PF/LF mismatch (p.28), and the grammar proposed in Kitagawa 90 derives Sub>Obj and Obj>Sub in (3a) on a par with each other. I thus understand that Kitagawa (90) claims Obj>Sub to be available in (3a).

5 The distribution of LF\(_{DR}\) in (4) coincides with Hoji’s (85) generalization in (2); hence, one might suspect that Hoji’s (85) generalizations in (2) are about LF\(_{DR}\) and not PostLF\(_{DR}\). Given his use of certain QPs that were not commonly used in the relevant literature at that time, this might not be a totally unreasonable guess. It
Section 3 briefly addresses the question of how OBJ SUB VERB and SUB ACC DAT VERB yield two distinct LFDRs. I will suggest that those surface orders are derived in two different ways, as argued in Ueyama 97, 98, and 99, and that those two ways each yields precisely one LFDR, as argued in Hayashishita 97 (henceforth H:97). Thus, it seems that the scope ambiguity can be attributed to the structural ambiguity associated with those surface orders (contra Kuroda 69/70, Hoji 85, Kitagawa 90, Kitagawa 94, and Miyagawa 97, among others).

2. The Distribution of LFDRs

It is argued in H:99 and H:00 that there are two kinds of DRs: (i) \( \alpha > \beta \) due to LF properties (LFDR<\( \alpha \), \( \beta \)) and (ii) \( \alpha > \beta \) due to a post-LF cognitive representation (PostLFDR<\( \alpha \), \( \beta \)). LFDRs obtain as long as the c-command condition in (5) is met.

\[
\text{(5)} \quad \text{LFDR}<\alpha, \beta> \text{ can obtain if and only if the QR-trace of } \alpha \text{ c-commands the QR-trace of } \beta \text{ (i.e., the A-position c-command); cf. Reinhart 76 and Huang 82.}
\]

PostLFDR<\( \alpha \), \( \beta \)>, on the other hand, does not make reference to c-command. However, there are two necessary conditions for PostLFDRs, as listed in (6).

\[
\text{(6)} \quad \begin{align*}
\text{a.} & \quad \text{PostLFDR}<\alpha, \beta> \text{ requires that } \alpha \text{ 'refer' to a specific group.} \\
\text{b.} & \quad \text{PostLFDR}<\alpha, \beta> \text{ does not allow a clause-mate of } \alpha \text{ to be interpreted as a Generalized Quantifier (GQ) in the sense of Barwise and Cooper 81.}\end{align*}
\]

should however be pointed out that we have no way to tell that this is indeed the case, since OBJ SUB in SUB OBJ VERB and ACC DAT in SUB DAT ACC VERB are indeed available, with the 'right choice' of QPs. It is thus clear that even if the generalizations in (2) are only concerned with LFDRs and not PostLFDR, the relevant empirical demonstration is not successful in Hoji 85.

6 Given the results in (4), we can provide an explanation for the discrepancy between the generalizations in (2) and (3), i.e., the NOs in (2) are judgments made in regard to LFDRs, and the shaded YESs in (3) are judgments made in regard to PostLFDRs.

7 I assume that three men in three men came, for example, has the GQ interpretation in (i) as well as the group interpretation in (ii).
For an illustration of (6a), consider (7).

(7) a. **Type A**: QPs that can 'refer' to a specific group

    *Toyota to Nissan* 'Toyota and Nissan', *dareka* 'someone'
    *subete-no kaisya* 'all companies', *sannin-no otoko* 'three men'

b. **Type B**: QPs that cannot 'refer' to a specific group

    *sanninzyoo-no gakusee* 'three or more students',
    *40%izyoo no gakusee* '40% or more of the students',
    *sukunakutomo sannin-no gakusee* 'at least three students',
    *kanarinokazu-no gakusee* 'a good number of students'

The QPs of Type B cannot 'refer' to a specific group in a normal context due to their lexical meanings; cf. Liu 90. On the other hand, the QPs of Type A can 'refer' to a specific group. While $\text{PostLF} \text{DR}^< \alpha, \beta>$ obtains only if $\alpha$ is a QP of Type A, $\text{LF} \text{DR}^< \alpha, \beta>$ obtains irrespective of the QP type.

Turning to (6b), I adopt the following two assumptions: (i) if a QP $\alpha$ can be interpreted as a GQ, and the QR-trace of $\alpha$ c-commands a dependent term $\beta$ then the bound variable anaphora can be established between $\alpha$ and $\beta$ (henceforth BVA $<\alpha, \beta>$) (see FN15), and (ii) if a QP $\alpha$ can be interpreted as a GQ, and the QR-trace of $\alpha$ c-commands the QR-trace of another QP $\beta$, then $\alpha$ can be distributed over another QP $\beta$ (cf. (5)). Thus, $\text{LF} \text{DR}^< \alpha, \beta>$ can, but $\text{PostLF} \text{DR}^< \alpha, \beta>$ cannot, co-exist with BVA $<\gamma, \delta>$ or $\gamma \epsilon$, where (i) $\gamma$ is a clause-mate of $\alpha$, (ii) $\delta$ is a dependent term, and (iii) $\epsilon$ is a QP.

On the basis of the discussion above, we can construct three tests to determine whether $\alpha > \beta$ in question can be an instance of $\text{LF} \text{DR}^< \alpha, \beta>$.

(i) **GQ**: $\exists X (X \subseteq \text{man} \land |X| = 3) \forall x (x \in X) [x \text{ came}]$

(ii) **Group**: $\exists X (X \subseteq \text{man} \land |X| = 3) [X \text{ came}]$

I also assume that the GQ interpretation obtains if a QP undergoes QR, while the group interpretation obtains if a QP stays in situ. $\text{LF} \text{DR}^< \alpha, \beta>$ in (5) thus obtains only when both $\alpha$ and $\beta$ are interpreted as a GQ.

They may 'refer' to a specific group with some appropriate pragmatic control. For example, *sanninzyoo-no gakusee* 'three or more students' can be interpreted as 'referring' to a specific group that contains three or more students. In order to avoid this type of interpretation, in the experiments to be conducted below, I will place the relevant sentences in the antecedent clause of a conditional, as in (i) and (ii).

(i) *mosi sannin-no gakusee-ga kitara … 'if three students came, …'*

(ii) *mosi sanninzyoo-no gakusee-ga kitara … 'if three or more students came, …'*

In the antecedent clause of a conditional, *sanninzyoo-no gakusee* 'three or more students' seems unable to 'refer' to a specific group, while *sannin-no gakusee*, which is of Type A, can do so easily.
(8) a. **Test 1**: Is \( \alpha > \beta \) possible even if \( \alpha \) is of Type B in (7)?

If yes, then it can be an \( \text{LF}^{\text{DR}} \); otherwise, it must be a \( \text{PostLF}^{\text{DR}} \).

b. **Test 2**: When \( \alpha > \beta \) obtains, can BVA \( \gamma, \delta \) be established, where \( \gamma \) is a clause-mate of \( \alpha \), \( \delta \) is a dependent term, and \( \gamma \) c-commands \( \delta \)?

If yes, then it can be an \( \text{LF}^{\text{DR}} \); otherwise, it must be a \( \text{PostLF}^{\text{DR}} \).

c. **Test 3**: When \( \alpha > \beta \) obtains, can a clause-mate of \( \alpha \) be distributed over another QP that it c-commands?

If yes, then it can be an \( \text{LF}^{\text{DR}} \); otherwise, it must be a \( \text{PostLF}^{\text{DR}} \).

In the following eight subsections, I apply these three tests to the DRs in (3) to see whether they can be instances of \( \text{LF}^{\text{DR}} \).

### 2.1. \( \text{SUB}^{\text{OBJ}} \) in \( \text{SUB OBJ VERB} \)

Consider (9)-(11).\(^9\)

(9) Test 1: YES.\(^{10}\)

15%izyoo-no ginkoo-ga mittuizyoo-no kouriten-o siensita-ra ... 'If 15% or more of the banks supported three or more retail shops, ...' \( \text{YES}^{15\%-\text{MORE} \geq 3\text{-MORE}} \)

(10) Test 2: YES

subete-no ginkoo-ga mittuizyoo-no zidoosya gaisya-ni sokq\( \_ \) no kanrengaisya-o syookaisita. '(Lit.) Every bank introduced to three or more automobile companies, its related company.' \( \text{YES}^{\forall \text{\( \geq 3\text{-MORE} \)} & \text{BVA} \leq 3\text{-MORE} \}, \text{soko} > } \)

(11) Test 3: YES.

sannin-no heddhohantaa-ga hutariizyoo-no hito-ni yottu-no kaisya-o syookaisita. 'Three headhunters introduced to two or more people four companies.' \( \text{YES}^{3 \geq 2\text{-MORE} \} & \text{2\text{-MORE} > 4}} \)

(9) illustrates that \( \text{SUB}^{\text{OBJ}} \) in \( \text{SUB OBJ VERB} \) obtains even if the \( \text{SUB} \) is of Type B. (10) and (11) illustrate that when \( \text{SUB}^{\text{OBJ}} \) in \( \text{SUB OBJ VERB} \) obtains, clause-mates of the \( \text{SUB} \) can maintain the properties of GQ. For instance, in (10), when the subject QP is distributed over the dative QP, \( \text{BVA} \) can be established between the dative QP, a clause-mate of the subject QP, and a dependent term. This leads us to conclude that \( \text{SUB}^{\text{OBJ}} \) in \( \text{SUB OBJ VERB} \) can be an instance of \( \text{LF}^{\text{DR}} \).

### 2.2. \( \text{OBJ}^{\text{SUB}} \) in \( \text{SUB OBJ VERB} \)

Consider (12)-(14).\(^{11}\)

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\(^9\) The generalizations captured in (9)-(11) are also illustrated in H:99.

\(^{10}\) In the interests of space, I do not provide an example where the relevant QP is of Type A.
Test 1: NO.

a. hutatuizyoo-no ginkoo-ga itutu-no kouriten-o siensita-ra …
   'If two or more banks supported five retail shops, …'

   YES\textsubscript{>2-MORE}

b. hutatuizyoo-no ginkoo-ga 20.5\%izyoo-no kouriten-o siensita-ra
   'If two or more banks supported 20.5\% or more of the retail shops, …'

   NO\textsubscript{>2-MORE}

Test 2: NO.

sukunakutomo mittu-no ginkoo-i ga subete-no zidoosya gaisya-ni soko-i, no torihikisaki-o syookaisita. (Cf. (19).)
'At least three banks, introduced to every automobile company its customers.'

NO\textsubscript{∀>3-LEAST \& BVA<3-LEAST, soko>, or if YES\textsubscript{BVA<3-LEAST, soko>, then NO\textsubscript{∀>3-LEAST.}}

Test 3: NO.

sanninzyoo-no heddhontaa-ga hutari-no hito-ni yottu-no kaisya-o syookaisita. (Cf. (20).)
'Three or more headhunters introduced to two people four companies.'

NO\textsubscript{2>3-MORE \& 3-MORE>4}

[Note: If YES\textsubscript{>3-MORE, then NO\textsubscript{3-MORE>4, or if YES\textsubscript{3-MORE>4, then NO\textsubscript{2>3-MORE.}}}

The paradigm in (12) illustrates that OBJ\textsubscript{>SUB} in SUB OBJ VERB cannot obtain if the OBJ is of Type B. (13) and (14) illustrate that when OBJ\textsubscript{>SUB} in SUB OBJ VERB obtains, clause-mates of the OBJ lose the properties of GQ. For example, in (14), the dative QP can be distributed over the subject QP only if the subject QP, a clause-mate of the dative QP, is not distributed over the accusative QP. Conversely, the subject QP can be distributed over the accusative QP only if the dative QP is not distributed over the subject QP. This indicates that OBJ\textsubscript{>SUB} (unlike SUB\textsubscript{>OBJ}) in SUB OBJ VERB cannot be an instance of \textsubscript{LF}DR; it must be an instance of \textsubscript{PostLF}DR.\textsuperscript{12}

2.3. SUB\textsubscript{>OBJ} in OBJ SUB VERB

For the rest of the experiments, I simply supply the relevant examples, trusting the readers to fill in the details. (15)-(17) illustrate that SUB\textsubscript{>OBJ} in OBJ SUB VERB can be an instance of \textsubscript{LF}DR.

(15) Test 1: YES.

mittuizyoo-no kouriten-o 15\%izyoo-no ginkoo-ga siensita-ra …

\textsuperscript{11} The generalizations captured in (12)-(14) are also illustrated in H:99 and H:00.
\textsuperscript{12} It is argued in H:99 that in the English Sub \textsubscript{VERB OBJ} order, SUB\textsubscript{>OBJ} can be an instance of \textsubscript{LF}DR, but OBJ\textsubscript{>SUB} cannot.
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'(Lit.) If three or more retail shops, 15% or more of the banks supported, …'
\[ \text{YES} \ \text{15\%-MORE} > \text{3-MORE} \]

(16) Test 2: YES.
mittuizyoo-no zidoosya gaisya, ni subete-no ginkoo-ga soko,-no kanrengaisy-o syookaisita.
'(Lit.) To three or more automobile companies, every bank introduced its related company.'
\[ \text{YES} \ \forall \ > \text{3-MORE} \ & \ BVA < \text{3-MORE}, \text{soko} > \]

(17) Test 3: YES.
hutariizyoo-no hito-ni sannin-no heddohantaa-ga yottu-no kaisya-o syookaisita.
'(Lit.) To two or more people, three headhunters introduced four companies.'
\[ \text{YES} \ \exists > \text{2-MORE} \ & \ 2 \text{-MORE} > \text{4} \]

2.4. OBJ>SUB in OBJ SUB VERB

(18)-(20) illustrate that OBJ>SUB in OBJ SUB VERB can be an instance of LFDR.\textsuperscript{13}

(18) Test 1: YES.
10\%izyoo-no kouriten-o hutatuizyoo-no ginkoo-ga siensita-ra
'(Lit.) If 10.5% or more of the retail shops, two or more banks supported, …' (Cf. (12b).)
\[ \text{YES} \ \exists > \text{2-MORE} \ & \ 2 \text{-MORE} > \text{3-MORE} \]

(19) Test 2: YES.
sukunakutomo mittu-no ginkoo-i subete-no zidoosya gaisya-ni siensita-ra
'(Lit.) To every automobile company, at least three banks introduced its customers.'
\[ \text{YES} \ \forall > \text{3-MORE} \ & \ BVA < \text{3-MORE}, \text{soko} > \]

(20) Test 3: YES.
hutari-no hito-ni sanninizyoo-no heddohantaa-ga yottu-no kaisya-o syookaisita. (Cf. (14).)
'(Lit.) To two people, three or more headhunters introduced four companies.'
\[ \text{YES} \ \exists > \text{2-MORE} \ & \ 3 \text{-MORE} > \text{4} \]

2.5. DAT>ACC in SUB DAT ACC VERB

We now turn to the di-transitive construction. (21)-(23) indicate that DAT>ACC in SUB DAT ACC VERB can be an instance of LFDR.

(21) Test 1: YES.
. Kimura sensee-ga 10\%izyoo-no kaisya-ni sannin-no gakusee-o syookaisita-ra …
'If Prof. Kimura introduced to 10% or more of the companies three students, …'
\[ \text{YES} \ \exists > \text{10\%-MORE} \]

\textsuperscript{13} The generalizations captured in (18)-(20) are also illustrated in H:00.
(22) Test 2: YES.

sukunakutomo hutatu-no zinzaihaken gaisya-ga sokō-ga syusaisita paatii-de yottuizyoo-no kaisya-ni sannin-no gakusee-o syookaisita.

'(Lit.) At least two human-resource companies, introduced at the party that it organized to four or more companies three students.'

YES 4-MORE > 3 & BVA < 2-LEAST, soko

(23) Test 3: YES.

aru zinzaihaken gaisya-no syain-ga mittuizyoo-no kaisya-ni yonin-no gakusee-o hutatu-no paatii-de syookaisita

'A certain employee of a human-resource company introduced to three or more companies four students at two parties.'

YES 3-MORE > 4 & 4 > 2

2.6. ACC>DAT in SUB DAT ACC VERB

(24)-(26) suggest that ACC>DAT in SUB DAT ACC VERB cannot be an instance of LFDR; it must be an instance of PostLFDR.

(24) Test 1: NO.

a. Kimura sensee-ga hutatuizyoo-no kaisya-ni sannin-no gakusee-o syookaisita-ra …

‘If Prof. Kimura introduced to two or more companies three students, …’

YES 3 > 2-More

b. Kimura sensee-ga hutatuizyoo-no kaisya-ni 10%izyoo-no gakusee-o syookaisita-ra … (Cf. (30).)

‘If Prof. Kimura introduced to two or more companies 10% or more of the students, …’

NO 10%-MORE > 2-MORE

(25) Test 2: NO.

sukunakutomo hutatu-no zinzaihaken gaisya-ga sokō-ga syusaisita paatii-de yottuizyoo-no kaisya-ni sannin-no gakusee-o syookaisita. (Cf. (31).)

'(Lit.) At least two human-resource companies, introduced at the party that it organized to four or more companies three students.'

NO 3 > 4-MORE & BVA < 2-LEAST, soko

[Note: if YES 3 > 4-MORE, then NO BVA < 2-LEAST, soko, or if YES BVA < 2-LEAST, soko, then NO 3 > 4-MORE.]

(26) Test 3: NO.

aru zinzaihaken gaisya-no syain-ga mittuizyoo-no kaisya-ni yonin-no gakusee-o hutatu-no paatii-de syookaisita.

'A certain employee of a human-resource company introduced to three or more companies four students at two parties.' (Cf. (32).)

NO 4 > 3-MORE & 3-MORE > 2

[Note: if YES 4 > 3-MORE, then NO 3-MORE > 2, or if YES 3-MORE > 2, then NO 4 > 3-MORE.]
2.7. **DAT>ACC in SUB ACC DAT VERB**

(27)-(29) lead us to conclude that **DAT>ACC in SUB ACC DAT VERB** can be an instance of **LFDR**.

(27) Test 1: YES.
Kimura sensee-ga sannin-no gakusee-o 10% izyoo-no kaisya-ni syookaisita-ra …

‘If Prof. Kimura introduced **three students** to **10% or more of the companies.** …’

YES 10%-MORE>3

(28) Test 2: YES.
sukunakutomo hutatu-no zinzaihaken gaisya-ga soko-ga syusaisita paatii-de sannin-no gakusee-o yottuizyoo-no kaisya-ni syookaisita.

‘(Lit.) At least two human-resource companies, introduced at the party that **it** organized **three students** to **four or more companies.**’

YES 4-MORE>3 & BVA <2-LEAST, soko>

(29) Test 3: YES.
aru zinzaihaken gaisya-no syain-ga yonin-no gakusee-o mittuizyoo-no kaisya-ni hutatu-no paatii-de syookaisita.

‘A certain employee in a human-resource company introduced **four students** to **three or more companies at two parties.**’

YES 3-More>4 & 4>2

2.8. **ACC>DAT in SUB ACC DAT VERB**

Finally, (30)-(32) indicate that **ACC>DAT in SUB ACC DAT VERB** can be an instance of **LFDR**.

(30) Test 1: YES.
Kimura sensee-ga 10% izyoo-no gakusee-o hutatuizyoo-no kaisya-ni syookaisita-ra … (Cf. (24b).)

‘If Prof. Kimura introduced **10% or more of the students** to **two or more companies.** …’

YES 10%-MORE>2-MORE

(31) Test 2: YES.
sukunakutomo hutatu-no zinzaihaken gaisya-ga soko-ga syusaisita paatii-de sannin-no gakusee-o yottuizyoo-no kaisya-ni syookaisita. (Cf. (25).)

‘(Lit.) At least two human-resource companies, introduced at the party that **it** organized **three students** to **four or more companies.**’

YES 3-MORE & BVA <2-LEAST, soko>

(32) Test 3: YES.
aru zinzaihaken gaisya-no syain-ga yonin-no gakusee-o mittuizyoo-no kaisya-ni hutatu-no paatii-de syookaisita.
'A certain employee of a human-resource company introduced four students to three or more companies at two party.'

(Cf. (26).)

A summary of the results in the preceding subsections is given in (4)

3. On 'Scrambling'

We have observed in Section 2 that OBJ SUB VERB and SUB ACC DAT VERB can have two distinct LFDRs (i.e., LFDR<OBJ SUB> and LFDR<SUB, OBJ> for the former, and LFDR<ACC DAT> and LFDR<DAT, ACC> for the latter). Let us call these surface orders 'marked orders'. Adopting the condition for LFDR<α, β> in (5), we can conclude that it must be possible for the 'marked orders' to be associated with two distinct LFs, as in (33) and (34).

(33) a. PF: OBJ SUB VERB
   b. LF1: [OBJ [SUB VERB]] (before QR) ⇒ LFDR<OBJ, SUB>
   c. LF2: [SUB [OBJ VERB]] (before QR) ⇒ LFDR<SUB, OBJ>

(34) a. PF: SUB ACC DAT VERB
   b. LF1: [SUB [ACC [DAT VERB]]] (before QR) ⇒ LFDR<ACC, DAT>
   c. LF2: [SUB [DAT [ACC VERB]]] (before QR) ⇒ LFDR<DAT, ACC>

In the investigation of the nature of 'scrambling', we must then address the question in (35).

(35) How can the 'marked orders' be linked to two distinct LFs?

Due to space limitation, however, I can only briefly introduce the line of thinking adopted in H:97 and further articulated in H:forthcoming. In the discussion to follow, let us call an OBJ located on the left of its clause-mate SUB a preposed OBJ, and an ACC located on the left of its clause-mate DAT a preposed ACC.

H:97 illustrates that OBJ SUB VERB does not always yield both LFDR<OBJ, SUB> and LFDR<OBJ, SUB>, observing that in some environments only LFDR<OBJ, SUB> obtains, while in others only LFDR<OBJ, SUB> obtains. First, when a preposed OBJ exhibits A-properties such as

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14 It should be pointed out that the LF/Post-LF dichotomy is also relevant to the distribution of BVA. It is generally assumed, leaving the 'Spec-binding' cases aside, that BVA<α, β>, where α is a QP and β is a dependent term, requires the A-position c-command of α over β (cf. Reinhart 83). Ueyama (98: Appendix D.2.1.), however, points out that when a QP 'refers' to a specific group, the relevant c-command is not necessary. What is of interest here is that when BVA<α, β>, where α is a QP and β is a dependent term, obtains without the relevant c-command, clause-mates of α lose the properties of QG noted above. This suggests the possibility of two kinds of BVA, viz., LF'BVA and PostLF'BVA, so to speak; cf. Hayashishita forthcoming (henceforth H:forthcoming) for further discussion.
BVA being established between the preposed OBJ and a dependent term\textsuperscript{15}, it must take scope in its surface position. Consider (36).

(36) \textit{mittuizyoo-no daigaku}-ni [(soko\textsubscript{o}-o oensesiteiru) \textit{hutatuizyoo-no kaisya}]-ga touhyooosita.

'(Lit.) \textit{Three or more universities}, \textit{[more than two companies} [which have been supporting it\textsubscript{1}]] voted for.'

\begin{tabular}{ll}
\text{YES}& \text{BVA}<3-More, soko> & \text{&} & \text{&} & \text{3-MORE}>2-MORE \\
\text{NO}& \text{BVA}<3-More, soko> & \text{&} & \text{&} & \text{2-MORE}>3-MORE \\
\end{tabular}

In (36), when BVA is established between the preposed OBJ and a dependent term, the \textit{SUB} cannot be distributed over the preposed OBJ. Conversely, when the \textit{SUB} is distributed over the preposed OBJ, the BVA cannot be established.

Second, in the environments where preposed OBJs cannot show A-properties (i.e., where BVA cannot be established between them and a dependent term that they c-command), they cannot take scope in their surface positions.\textsuperscript{16} Ueyama (97, 98, 99) identifies three such environments: (i) in the embedded clause of a certain type (including a perceptual report construction), (ii) when there is another preposed OBJ, and BVA is established between the preposed OBJ and a dependent term contained in the \textit{SUB}, and (iii) when a OBJ is preposed across a clause boundary. We will only discuss (ii) and (iii) here. Consider (37) and (38).

(37) \textit{mittuizyoo-no kaisya}-o \textit{yonin-no gakusee}-ni [(soko\textsubscript{o}-o oensesiteiru) \textit{hutari-no kyoozyu}]-ga syookaisita.

'(Lit.) \textit{Three or more companies}, \textit{to four students}, \textit{[two professors} [who have been supporting it\textsubscript{1}]] introduced.'

\begin{tabular}{ll}
\text{YES}& \text{3-MORE}>2, \text{but} & \text{NO}& \text{2>3-MORE} \\
\end{tabular}

(38) \textit{hutari-no kodomo}-ni [\textit{sanninizyoo-no gakusee}-ga [John-ga ec\textsubscript{1} hanakisaketeita] to hookokusitekita].

'(Lit.) \textit{to two children}, \textit{[three or more students} reported that [John was speaking ec\textsubscript{1}]].' \text{YES}3-MORE>2, \text{but NO}2>3-MORE.

\textsuperscript{15} I assume that the \textit{\textsuperscript{1}}BVA<\textit{\alpha}, \textit{\beta}> (see FN14), where \textit{\alpha} is a QP and \textit{\beta} is a dependent term, can obtain if and only if the QR-trace of \textit{\alpha} c-commands \textit{\beta} at LF (i.e., A-position c-command). For \textit{BVA} in general, including \textit{post\textsuperscript{1}}BVA, I maintain that the \textit{BVA}<\textit{\alpha}, \textit{\beta}>, where \textit{\alpha} is a QP and \textit{\beta} is a dependent term, can obtain if the QR-trace of \textit{\alpha} c-commands \textit{\beta} at LF. In (36) I utilized a QP of Type B for the preposed OBJ to ensure that the relevant \textit{BVA} is an instance of \textit{\textsuperscript{1}}BVA, with the preposed OBJ being in an A-position.

\textsuperscript{16} This generalization is first presented in H97 on the basis of Ueyama’s (97) observation on binding phenomena, and subsequently adopted by Ueyama (98, 99). I refer the readers to Ueyama 98: Chapter 2 for the complete paradigms.
In (37), BVA is established between the first preposed OBJ and a dependent term, and the second preposed OBJ, yonin-no gakusee-ni, cannot be distributed over the SUB. In (38), the preposed OBJ is located before the matrix subject, and it cannot be distributed over the matrix subject QP.\textsuperscript{17}

The above discussion can be summarized as in (39).

(39) a. If preposed OBJs exhibit A-properties, they must take scope in their surface position.
   b. If preposed OBJs do not exhibit A-properties, they cannot take scope in their surface position.

On the basis of (39), (33) can be refined as (40).

(40) a. Where the OBJ exhibits A-properties
   PF: OBJ SUB VERB
   LF: [OBJ [SUB VERB ]][before QR] \Rightarrow LFD<OBJ, SUB>
   b. Where the OBJ does not exhibit A-properties
   PF: OBJ SUB VERB
   LF: [SUB [OBJ VERB ]][before QR] \Rightarrow LFD<OBJ, SUB>

Assuming that the generalizations regarding preposed OBJs in (39) can be extended to preposed ACCs, (34) can be similarly refined as (41).\textsuperscript{18}

(41) a. Where the ACC exhibits A-properties
   PF: SUB ACC DAT VERB
   LF: [SUB [ACC [DAT VERB]]][before QR] \Rightarrow LFD<ACC, DAT>
   b. Where the ACC does not exhibit A-properties
   PF: SUB ACC DAT VERB
   LF: [SUB [DAT [ACC VERB]]][before QR] \Rightarrow LFD<ACC, ACC>

The above discussion suggests that the 'marked orders' are derived in two distinct ways in such a way that the preposed OBJs/ACCs exhibit A-properties in one case but not in the other, as argued in Ueyama 97, 98 and 99, and that the scope ambiguity in the 'marked orders' is attributed to the structural ambiguity, as argued in H:97, (contra Kuroda 69/70, Hoji 85, Kitagawa 90, Kitagawa 94, and Miyagawa 97, among others). Assuming that the 'marked orders' are derived in two distinct ways, we now have two logical possibilities for each case, as stated in (42) and (43).

(42) Where a preposed OBJ/ACC exhibits A-properties
   a. A preposed OBJ/ACC is base-generated in its surface position (i.e., an A-position); cf. Ueyama 97, 98, and 99.

\textsuperscript{17} The generalization illustrated by (38) is ascribed to Tada. But see Ueyama 98: Chapter 2, Footnote 29 for the remark that the examples given by Tada (which are cited in Boskovic & Takahashi 95) fail to illustrate the validity of the generalization.

\textsuperscript{18} H:forthcoming presents the relevant empirical materials.
b. A preposed OBJ/ACC is fronted to its surface position by overt A-
movement.

(43) Where a preposed OBJ/ACC does not exhibit A-properties
   a. A preposed OBJ/ACC is fronted to its surface position by stylistic
      movement.
   b. A preposed OBJ/ACC is fronted to its surface position by overt A’-
movement and the movement is always ‘undone’ at LF; cf. Saito 92.

H:97 and more recently H:forthcoming pursue the analyses in (42a) and
(43a). Because of the space limitation, however, the relevant empirical as
well as conceptual justifications for this choice cannot be provided here. 20

4. Summary and Further Issues

In this paper, I have examined DRs in Japanese in the light of the
LFDR/PostLFDR distinction given in H:99 and H:00, and demonstrated that
the scope ambiguity in the ‘marked orders’ (OBJ Verb, SUB ACC DAT
VERB) is quite distinct in nature from the one in the ‘unmarked orders’ (OBJ
SUB Verb, SUB DAT ACC Verb). Only the former, but not the latter, can
be due to two distinct LFDRs. Thus, for the investigation of the LF prop-
eties of ‘scrambling’, we must address the question of how ‘marked orders’
can be linked to two distinct LFDRs. I have suggested that the ‘marked or-
ders’ are derived in two distinct ways, each giving rise to precisely one
scope order.

Among the many issues suppressed in this paper is how LFDR and
PostLFDR are derived. In H:99 and H:00, the LFDR/PostLFDR distinction is
claimed to be a direct consequence of two ways of interpreting sentences in
general. H:forthcoming explores consequences of the two ways of inter-
preting sentences, in relation to BVA (see FN 14), the scope of negation, the
scope of focus inducing particles such as even, and the scope of wh-words
(in particular, pair-list readings), and the interaction between BVA and the
scope wh-words (in particular, functional readings). 21

19 Decisive arguments in support of (42a) and those in support of (43a), in turn,
each speak for the thesis that the ‘marked orders’ are derived in two distinct ways.
For it is inconceivable that one way of deriving the ‘marked orders’ accommodates
(42a) simultaneously with [(43a) or (43b)] or (43a) simultaneously with [(42a) or
(42b)].

20 See Ueyama 99:Section 5 for the arguments in support of (42a).

21 H:00 and H:forthcoming contain several arguments for the approach taken in
H:99, H:00 and this paper, in comparison with the standard approach, which utilizes
QR to shift scope orders (works by May and more recently by Beghelli & Stowell).
References


Kitagawa, Yoshihisa. 1990. Anti-Scrambling. Ms., University of Rochester. (A paper read at the Tilburg University Workshop on Scrambling, 10/19/90.)


