Although evidence is abundant for overt syntactic verb raising in head initial languages, no convincing evidence has been found for comparable verb movement in head final languages such as Japanese. This state of affairs has led some researchers to conclude that there is no Head Parameter as such in UG. In this paper, we present arguments for overt verb raising in Japanese, thereby defending the validity of the Head Parameter with its two values [head initial] and [head final].

1. Introduction

Since Pollock (1989), it has been hotly debated whether verbs in a language overtly raise to some functional head position or stay in their original position in the overt syntax. Japanese is no exception. For example, using some interpretive facts about a “VP-deletion-like” construction, Otani and Whitman (1991) argue that verbs in Japanese move out of VPs by LF. The validity of their arguments, however, has been questioned by Hoji (1998), who maintains that the issue has not been settled yet. The difficulty of the question concerning the timing of verb raising in Japanese lies, in part, in the fact that it is an “absolute head final language.” “Absolute head final languages” are head final languages that do not allow any right adjunction or rightward XP movement. Since Japanese is an absolute head final language in this sense, neither arguments nor adjuncts can, regardless of the timing of V-raising, occur between a verb and associated functional heads in this language. Simple word order facts therefore tell us virtually nothing about verb raising. The same point holds of other absolute head final languages such as Korean. In this article, we present direct evidence for overt verb raising in Japanese, which does not suffer from the same criticisms raised against indirect arguments previously presented for or against it.

The organization of this paper is as follows. In Section 2, we present three kinds of evidence for verb movement in the overt syntax in Japanese. In Section 3, we discuss apparent alternative analyses of some of the data presented in Section 2. We then explore, in Section 4, some consequences of the overt verb raising analysis of Japanese to various aspects of syntactic theory. Section 5 concludes the paper.

For the purpose of this paper, we adopt a version of the Agr-less VP-
shell analysis of the clausal architecture (Chomsky, 1995, 1998; see also Larson, 1988). According to this analysis, the internal arguments (objects) are initially generated within the maximal projection of a main verb (VP), which is the complement of a light verb v, and the external argument (subject) is merged as Spec of v. Following Nemoto (1993), we further assume the external argument raises to Spec of IP (or TP) in the overt syntax (see also Miyagawa, 1999). Thus, we assume that the sentence in (1), for example, has a structure like (2) (except for the possibility of verb movement).

(1) Mary-ga John-ni ringo-o age-ta.
   Mary-Nom John-to apple-Acc give-Past
   ‘Mary gave an apple to John.’

(2) [CP [IP Mary-Nom i [VP ti [VP John-to [V 

We are now ready to discuss overt verb raising in Japanese.

2. OVERT VERB RAISING

In this section, we present three kinds of evidence for overt verb raising in Japanese.

2.1. Coordination

Consider first the following example. 3

   banana-ACC 3-CL]] gave (fact)

   ‘Mary gave two apples to John, and three bananas to Bob.’

With the common assumption that each conjunct of a coordinate structure is a syntactic constituent, this sentence suggests that the two internal arguments (Indirect Object and Direct Object) form a surface structure constituent which excludes the subject and the verb. Given the clause structure shown in (2) above, this constituent must be either VP or vP, which in turn implies that the main verbs have overtly raised at least to v in the “across-the-board” manner. The pertinent portion of (3) then has either of the following structures.
In (4a) “remnant VPs” created by overt verb raising are coordinated, whereas in (4b) remnant vPs are conjoined.

The presence of overt verb raising out of verb phrases is also evidenced by the following sentence, where each conjunct consists of an object and a locative adjunct.

(5) Mary-ga [[suupaa-de piza-o 2-mai] to Mary-NOM [[supermarket-at pizza-ACC 2-CL] and [sakaya-de wain-o 3-bon]] katta (koto). [liquor.store-at wine-ACC 3-CL bought (fact)]

‘Mary bought two pizzas at a supermarket, and three bottles of wine at a liquor store.’
Consider next the examples in (6) and (7) below. In these examples, “Subject + Object” and “Subject + Indirect Object + Direct Object,” respectively, form a syntactic constituent excluding the verb.

(6) \([\text{Mary-ga ringo-o 2-tu}] \text{ to } [\text{Nancy-ga banana-o}]
\([\text{Mary-NOM apple-ACC 2-CL}] \text{ and } [\text{Nancy-NOM banana-ACC 3-bon}]\) \text{ tabeta (koto).}
Lit. ‘[Mary two apples] and [Nancy three bananas] ate.’
(Mary ate two apples, and Nancy three bananas.)

(7) \([\text{Mary-ga John-ni ringo-o 2-tu}] \text{ to } [\text{Nancy-ga}]
\([\text{Mary-NOM John-to apple-ACC 2-CL}] \text{ and } [\text{Nancy-NOM Bob-ni banana-o 3-bon}]\) \text{ ageta (koto).}
Bob-to banana-ACC 3-CL] gave
Lit. ‘[Mary two apples to John] and [Nancy three bananas to Bob] gave.’
(Mary gave two apples to John, and Nancy gave three bananas to Bob.)

If subjects in Japanese overtly raise to IP Spec (as assumed in this paper following Nemoto (1993) and Miyagawa (1999)), these examples are instances of IP-coordination, which in turn entails that main verbs in Japanese overtly raise all the way to C.4

Overt verb raising takes place not only in matrix clauses but also in embedded contexts. This is illustrated below.

(8) \([\text{Nancy-ga} [\text{Mary-ga} [\text{John-ni ringo-o 2-tu}] \text{ to }\text{Nancy-NOM [Mary-NOM [\text{John-to apple-ACC 2-CL}] and ]\text{ Bob-ni banana-o 3-bon}] ageta to]} \omotteiru (koto).
\text{Bob-to banana-ACC 3-CL]} gave that\] believe
‘Nancy believes that Mary gave two apples to John and three bananas to Bob.’

(9) \([\text{Becky-ga} [\text{[[Mary-ga ringo-o 2-tu}] \text{ to }\text{Nancy-ga Becky-NOM [[[Mary-NOM apple-ACC 2-CL] and ]\text{ banana-o 3-bon}}] \text{ tabeta to]} \omotteiru (koto).
\text{banana-ACC 3-CL ate that]} believe
Lit. ‘Becky believes that [Mary two apples] and [Nancy three bananas] ate.’
(Becky believes that Mary ate two apples and Nancy three bananas.)
In (8), the verb phrases (VPs or vPs) in the complement clause are coordinated, and in (9) the embedded IPs are conjoined. In either case, the embedded verb has moved out of the coordinate structure, which shows that embedded verbs too overtly raise to C.

As shown in (10) and (11) below, the matrix arguments cannot cooccur with the embedded arguments in the same conjunct. This is because the embedded verb cannot raise to the matrix clause across a tensed clause boundary.

(10) * [[Mary-ga John-ga ring-o-o 2-tu] to [Nancy-ga [[Mary-NOM John-NOM apple-ACC 2-CL] and [Nancy-NOM Bob-ga banana-o 3-bon]] katta to omotteiru (koto) Bob-NOM banana-ACC 3-CL]] bought that believe

Lit. ‘[[Mary John two apples] and [Nancy Bob three bananas]] believes that bought.’

(Mary believes that John bought two apples, and Nancy believes that Bob bought three bananas.)


remember

Lit. ‘[[Mary John two apples] and [Nancy Bob three bananas]] bought store remember.’

(Mary remembers the store where John bought two apples, and Nancy remembers the store where Bob bought three bananas.)

The existence of overt verb raising in Japanese is further supported by the fact that the type of coordinate structures under consideration can be scrambled, as shown below.

(12) [[John-ni ring-o-o 2-tu] to [Bob-ni (cf. (7)) [[John-to apple-ACC 2-CL] and [Bob-to banana-o 3-bon]], Mary-ga t (koto). banana-ACC 3-CL]], Mary-NOM t gave

Lit. ‘(the fact that) [two apples to John and three bananas to Bob], Mary gave t.’
(13) [[John-ni ringo-o 2-tu] to [Bob-ni (cf. (6))
[[John-to apple-ACC 2-CL] and [Bob-to
banana-o 3-bon]], Nancy-ga [Mary-ga t\(_i\) ageta
banana-ACC 3-CL]], Nancy-NOM [Mary-NOM t\(_i\) gave
to] omotteiru (koto).
that] believe
Lit. ‘[two apples to John and three bananas to Bob], Nancy
believes that Mary gave it,’
(Nancy believes that Mary gave two apples to John and three
bananas to Bob.)

(14) [[Mary-ga ringo-o 2-tu] to [Nancy-ga (cf. (7)
[[Mary-NOM apple-ACC 2-CL] and [Nancy-NOM
banana-o 3-bon]], Becky-ga [t\(_i\) tabeta to]
banana-ACC 3-CL]], Becky-NOM [t\(_i\) ate that]
omotteiru (koto).
believe
Lit. ‘[[Mary two apples] and [Nancy three bananas]] Becky
believes that ate.’
(Becky believes that Mary ate two apples and Nancy three
bananas.)

In (12), the coordinated VPs (or vPs) undergo clause-internal scrambling.
(13) and (14) involve long-distance scrambling (scrambling across a clause
boundary) of embedded VPs (or vPs) and embedded IPs, respectively. The
grammaticality of these examples lends credence to the proposed analysis
of constituent structure where the verbs are outside of the coordinate struc-
tures. The following is a slightly more complex case.

(15) a.(?)[[Tom-ga Mary-ni ringo-o 2-tu] to [Bob-ga
[[Tom-NOM Mary-to apple-ACC 2-CL] and [Bob-NOM
Mary-ni banana-o 3-bon]] ageta (koto).
Mary-to banana-ACC 3-CL]] gave
Lit. ‘[Tom two apples to Mary] and [Bob three bananas to
Mary] gave.’
(Tom gave two apples to Mary and Bob gave three bananas
to Mary.)
Example (15c) is derived from a structure like that in (15a), by first scrambling the Goal (indirect) object to the sentence initial position in the "across-the-board" manner as in (15b), and then fronting the coordinate structure across the preposed Goal (indirect) object. Similar examples are shown below.

(16) a. ([Tom-ga Mary-ni ringo-o 2-tu] to [Bob-ga Mary-to apple-ACC 2-CL] and [Bob-nom t_i Nancy-ni ringo-o 3-tu]) ageta (koto). Nancy-to apple-ACC 3-CL] gave
Lit. '[Tom two apples to Mary] and [Bob three bananas to Mary] gave.' (Tom gave two apples to Mary and Bob gave three bananas to Mary.)

b. Ringo-o_i ([Tom-ga Mary-ni t_i 2-tu] to [Bob-ga Apple-ACC_i [Tom-nom Mary-to t_i 2-CL] and [Bob-nom Nancy-ni t_i 3-tu]) ageta (koto). Nancy-to t_i 3-CL] gave

scrambling

| (ii) |

| (i) |

| (I) |

| banana-o 3-bon]) ageta (koto). banana-ACC 3-CL] gave

c. ([Tom-ga t_i ringo-o 2-tu] to [Bob-ga t_i Apple-ACC_i [Tom-nom t_i Mary-to 2-CL] and [Bob-nom t_i Nancy-ni t_i 3-tu]) ageta (koto). Nancy-to t_i 3-CL] gave

Lit. '[Tom two apples to Mary] and [Bob three bananas to Mary] gave.' (Tom gave two apples to Mary and Bob gave three bananas to Mary.)
(17) a. Tom-ga [[Mary-ni ringo-o 2-tu] to [Nancy-ni ringo-o 3-tu]] ageta (koto).
   
   "Tom gave two apples to Mary and three apples to Nancy."

To summarize so far, we have observed sentences with a coordinated structure that show verbs in Japanese overtly raise to C.\(^5\)

2.2. Clefting

The next evidence for overt verb raising comes from facts about (pseudo-) clefting.\(^6\) As shown in (18), "Indirect Object + Direct Object" may be clefted, with the verb stranded.

(18) a. Mary-ga John-ni ringo-o 3-tu ageta (koto).
    Mary-NOM John-to apple-ACC 3-CL gave
    
    'Mary gave three apples to John.'

    b. Mary-ga age-ta no-wa [John-ni ringo-o 3-tu] da
    Mary-NOM give-PAST NL-TOP [John-ni apple-ACC 3-CL] be
    Lit. 'It is [three apples to John] that Mary gave.'

(18a) is a regular ditransitive sentence, and (18b) is its cleft counterpart with the indirect and direct objects in the focus position. Assuming, as is standard, that the internal arguments are generated with the maximal projection of the verb which selects them, these sentences suggest that the verb overtly moves out of the VP that dominates the direct and indirect objects, as schematically shown in (19). It is this "remnant" VP (or some larger phrase) that is clefted in (18b).\(^7\)
(19) a. Schematic structure of (18a)
   Subject [VP IO DO t₁] V

   b. Schematic structure of (18b)
   [OP₁ [Subject t₁ V-v-1]] no-wa [VP IO DO [v e]] da

Similarly (20) and (21) suggest that the verb raises higher than the subject (i.e., to C).

(20) a. Mary-ga ringo-o 3-tu katta (koto).
   Mary-NOM apple-ACC 3-CL bought
   ‘Mary bought three apples.’

      bought NL-TOP [IP Mary-NOM apple-ACC 3-CL] be
      Lit. ‘It is [Mary three apples] that bought.’

(21) a. Mary-ga John-ni ringo-o 3-tu ageta (koto).
   Mary-NOM John-to apple-ACC 3-CL gave
   ‘Mary gave three apples to John.’

      gave NL-TOP [IP Mary-NOM John-to apple-ACC 3-CL] be
      Lit. ‘It is [three apples to John] that gave.’

In the following examples, “IO + DO” and “S + O” of the embedded clauses are clefted. This confirms our conclusion that overt verb raising takes place not only in matrix clauses but also in embedded clauses.

(22) a. Mary-ga [John-ga Becky-ni ringo-o 3-tu ageta
   Mary-NOM [John-NOM Becky-to apple-ACC 3-CL gave
to] itta.
   that] said
   ‘Mary said that John gave three apples to Becky.’

   b. Mary-ga [John-ga ageta to] itta no-wa [Becky-ni
   Mary-NOM [John-NOM gave that] said NL-TOP [Becky-to
   ringo-o 3-tu] da.
   apple-ACC 3-CL] be
   Lit. ‘It is [three apples to Becky] that Mary said that John gave.’
(23) a. Mary-ga Nancy-ni [John-ga ringo-o 3-tu katta
Mary-NOM Nancy-to [John-NOM apple-ACC 3-CL bought
to] itta.
that] said
‘Mary said to Nancy that John bought three apples.’
b. Mary-ga Nancy-ni [katta to] itta no-wa
Mary-NOM Nancy-to [bought that] said NL-TOP
[John-NOM apple-ACC 3-CL] be
Lit. ‘It is [John three apples] that Mary said to Nancy that
bought.’

Now note that, as shown in (24), it is not possible to cleft the matrix arguments along with the constituents of the embedded clause.

(24) a. Mary-ga Nancy-ni [John-ga ringo-o 3-tu katta
Mary-NOM Nancy-to [John-NOM apple-ACC 3-CL bought
to] itta (koto).
that] said
‘Mary said to Nancy that John bought three apples.’
b.*Katta to itta no-wa [Mary-ga Nancy-ni John-ga
bought that] said NL-TOP [Mary-NOM Nancy-to John-NOM
ringo-o 3-tu] da.
apple-ACC 3-CL] be
Lit. ‘It is [Mary Nancy John three apples] that said that bought.
(Mary said to Nancy that John bought three apples.)
The ungrammaticality of (24b) shows two points: i) overt verb raising
does not cross tensed clause boundaries, and ii) the clefting in Japanese
operates not on a linear sequence of words, but rather on a syntactic con-
stituent. As a further support for the syntactic nature of the cleft construction,
remnant clefting obeys syntactic island conditions, as illustrated by the
following examples.

(25) a. Mary-ga [John-ga Becky-ni ringo-o 3-tu ageta]
Mary-NOM [[John-NOM Becky-to apple-ACC 3-CL gave]
zikan]-o siritagatteiru (koto).
time]-ACC want.to.know
‘Mary wants to know the time when John gave three apples to
Becky.’
b.*Mary-ga [[John-ga ageta] zikan]-o siritagatteiru
Mary-NOM [[John-NOM gave] time]-ACC want.to.know
no-wa [Becky-ni ringo-o 3-tu] da.
NL-TOP [Becky-to apple-ACC 3-CL] be
Lit. ‘It is [three apples to Becky] that Mary wants to know the
time when John gave.’

(26) a. Mary-ga Nancy-ni [[John-ga ringo-o 3-tu katta]
Mary-NOM Nancy-to [[John-NOM apple-ACC 3-CL bought]
mise]-o osieta (koto).
store]-ACC told
‘Mary told Nancy the store at which John bought three apples.’

b.*Mary-ga Nancy-ni [[katta] mise]-o osieta no-wa
Mary-NOM Nancy-to [[bought] store]-ACC told NL-TOP
[John-NOM apple-ACC 3-CL] be
Lit. ‘It is [John three apples] that Mary told Nancy the store at
which bought.’

(27) a. Mary-ga [[John-ga ringo-o 3-tu taberu] maeni]
Mary-NOM [[John-NOM apple-ACC 3-CL eat] before]
kaetta (koto).
left
‘Mary left before John ate three apples.’

b.*Mary-ga [[taberu] maeni] kaetta no-wa [John-ga
Mary-NOM [[eat] before] returned NL-TOP [John-NOM
ringo-o 3-tu] da.
apple-ACC 3-CL] be
Lit. ‘It is [John three apples] that Mary left before ate.’

It is possible to cleft a remnant coordinate structure of the type we have dis-
cussed in the previous subsection (28–30), although clefting of a part of
the remnant coordinate structure is not allowed (31–32) (due to the
Coordinate Structure Constraint (Ross, 1967).
(28) Mary-ga ageta no-wa [[John-ni ringo-o (cf. (3))
Mary-NOM gave NL-TOP [[John-to apple-ACC
2-tu] to [Bob-ni banana-o 3-bon]] da.
2-CL] and [Bob-to banana-ACC 3-CL]] be
Lit. ‘It is [two apples to John and three bananas to Bob] that
Mary gave.’
(Mary gave two apples to John and three bananas to Bob.)

(29) Tabeta no-wa [[Mary-ga ringo-o 2-tu] (cf. (6))
ate NL-TOP [[Mary-NOM apple-ACC 2-CL]
to [Nancy-ga banana-o 3-bon]] da.
and [Nancy-NOM banana-ACC 3-CL]] be
Lit. ‘[Mary two apples] and [Nancy three bananas] ate.’
(Mary ate two apples and Nancy ate three bananas.)

(30) Ageta no-wa [[Mary-ga John-ni ringo-o (cf. (7))
gave NL-TOP [[Mary-NOM John-to apple-ACC
2-tu] to [Nancy-ga Bob-ni banana-o 3-bon]] da.
2-CL] and [Nancy-NOM Bob-to banana-ACC 3-CL]] be
Lit. ‘It is [Mary two apples to John and Nancy three bananas
to Bob] that gave.’
(Mary gave two apples to John and Nancy gave three bananas
to Bob.)

(31) * Mary-ga [[John-ni ringo-o 2-tu] to (cf. (3))
Mary-NOM [[John-to apple-ACC 2-CL] and
[Bob-ni]] ageta no-wa [banana-o 3-bon] da.
[Bob-to]] gave NL-TOP [banana-ACC 3-CL]] be
Lit. ‘It is three bananas that Mary gave two apples to John and
Bob.’
(Mary gave two apples to John and three bananas to Bob.)

(32) * [[Mary-ga John-ni ringo-o 2-tu] to (cf. (7))
[[Mary-NOM John-to apple-ACC 2-CL] and
[Nancy-ga]] ageta no-wa [Bob-ni banana-o 3-bon] da.
[Nancy-NOM]] gave NL-TOP [Bob-to banana-ACC 3-CL]] be
Lit. ‘It is [three bananas to Bob] that Mary gave two apples to
John, and Nancy.’
(Mary gave two apples to John and Nancy gave three bananas
to Bob.)
2.3. Scrambling

The third piece of evidence for overt verb raising has to do with scrambling. In most analyses of Subjacency, including Chomsky (1986) and Lasnik and Saito (1992), application of more than one long-distance movement from within the same clause necessarily yields a Subjacency violation. Thus, it is expected that if two or more constituents are scrambled out of an embedded clause, the resultant expression will be degraded. This prediction seems to be borne out, as shown by the following examples (Koizumi, 1991).

(33) a. No Scrambling

\[
\begin{align*}
\text{John-ga } & [Kiyomi-ga \text{ Hawai-de } \text{ Masami-ni} \\
\text{John-NOM } & [Kiyomi-NOM \text{ Hawai-at } \text{ Masami-DAT} \\
\text{present-ACC } & \text{ bought that }] \text{ believe} \\
'\text{John believes [that Kiyomi bought a present for Masami in Hawaii'].}'
\end{align*}
\]

b. One Scrambling

\[
\begin{align*}
\text{Hawai-de}_1 \text{ John-ga } & [Kiyomi-ga t_1 \text{ Masami-ni} \\
\text{Hawai-de}_1 \text{ John-NOM } & [Kiyomi-NOM t_1 \text{ Masami-DAT} \\
\text{present-ACC } & \text{ bought that }] \text{ believe}
\end{align*}
\]

c. Two Scramblings

\[
\begin{align*}
?? \text{Masami-ni}_2 \text{ Hawai-de}_1 \text{ John-ga } & [Kiyomi-ga t_1 \ t_2 \\
\text{Masami-DAT}_2 \text{ Hawai-de}_1 \text{ John-NOM } & [Kiyomi-NOM t_1 \ t_2 \\
\text{present-ACC } & \text{ bought that }] \text{ believe}
\end{align*}
\]

d. Three Scramblings

\[
\begin{align*}
??\text{Purezento-o}_3 \text{ Masami-ni}_2 \text{ Hawai-de}_1 \text{ John-ga} \\
\text{present-ACC}_3 \text{ Masami-DAT}_2 \text{ Hawai-de}_1 \text{ John-NOM} \\
[Kiyomi-ga t_1 \ t_2 \ t_3 \text{ katta to }] \text{ omotteiru (koto).} \\
[Kiyomi-NOM t_1 \ t_2 \ t_3 \text{ bought that }] \text{ believe}
\end{align*}
\]

However, the acceptability of a sentence with multiple instances of scrambling will improve significantly if it is parsed in such a way that the scrambled elements form an intonation phrase (Koizumi, 1991; see also Saito, 1985, p. 183). Thus, with appropriate intonation, the examples in (34) and (35) are acceptable.
John believes [that Kiyomi bought a present for Masami in Hawaii].) (Koizumi, 1991)

(Mary thinks that John handed that book to Bill.)
(adapted from Saito, 1985, p. 183)

To account for the acceptability of these sentences, I suggested in Koizumi (1991) that they involve a scrambling of the embedded VP (or some larger phrase), as schematically shown in (36).

Since this structure contains only one instance of long-distance movement, it is on a par with the grammatical example in (33b) with respect to Subjacency. The above-mentioned requirement that the fronted constituents form an intonation phrase helps to signal that they form a single syntactic constituent (i.e., VP in this case). This analysis crucially relies on the assumption that the main verb has overtly moved out of VP. Thus, if correct, it constitutes another argument for overt verb raising in Japanese.

There are good reasons to believe that an analysis along the lines of (36) is on the right track. First, we already saw in Section 2.1 that coordinated VPs can undergo long-distance scrambling. It would be quite surprising if a single VP cannot be scrambled.

Second, Miyagawa (1989, p. 64) points out that a floating numeral quantifier associated with the object can be scrambled clause-internally, but it cannot undergo long-distance scrambling, as shown in (37).
However, the long-distance scrambling of a floating numeral quantifier becomes possible if the associated object is fronted along with it.

Since (38) appears to involve long-distance scrambling of a floating numeral quantifier (in addition to long-distance scrambling of the object), it should be at least as ungrammatical as (37b). The contrast between (37b) and (38), therefore, is rather puzzling and calls for an explanation. The wanted explanation is readily obtained if we assume that a remnant VP created by overt verb raising may undergo scrambling: under this assumption, (38) can be derived by scrambling the embedded VP, rather than by scrambling the object and the floating numeral quantifier separately.

This is then another piece of supporting evidence for VP scrambling. The same conclusion can be drawn from the following examples.

(40) a. John-ga [Mary-ga Bill-ni ringo- o 3-tu ageta to]
     John-NOM [Mary-NOM Bill-to apple-ACC 3-CL gave that]
     omotteiru (koto).
     think
     ‘John thinks that Mary gave three apples to Bill.’
(40b) is derived from a structure like (40a) by scrambling the floating numeral quantifier from within the embedded clause. It is ungrammatical for the same reason as (37b). (40c) involves a short scrambling of the embedded object out of the embedded VP, creating the remnant VP constituent \([\text{VP} \text{Bill-to} \ 3-\text{CL}]\). In (40d), this remnant VP is scrambled to the sentence initial position. If the same sequence is derived by scrambling the dative object and the numeral quantifier individually, the resultant structure should be ungrammatical.

A similar argument can be constructed with scrambling of “true adjuncts” such as \textit{naze} ‘why’. Saito (1985, p. 174) observes that a true adjunct in the matrix domain can be associated with the matrix clause but not with the embedded clause. Thus, (41b) is ungrammatical with the interpretation of (41a).

(41) a. \text{Mary-wa [Bill-ga naze sono hon-o katta to]}\[\text{Mary-top [Bill-nom why that book-acc bought that]}\] ittano?\[\text{said Q}\]

‘Why did Mary say [that Bill bought the book t_i]?’

b.\text{Naze, Mary-wa [Bill-ga t_i sono hon-o katta why, Mary-top [Bill-nom t_i that book-acc bought to] itta no?] that said Q}

‘Why did Mary say that Bill bought the book?’
Saito takes this to indicate that a true adjunct cannot undergo long-distance scrambling. Interestingly, however, (41b) will be significantly improved if the embedded object is also fronted. Thus, the examples in (42) both allow naze to be associated with the embedded clause.

(42) a. Naze sono-hon-o, Mary-wa [Bill-ga katta to]
why that book-ACC Mary-TOP [Bill-NOM bought that]
itta no?
said Q
‘Why did Mary say that Bill bought the book?’
b. Sono-hon-o naze, Mary-wa [Bill-ga katta to]
that book-ACC why Mary-TOP [Bill-NOM bought that]
itta no?
said Q
‘Why did Mary say that Bill bought the book?’

This paradigm is naturally explained if we assume that what is fronted in (42) is the embedded VP (or some larger phrase) from which the embedded verb has moved out.

It seems then reasonable to conclude that a (non-coordinated) verb phrase can undergo scrambling, leaving its head verb behind, which has overtly raised to a higher functional head position.

Recall now that, in section 2.1, we observed that not only coordinated VPs, but also coordinated IPs can be fronted by scrambling. Furthermore, we have just concluded that a single VP can be scrambled. It is then expected that a single IP can scramble, too. This prediction seems to be correct: (43b) below is basically acceptable with appropriate intonation and a pause after the matrix subject (the pause makes it clear that Becky is not associated with the embedded verb).

(43) a. Becky-ga [Mary-ga Hanako-ni ringo-o ageta to]
Becky-NOM [Mary-NOM Hanako-to apple-ACC gave that]
omotteiru (koto).
believe
‘Becky believes that Mary gave an apple to Hanako.’
b. [IP Mary-ga Hanako-ni ringo-o], Becky-ga,
[IP Mary-NOM Hanako-to apple-ACC], Becky-NOM,
[ti ageta to] omotteiru (koto).
[ti, gave that] believe
Incidentally, the examples in (34), (35) and (43b) become totally ungrammatical if the embedded verb is fronted along with the other elements of embedded clause. This is shown below.

(44) a.* |Hawai-de Masami-ni purezento-o katta| John-ga
     |Hawaii-at Masami-DAT present-ACC bought| John-NOM
     [Kiyomi-ga to] omotteiru (koto).
     [Kiyomi-NOM that] believe
Lit. ‘[Bought a present for Masami in Hawaii] John believes that Kiyomi.’
‘John believes [that Kiyomi bought a present for Masami in Hawaii].’

b.* |Bill-ni sono hon-o watasita| Mary-ga [John-ga
     |Bill-to that book-ACC handed| Mary-NOM [John-NOM
to] omotteiru (koto).
that] think
Lit. ‘[Handed to Bill that book] Mary thinks that John.’
(Mary thinks that John handed that book to Bill.)

(45) * |Mary-ga Hanako-ni ringo-o ageta|, Becky-ga,
     |Mary-NOM Hanako-to apple-ACC gave|, Becky-NOM,
     [to] omotteiru (koto).
     [that] believe

(44a, b) suggest that main verbs in Japanese cannot stay within VP, and (45) suggests that they must overtly move out of IP. In other words, these examples, together with the other examples we have considered, indicate that main verbs in Japanese obligatorily raise to C in the overt syntax.

To summarize this section, we have presented three kinds of evidence for overt verb raising in Japanese, based on coordination, clefting, and scrambling, respectively. They collectively constitute a rather strong counterargument against Fukui and Takano’s (1998) proposal that head final languages in general do not have overt head movement.

3. APPARENT ALTERNATIVE ANALYSES

In this section, we consider conceivable alternative analyses of some of the examples presented in the preceding section and show that they do not undermine the central conclusion of this paper about the presence of overt verb raising in Japanese.
3.1. **Gapping**

Ross (1970) proposed the rule of Gapping, which derives (46b) from (46a) by deleting the verb in the second conjunct that is identical to the one in the first conjunct.

(46) a. The boy works in a skyscraper and the girl works in a Quonset hut.

b. The boy works in a skyscraper and the girl in a Quonset hut.

According to this analysis, (46b) has a structure identical to (46a), except that the second verb is elided, as shown in (47).

(47) 
\[
\text{[[the boy works in a skyscraper] and [the girl \textit{works} in a Quonset hut]]}
\]

If the Japanese coordination sentences we have been discussing are derived by Gapping, the sentence in (6), for example, will have the structure in (49) rather than that in (48).

(48) Structure of (6) under the verb raising analysis

\[
\text{[Mary-ga ringo-o 2-tu \textit{tabeta}] to [Nancy-ga banana-o 3-bon \textit{tabeta}. banana-ACC 3-CL \textit{tabeta}]}
\]

Lit. ‘[Mary two apples] and [Nancy three bananas] ate.’

(Mary ate two apples and Nancy ate three bananas.)

(49) Structure of (6) under the Gapping analysis

\[
\text{[[Mary-ga ringo-o 2-tu \textit{tabeta}] to [Nancy-ga banana-o 3-bon \textit{tabeta}] and [Nancy-ga banana-ACC 3-CL \textit{tabeta}]. banana-ACC 3-CL \textit{tabeta}]]
\]

Lit. ‘[Mary two apples] and [Nancy three bananas] ate.’

(Mary ate two apples and Nancy ate three bananas.)

The crucial difference between the verb raising analysis in (48) and the Gapping analysis in (49) is that in the former the verb is outside the coordinate structure, whereas in the latter the verb is within the coordinate structure. In other words, under the verb raising analysis, the underlined part in (48) is a syntactic constituent, whereas under the Gapping analysis there is no such constituent. Thus, it is expected that, if the verb raising analysis is correct, the underlined part may be affected by syntactic...
processes such as clefting and scrambling, without the verb being affected at the same time. On the other hand, if the Gapping analysis is correct, such processes should be impossible. We have already seen the prediction of the verb raising analysis is the correct one. For example, the underlined part in (48) is scrambled to the sentence initial position in (14), and it is the focus of the cleft construction in (29). These examples (as well as the more complex examples in (12–17) and (28–30) above) cannot be derived by Gapping in the sense of Ross (1970). More sophisticated treatments of Gapping such as Jayaseelan (1990) and Abe and Hoshi (1997) will, if extended to accommodate the type of sentences discussed in the present paper, also face similar problems (i.e., they predict incorrect constituent structure).

3.2. Right-Node-Raising

According to the most common view of Right-Node-Raising, it applies to a coordinate structure whose conjuncts end with identical constituents, adjoining a copy of the common constituent to the right of the whole coordinate structure and deleting all the originals (see Ross, 1970; and Postal, 1974). Under this view of RNR, (50) has the structure in (51).

(50) Joan sells, and Fred knows a man who repairs, washing machines.

(51) [[[Joan sells t1] and [Fred knows a man who repairs t1]] washing machines]

It has been pointed out that this conception of RNR is problematic in several respects (McCawley, 1982, 1987; Wexler and Culicover, 1980; Levine, 1984). To mention just one problem, if (51) is the correct structure, the NP washing machines is extracted from within the complex NP, violating the Complex NP Constraint. Nonetheless, the sentence does not have the oddity that normally accompanies CNPC violations (McCawley, 1982, 1987). Generally the constituent raised by RNR behaves as if it were in its original position(s). For this reason, McCawley (1982, 1987) suggests that RNR in fact does not change domination relations, and its output contains a discontinuous constituent, as shown in (52).
The Right-Node-Raised constituent, in this analysis, retains all constituency relations that the identical constituents in the input had. More recent three-dimensional treatments of the RNR construction, such as Moltmann (1992), share basic insights and properties of this analysis.

Now turning back to Japanese conjoined structures such as (3), if they are created by RNR and have a structure like (53) below, in which the verb is part of the coordinate structure, it is predicted that, whenever the coordinate structure is scrambled or clefted, its verb is also scrambled or clefted along with it.

That this prediction fails has been already shown by the examples in (12–17) and (28–30) above, in which the conjoined structures are scrambled or clefted without the verb being affected by the same process. A relevant example is repeated as (54).
Furthermore, the verb cannot be scrambled along with the (other parts of the) conjoined structures. Compare (54) with (55)\textsuperscript{11}

\[(54) \quad \text{[John-ni ringo-o 2-tu] to [Bob-ni banana-o [John-to apple-ACC 2-CL] and [Bob-to banana-ACC 3-bon]] Mary-ga t\textsubscript{i} ageta (sono zizitu).} \quad \text{`Mary gave two apples to John and three bananas to Bob.'} \]

\[(55) \quad \text{*John-ni ringo-o 2-tu to Bob-ni banana-o 3-bon} \quad \text{John-to apple-ACC 2-CL and Bob-to banana-ACC 3-CL} \quad \text{ageta Mary-ga (sono zizitu).} \quad \text{gave Mary-NOM (the fact)} \]

If the conjoined structures had a representation like (53), it should be possible to derive (55) by preposing the whole coordinate structure across the subject.

Thus, we can conclude that the Japanese coordination sentences under consideration are not derived by Right-Node-Raising. Rather, they are derived by across-the-board verb raising in the overt syntax, as has been suggested in the present paper.

3.3. Adjunction to Argument

When a pure adjunct wh-phrase such as \textit{naze} `why' occurs within a syntactic island, the expression is usually ungrammatical, as illustrated in (56).

\[(56) \quad \text{a.* John-wa [NP [IP sono hon-o naze katta] hito]-o} \quad \text{John- TOP [NP [IP that book-ACC why bought]  person-ACC} \quad \text{agasiteiru no?} \quad \text{looking-for Q} \quad \text{Lit. `Q John is looking for [the person [that bought that book why]]']}
\]

\[(56) \quad \text{b.* John-wa [NP [IP naze sono hon-o katta] hito]-o} \quad \text{John- TOP [NP [IP why that book-ACC bought]  person-ACC} \quad \text{agasiteiru no?} \quad \text{looking-for Q} \quad \text{(same as (56a))} \]

According to the standard analysis originally proposed by Huang (1982),
this is due to the ECP violation caused by LF-movement of the adjunct wh to the matrix CP Spec. Saito (1994) observes that examples with naze in a syntactic island are much better when there is another wh-phrase in a position higher than (i.e. c-commanding) naze within the same clause. Thus, (56a) will be significantly improved if sono hon ‘that book’ is replaced by nani ‘what’, but (56b) will not. This is shown in (57).

(57) a.??John-wa [SP [IP nani-o naze katta] hito]-o
   -TOP [NP [IP what-ACC why bought] person-ACC
   sagasiteiru no?
   looking-for Q
   Lit. ‘Q John is looking for [the person [that bought what why]]’

b. *John-wa [SP [IP naze nani-o katta] hito]-o
   -TOP [NP [IP why what-ACC bought] person-ACC
   sagasiteiru no?
   looking-for Q
   Lit. ‘Q John is looking for [the person [that bought what why]]’

(Saito, 1994)

To account for this “higher wh effect,” Saito (1994) argues that in LF, naze in (57a) can adjoin to the object wh and license its trace from the adjoined position, as shown in (58).

(58) 

When the object wh moves to the matrix CP Spec, naze is taken together with it. That is, the “complex wh-NP,” containing both nani and naze, moves out of the island, without causing an ECP violation (the marginality of (57a) is due to a Subjacency violation). The same saving effect is not observed in (57b) because naze cannot lower to adjoin to the object wh.

Sohn (1994) finds a similar paradigm with overt movement. Consider the following examples.
In (59a), the adjunct wh naze is scrambled out of an island, resulting in an ECP violation, whereas, in (59b), the argument wh dare-o ‘who-Acc’ is moved, yielding a mild Subjacency violation. In (59c), both naze and dare-o are extracted out of the island, hence the example should be at least as bad as (59a) because it violates the ECP as well as Subjacency. However, (59c) is much better than (59a), and has the status of (59b).

Sohn (1994) suggests, extending Saito’s LF adjunction analysis to overt movement, that (59c) can be derived by overtly adjoining naze to dare-o and scrambling the complex wh-NP out of the island. This derivation violates Subjacency but not the ECP, accounting for the marginal status of (59c).

It is interesting to note that, unlike the LF saving effect discussed by Saito (1994), Sohn’s S-structure saving effect is observed even if the argument moved together with naze is not a wh-phrase (60b). Furthermore, when the “saver argument” is a non wh-phrase, naze may precede it (60c).
Sohn (1994) claims that overt adjunction to an argument is possible either from the right or from the left of the target. Thus, according to his analysis, \textit{naze} adjoins to the embedded object from the right in (60b), and from the left in (60c).

Turning back to overt verb raising, it appears possible to extend Sohn’s overt adjunction to argument analysis to some of the examples we presented in Section 2 as evidence for overt verb raising. Consider the following example.

\textbf{(61)} (= (18b))
\begin{center}
\text{Mary-ga ageta no-wa [John-ni ringo-o 3-tu] da.  \\
Mary-NOM gave NL-TOP [John-to apple-ACC 3-CL] be}
\end{center}

\begin{center}
\text{Lit. ‘it is [three apples to John] that Mary gave.’}
\end{center}

We argued in Section 2.2 that what is clefted in this sentence is a verb phrase (or some larger phrase) containing a trace left behind by overt verb raising. Given Sohn’s proposal of overt adjunction to argument, however, the focused constituent can be a complex NP created by adjoining one internal argument (and a floating numeral quantifier) to the other. Similarly, the sentence initial sequence \textit{Bill-ni sono hon-o} ‘to Bill that book’ in (62) below, which we argued is a verb phrase (or some larger phrase) in Section 2.3, might be a complex NP consisting of the accusative argument adjoined to the dative argument.
If all the examples discussed in this paper can be reanalyzed along these lines, our arguments for overt verb raising in Japanese will lose their empirical bases.

There is however good reason to believe that verbs in Japanese do undergo overt head movement. For one thing, there are a number of cases that cannot be accounted for by the overt adjunct to argument analysis. For example, consider again the following sentence with a coordinate structure.

(63) (= (3))

Mary-ga [[John-ni ringo-o 2-tu] to [Bob-ni banana-o 3-bon]] ageta (koto).

'Mary gave two apples to John, and three bananas to Bob.'

We argued in Section 2.1. that each conjunct in (63) is a verb phrase (or some larger phrase). This example cannot be derived by overt adjunct to argument alone without also assuming over verb raising. Similarly, the following cleft sentence with a coordinate structure in the focus position is problematic for the overt adjunction to argument analysis.

(64) (= (28))


Lit. 'It is [two apples to John and three bananas to Bob] that Mary gave.
(Mary gave two apples to John and three bananas to Bob.)

Generally, the adjunction to argument analysis cannot account for expres-
visions with a coordinate structure if each conjunct contains more than one member (argument/adjunct). Thus, all the examples discussed in Section 2.1. (as well as some examples in other sections) are outside the scope of the overt adjunction to argument analysis. Therefore, even if the overt adjunction operation of the kind suggested by Sohn is possible, overt verb raising is still necessary to account for them.

Note furthermore that given the availability of overt verb raising, there is no positive evidence for the availability of overt adjunct to argument, anymore: virtually all the data discussed by Sohn (1994) can be reanalyzed as involving overt verb raising and remnant movement. Take (59c), for example, repeated here as (65). This is one of Sohn’s central examples.

(65) (59c) Dare-o, naze, John-wa [Mary-ga t, ti uttaeta to iu]
    who  why   TOP NOM sued
         uwasa]-o  kiita-no?
rumor-ACC  heard-Q

According to Sohn, what is fronted in (65) is a complex NP consisting of naze and dare-o, which is created by overt adjunction of the former (naze) to the latter (dare-o). Given overt verb raising, however, the same string can be also derived, without relying on overt adjunction to argument, by fronting the embedded VP (or some larger phrase) containing naze and dare-o, as shown in (66).

(66) (59c) [VP dare-o naze] John-wa [Mary-ga t, ti uttaeta to iu]
    who-ACC  why John-TOP Mary-NOM sued that
         uwasa]-o  kiitta-no
rumor-ACC  heard-Q

Since VP behaves as argument rather than as adjunct with respect to the ECP (Chomsky, 1986, p. 20), the extraction of the embedded VP out of a complex NP in this example yields only a mild Subjacency violation. This analysis can be straightforwardly extended to the other examples of Sohn’s, such as those in (60). Thus, given the independently motivated overt verb raising and remnant movement, it is not clear anymore if overt adjunction to argument is possible at all.

In fact, there is some doubt about the availability of overt adjunction to argument. Consider the following examples.

(67) a. John-ga nani-o naze katta no?
    -NOM what-ACC why bought Q

‘Why did John buy what?’
(67a) is a perfectly acceptable multiple wh-question, whereas (67b) is unacceptable for many speakers. A number of researchers have suggested that, when *naze* c-commands another wh-phrase as in (67b), the structure yields an ECP violation (see Watanabe, 1992; Saito, 1994), and the references cited there. We assume, without further discussion, that some version of the ECP account is correct.

Now suppose, following Sohn (1994), that overt adjunction of *naze* to *nani-o* (and scrambling of the resultant complex wh-phrase) is possible. Then it should be possible to derive the following structures from an underlying form similar to (67a).

\[(68) \begin{align*}
\text{a. } & \text{[what][why]} \text{ John } t_1 \ t_j \text{ bought } Q \\
\text{b. } & \text{[why][what]} \text{ John } t_1 \ t_j \text{ bought } Q
\end{align*}\]

The structure of the complex wh-NP in (68b) is the same as the one in (58) (i.e., Saito’s (1994) structure in LF) and the one assumed in Sohn’s analysis of (60c) (except that the fronted object is a non-wh-phrase in (60c)). Furthermore, it is identical to the structure of the complex wh-phrase in (68a) in terms of hierarchical relations (although the linear order is different). Thus, the overt adjunction to argument analysis predicts that the expression that corresponds to (68b) should be as grammatical as the one corresponding to (68a). The prediction is not borne out, however. The sequence corresponding to (68a) is perfectly acceptable, whereas the one corresponding to (68b) is unacceptable and has the status of (67b). This is shown in (69).

\[(69) \begin{align*}
\text{a. } & \text{Nani-o naze John-ga katta no? (cf. (68a))} \\
\text{b.*?Naze nani-o John-ga katta no? (cf. (68b))}
\end{align*}\]

The ungrammaticality of (69b) indicates, contrary to Sohn (1994), that overt adjunction to argument is not possible. It seems that the examples in (69) are derived either by scrambling *naze* and *nani-o* separately or by scrambling the verb phrase. According to this analysis, (69b) is ambiguous between the following two possibilities.

\[(70) \begin{align*}
\text{a.*?Naze}_j \text{ nani-o}_i \text{ John-ga } t_1 \ t_j \text{ katta no?} \\
\text{why what-ACC John-NOM bought Q}
\end{align*}\]
In either case, naze c-commands nani-o in the derived structure, which eventually leads to an ECP violation, in much the same way as in (67b). The following examples point to the same conclusion.

   itta no?
said Q
    ‘Why did Mary say that John bought what?’

b.*?Naze nani-o Mary-wa [John-ga katta to] what-ACC why Mary-TOP [John-NOM bought that]
   itta no?
said Q
    ‘*What did Mary say [that John bought why]?’

(72) a. John-ga katta no-wa nani-o naze na-no?
    John-NOM bought NL-TOP what-ACC why be-Q
    Lit. ‘What why is it that John bought?’

b.*?John-ga katta no-wa naze nani-o na-no?
    John-NOM bought NL-TOP why what-ACC be-Q

Although (71b) and (72b) are ungrammatical, they should be grammatical under Sohn’s overt adjunction to argument analysis, which allows naze to adjoin to the embedded object prior to the long-distance scrambling or clefting of the complex NP [naze nani-o]. This, again, suggests that overt adjunction to argument is not allowed by the grammar, and what undergoes long-distance movement or clefting in these examples is a verb phrase. As a further confirmation of this conclusion, consider again the following pair.

(73) (= (57))

    sagasiteiru no?
    looking-for Q
    ‘Q John is looking for [the person [that bought what why]]?’
As we have mentioned above, Saito (1994) suggests that *naze* in (73a) adjoins to *nani-o* in LF and the resultant complex wh-phrase undergoes LF wh-movement out of the complex NP, yielding a mild Subjacency violation but not an ECP violation. The parallel derivation is not available in (73b) because here *naze* cannot adjoin to *nani-o* as the former is higher than the latter. Thus, *naze* in (73b) must undergo LF wh-movement out of the island, causing an ECP violation. Now, if *naze* in (73a) can overtly adjoin to *nani-o* either from the left or from the right, and the complex wh-phrase can scramble to the sentence initial position, then it is expected that the following examples are both only mildly awkward on a par with (73a), contrary to the fact.

Although (74a) is only marginal as is predicted, (74b) is much worse. This is unexpected under Sohn’s analysis. On the other hand, the observed contrast is readily explained if we assume that overt adjunction to argument is not possible, and that what is fronted in these examples is a verb phrase (or some larger phrase), as shown below.


‘Q John is looking for [the person [that bought what why]]?’
Like (66), both (75a) and (75b) violate Subjacency. In addition, (75b) involves an ECP violation caused by naze c-commanding nani-o. Hence the contrast in (75).

To summarize this subsection, we have first shown that there are a number of examples that can be explained by the overt verb raising analysis but are outside the scope of the overt adjunction to argument analysis. We next argued that, given independently motivated overt verb raising and remnant movement, there is no positive evidence for overt adjunction to argument: all the data presented by Sohn (1994) as evidence for overt adjunction to argument can be accommodated by the overt verb raising analysis without assuming overt adjunction to argument. Finally, we have discussed several cases which cast serious doubt on the availability of overt adjunction to argument.

4. CONSEQUENCES

Having established that Japanese has obligatory overt verb raising, in this section we will discuss some of its important consequences for some aspects of Japanese syntax and for the general theory of Universal Grammar.

4.1. Complex Predicate Formation

Japanese has several types of highly productive complex predicate constructions, some examples of which are shown below.

(76) Raising (Non-stative)

\[ \text{John-ga ringo-o tabe-kake-ta (koto).} \]
\[ \text{John-NOM apple-ACC eat-be.about.to-PAST} \]

‘John was about to eat an apple.’

(77) Control (Non-stative)

\[ \text{John-ga ringo-o tabe-wasure-ta (koto).} \]
\[ \text{John-NOM apple-ACC eat-forget-PAST} \]

‘John forgot to eat an apple.’
Control (Stative)

John-ga ringo-o/-ga tabe-rare-ru (koto).
John- NOM apple-ACC/-NOM eat-can-PRES

‘John can eat an apple.’

These sentences all have syntactic complementation, and the constituent verbs of a complex verb are underlyingly separate syntactic terminal nodes (i.e., they are not derived in the lexicon), as schematized in (79) (Shibatani, 1978; Kageyama, 1993; Nishigauchi, 1993; Koizumi, 1998).

(79) [. . . [. . . object V] V]

The sentence final V-V sequence forms a phonological word. The question then arises as to whether the V-V sequence constitutes a syntactic unit at some level(s) of representation, and if it does, how and when it is derived. We would like to suggest that the complex verb is formed by raising the lower verb to the higher verb under head to head movement. For the now familiar reasons, the following examples show that the embedded verbs, as well as the matrix verbs, raise to the position higher than the matrix subject before Spell-Out, which in turn implies that the complex verbs are formed in overt syntax.

(80) Raising (Non-stative)

a. John-ga ringo-o 2-tu to Mary-ga banana-o
   John- NOM apple-ACC 2-CL and Mary- NOM banana-ACC
   3-bon tabe-kake-ta (koto).
   3-CL eat-be.about.to-PAST

   Lit. ‘[[John two apples] and [Mary three bananas]] was about to eat.’
   (John was about to eat two apples, and Mary three bananas.)

   eat-be.about.to-PAST NL-TOP John- NOM apple-ACC 2-CL be

   Lit. ‘It is [John two apples] that was about to eat.’
   (John was about to eat two apples.)
(81) Control (Non-stative)
   a. John-ga ringo-o 2-tu to Mary-ga banana-o
      John-NOM apple-ACC 2-CL and Mary-NOM banana-ACC
      3-bon tabe-wasure-ta (koto).
      3-CL eat-forget-PAST
      Lit. ‘[[John two apples] and [Mary three bananas]] forgot to eat.’
      (John forgot to eat two apples, and Mary three bananas.)
      eat-forget-PAST NL-TOP John-NOM apple-ACC 2-CL be
      Lit. ‘It is [John two apples] that forgot to eat.’
      (John forgot to eat two apples.)

(82) Stative (Control)
   a. John-ga ringo-o/-ga 2-tu to Mary-ga
      John-NOM apple-ACC/-NOM 2-CL and Mary-NOM
      banana-o/-ga 3-bon tabe-rare-ru (koto).
      banana-ACC/-NOM 3-CL eat-can-PRES
      Lit. ‘[[John two apples] and [Mary three bananas]] can eat.’
      (John can eat two apples, and Mary three bananas.)
      eat-can-PRES NL-TOP John-NOM apple-ACC/-NOM 2-CL be
      Lit. ‘It is [John two apples] that can eat.’
      (John can eat two apples.)

The following examples show that causative constructions also undergo complex verb formation before the derivation branches off to PF:

(83) Causative
   a. John-ga Becky-ni ringo-o 2-tu to Mary-ga
      John-NOM Becky-DAT apple-ACC 2-CL and Mary-NOM
      Bryn-ni banana-o 3-bon tabe-sase-ta (koto).
      Bryn-DAT banana-ACC 3-CL eat-CAUS-PAST
      Lit. ‘[[John Becky two apples] and [Mary Bryn three bananas]]
      made eat.’
      (John made Becky eat two apples, and Mary made Bryn eat three bananas.)
b. Tabe-sase-ta no-wa John-ga Becky-ni ringo-o
eat-CAUS-PAST NL-TOP John-NOM Becky-DAT apple-ACC
2-tu da.
2-CL be
Lit. ‘It is [John Becky two apples] that made eat.’
(John made Becky eat two apples.)

The above discussion constitutes a counterargument to certain analyses of complex predicate constructions. For example, Takezawa (1987) suggests that the potential construction of the type exemplified in (82) schematically has a structure like (84a) after Reanalysis. Inf then lowers to the complex verb at S-structure in order to assign Nominative Case to the nominative object, as shown in (84b).

(84) Takezawa’s (1987) analysis of the potential construction

```
(84) a. VP
    /     \
   /       \ 
 NP      I'
    /     \ 
 VP      I
   /     \  
 NP      V
    /     \ 
 eego   hanas-e
    /     \ 
 John   ru
```

Under this analysis, the complex verb is lower than the subject at the point of Spell-Out. If this were the case, the subject and the object should not be able to occur in the same conjunct or in the same focused constituent that excludes the complex verb, contrary to the facts shown in (82).

A similar remark applies to so-called excorporation analyses according to which a complex verb is introduced to syntax as a single unit as in (85a), and is later “decomposed” by excorporation head movement of its constituent (or Affix Raising) as in (85b) (cf. Kitagawa, 1986).
Whether the excorporation takes place between D-structure and S-structure, or between S-structure and LF, the embedded verb remains lower than the matrix subject throughout the derivation. Thus, in this type of analyses, there is no constituent that dominates the matrix subject and the embedded object but not the (combined) verbs. This is in direct conflict with the coordination and cleft facts we have seen above.

In sum, we have shown that complex verbs in Japanese are formed by overt verb raising, hence lowering analyses and excorporation analyses of the complex verb constructions cannot be maintained.

4.2. Are Floating Quantifiers Floating?

Argument NPs in Japanese may be modified by a floating numeral quantifier (NQ), as exemplified below.

(86) a. **Gakusee-ga 2-ri kita (koto).**  
students-NOM 2-CL came  
‘Two students came.’

b. **Becky-ga ringo-o 3-tu katta (koto).**  
Becky-NOM apple-ACC 3-CL bought  
‘Becky bought three apples.’

There are two broad hypotheses concerning the constituency of the string “NP-Case NQ.” Under the “base-generation” hypothesis, on the one hand, NP-Case and NQ are base-generated as separate constituents; under the “single constituency” hypothesis, on the other hand, they form a single constituent “at base” (see Kamio, 1977; Ueda, 1986; Miyagawa, 1989;
Terada, 1990; Kitahara, 1992; Fujita, 1994; Miyamoto, 1994; Kawashima, 1998, among many others). Thus, Miyagawa (1989) suggests that both the NQ and its host NP in (86b) are directly dominated by VP, as shown in (87a); whereas Kitahara (1992) maintains that they comprise an object DP, as in (87b).

(87) a. \[ \text{VP} \{\text{NP-Case} \ [\text{NQ}] \text{ V} \} \]

b. \[ \text{VP} \{\text{DP} \ [\text{NP-Case NQ}] \text{ V} \} \]

Both Miyagawa (1989) and Kitahara (1992) assume that, when NQ and its host NP are separated as in (88), the NP has moved from its original position.

(88) \[ \text{Ringo-o} \ i \text{Becky-ga} \ t_i \text{3-tu katta (koto).} \]
\[ \text{apple-ACC}_i \text{Becky-NOM} \ t_i \text{3-CL bought} \]

‘Becky bought three apples.’

The central evidence for the single constituency hypothesis has to do with coordination and clefting. Kamio (1977) observed that “NP-Case NQ” can be coordinated or clefted, as shown below.

(89) a. \[ \{[\text{Gakusee-ga} \ 2-ri] \text{ to } [\text{sensee-ga} \ 3-nin]\} \]
\[ \{[\text{students-NOM} \ 2-CL] \text{ and } [\text{teacher-NOM} \ 3-CL]\} \]
\[ \text{kita (koto).} \]
\[ \text{came} \]

‘Two students and three teachers came.’

b. \[ \text{Becky-ga} \ [\text{ringo-o} \ 3-tu] \text{ to } [\text{banana-o} \ 7-hon]\] \[ \text{Becky-NOM} \ [\text{apple-ACC} \ 3-CL] \text{ and } [\text{banana-ACC} \ 7-CL]\] \[ \text{katta (koto).} \]
\[ \text{bought} \]

‘Becky bought three apples and seven bananas.’

(90) a. \[ \text{Kita no-wa} \ [\text{Gakusee-ga} \ 2-ri] \text{ da.} \]
\[ \text{came NL-TOP} \ [\text{students-NOM} \ 2-CL] \text{ be} \]

‘It is two students that came.’

b. \[ \text{Becky-ga} \text{katta no-wa} \ [\text{ringo-o} \ 3-tu] \text{ da.} \]
\[ \text{Becky-NOM bought NL-TOP} \ [\text{apple-ACC} \ 3-CL] \text{ be} \]

‘It is three apples that Becky bought.’

These two constituency tests suggest that NQ and its host NP form a constituent. From this, Kamio (1977) concluded that the base-generation
hypothesis must be rejected in favor of the single constituency hypothesis.

This was a fair conclusion in the late seventies, when Japanese clause structure was assumed, by many researchers, to be “flat” without a verb phrase, and the possibility of overt V to C movement was not even dreamt of. However, now that we know verbs in Japanese overtly raise to a position higher than the subject, Kamio’s conclusion is not warranted anymore. For example, (89b) might be a VP coordination, as shown in (91), with which the base-generation hypothesis as well as the single constituency hypothesis are compatible.

(91) Becky-ga [vp [vp ringo-o 3-tu t_c] to [vp banana-o Becky-NOM [vp [vp apple-ACC 3-cl t_c] and [vp banana-ACC 7-bon t_c] katta. 7-cl t_c] bought. ’Becky bought three apples and seven bananas.’

Similarly, the focused constituent in (90a) can be a remnant IP:

(92) Kita no-wa [ip Gakusee-ga 2-ri t_c] da. came NL -TOP [ip students-NOM 2-cl t_c] be ’It is two students that came.’

Thus, while the NP coordination and NP cleft analyses are possibilities, they are not the only analyses compatible with the data in (89) and (90). Specifically, the conjuncts and the focus constituent in question may be a remnant VP, vP, or IP. Thus, to the extent that this is correct, the base-generation hypothesis of the floating quantifier construction can be maintained, and the single constituency hypothesis has lost its strongest (and only) piece of evidence.

As a further support for this conclusion, consider the following sentences.13

(93) a. [[Gakusee-ga kinoo 2-ri] to [sensee-ga kyoo [[students-NOM yesterday 2-cl] and [teacher-NOM today 3-nin]] kita (koto). 3-cl]] came ’Two students came yesterday, and three teachers came today.’


The focus constituent in (93b) contains an adverb ‘yesterday’, which
modifies the event of buying rather than the object NP ‘apples’. Since event modifiers such as time adverbials do not normally occur within non-event denoting nominal phrases, the grammatically of the sentence suggests that the focus constituent is not an NP (or DP or QP); rather it is an event denoting category such as VP. For the same reason, the conjuncts in (93a), containing a time adverb, cannot be NPs. They are most likely IPs. The following sentences with secondary predicates point to the same conclusion.14

(94) a. [[Gakusee-ga hadakade 2-ri] to [sensee-ga [[students-NOM naked 2-CL] and [teacher-NOM hadaside 3-nin]] hasitta (koto). barefooted 3-CL]] run
   ‘Two students run naked, and three teachers run barefoot.’

   Lit. ‘It is two pieces of bonito raw that John ate.’
   (John ate two pieces of bonito raw.)

Cases like (95) may be derived by two applications of scrambling in addition to head movements. This is schematically shown in (96).

(95) [[Tyuugokuzin-ga 2-ri] to [nihonzin-ga 3-nin]]
   [[Chinese-NOM 2-CL] and [Japanese-NOM 3-CL]]
   ronbun-o happyoosita (koto).
   paper-ACC presented
   ‘Two Chinese and three Japanese presented their papers.’

(96) a. [[[Chinese two papers t,] and [Japanese three papers t,]] presented,
   “across-the-board” overt V-Raising ]

b. papers, [[[Chinese two t, t,] and [Japanese three t, t,]] presented,
   “across-the-board” scrambling ]

c. [[[Chinese two t, t,] and [Japanese three t, t,]] papers, t, presented,
   scrambling ]

Since, under this analysis, both conjuncts in (96c) contain a trace of the scrambled object, it is expected that NQs associated with the traces may occur in the conjuncts. This prediction is in fact borne out.15
Again, this is totally unexpected if what is coordinated or clefted is an NP as in Kamio’s (1977) analysis.

To summarize, the two central cases motivating the single constituency hypothesis of the NQ construction turned out to be non-evidence. They can be readily explained under the base-generation hypothesis if Japanese is a language with overt verb raising as we have argued. Note, however, that the discussion above is not an argument against the single constituency hypothesis. All we have shown in this subsection is that if there is evidence for the single constituency hypothesis, we have not seen it.

4.3. Proper Binding Condition

It has been an issue whether the Proper Binding Condition holds at S-structure (see Harada, 1972; Fiengo, 1977; May, 1977; Saito, 1985, 1989, 1992; Lasnik and Saito, 1992; Basten and Webelhuth, 1990; Müller, 1993, 1994; Collins, 1994; Takano, 1994; Kitahara, 1994, among many others).

(98) Proper Binding Condition: Traces must be bound. (Fiengo, 1977; May, 1977)

In this subsection, we argue that, if the proposed analysis of overt verb raising in Japanese is correct, the PBC does not apply in overt syntax. We further suggest that the PBC as a specific condition should be eliminated from grammar altogether.

Consider (99c) below, which is derived from (99a) by two applications of scrambling. The embedded object is first scrambled to the sentence initial position as shown in (99b), then the embedded clause containing the trace of the fronted object is preposed across that object.

Saito (1989) argues that, if the PBC applies at S-structure (as well as LF), (99c) is correctly ruled out by this condition, as the preposed clause contains an unbound trace \( t_i \). On the other hand, if the PBC holds only at LF, the ungrammaticality of (99c) remains unexplained. This is because, given the common assumption that (long-distance) scrambling can be freely undone in LF (cf. Saito (1985)), one possible LF representation of (99c) should be basically the same as that of the grammatical (99a). Thus, the ungrammaticality of (99c) cannot be attributed to a violation of the PBC at LF, hence it is regarded as one of the central cases motivating S-structure application of the PBC.16

A number of proposals have been made to eliminate S-structure application of the PBC (see Müller, 1993, 1994; Takano, 1994; Kitahara, 1994, 1997, to name just a few). Most such proposals are designed, in part, to derive Müller’s (1993, 1994) generalization:

(100) A Restatement of Müller’s generalization

If \( \alpha \) dominates a trace of \( \beta \) which has been created by a certain type of movement, \( \alpha \) cannot undergo the same type of movement yielding the structure in which the trace of \( \beta \) in \( \alpha \) is unbound.

(adapted from Müller (1993, 1994) with modification by M.K.)

Kitahara (1994, 1997) argues that, given Müller’s generalization (or more general principles which derive it), the ungrammaticality of (99c) can be accounted for, without recourse to S-structure application of the PBC, in the following manner:17 Movement (I) in (99) is long-distance, A-bar, scrambling.18 Movement (II) is middle-distance scrambling, which can be either A or A-bar movement. Then, there are two possible derivations for (99c), as shown in (101).
Two possible derivations of (99c):

<table>
<thead>
<tr>
<th></th>
<th>(I)</th>
<th>(II)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Derivation I</td>
<td>A-bar A</td>
<td>*PBC violation at LF</td>
</tr>
<tr>
<td>Derivation II</td>
<td>A-bar A-bar</td>
<td>*violation of Müller’s generalization</td>
</tr>
</tbody>
</table>

If movement (II) is A-scrambling, (99c) is ruled out by the PBC at LF, because A-scrambling cannot be undone or “reconstructed.” On the other hand, if movement (II) is A-bar scrambling, (99c) violates Müller’s generalization because the A-bar scrambled clause contains a trace created by the same type of movement, i.e. the A-bar scrambling (I).

Given an analysis of (99c) in terms of Müller’s generalization, it is predicted that the structure created by the derivation in (102) is grammatical.


b. Y$_1$ . . . X . . . [. . . t$_i$ . . .] . . .

\[\text{A-scrambling}\]

c. [. . . t$_i$ . . .] . . . Y$_i$ . . . X . . . t$_j$ . . .

\[\text{A-bar scrambling}\]

This is so because (102c) violates neither Müller’s generalization nor the PBC at LF (Note that A-bar scrambling can be undone in LF). This prediction is borne out. As we saw in section 2.1, (15c), repeated here as (103c), is perfectly acceptable.

(103) a. [Tom-ga Mary-ni ringo-o 2-tu] to [Bob-ga [Tom-nom Mary-to apple-ACC 2-CL] and [Bob-nom Mary-ni banana-o 3-bon]] ageta (koto).

Mary-to banana-ACC 3-CL] gave

Lit. ‘[Tom two apples to Mary] and [Bob three bananas to Mary] gave.’

(Tom gave two apples to Mary and Bob gave three bananas to Mary.)

b. Mary-ni [Tom-ga t, ringo-o 2-tu] to [Bob-ga t, Mary-to [Tom-nom t, apple-ACC 2-CL] and [Bob-nom t, banana-o 3-bon]] ageta (koto).

banana-ACC 3-CL] gave

[“across-the-board” scrambling]
c. \[\text{[(Tom-ga} \ t_i \ \text{ringo-o} \ 2-tu] \text{ to } \text{[(Bob-ga} \ t_i \ \text{apple-ACC} \ 2-CL] \text{ and } \text{[(Bob-NOM} \ t_i \ \text{banana-o}} \ 3-bon\text{)], Mary-ni,} \ t_i \ \text{ageta (koto).} \]

\[\text{[(Nancy-ni} \ t_j \ \text{ringo-o} \ 3-tu]) \text{ gave (koto).} \]

The example (103c) is derived from (103a), by first scrambling the Goal object to the sentence initial position in the “across-the-board” manner as in (103b), and then fronting the coordinate structure across the previously preposed Goal object. The two movements are both middle-distance scrambling, hence they can be either A or A-bar movement. There are thus four possible combinations, as shown in (104).

\[
\begin{array}{ccc}
\text{(I)} & \text{(II)} & \\
\text{Case I} & \text{A-bar} & \text{A-bar} \quad \text{*violation of Müller’s generalization} \\
\text{Case II} & \text{A} & \text{A} \quad \text{*violation of Müller’s generalization} \\
\text{Case III} & \text{A-bar} & \text{A} \quad \text{*PBC violation in LF} \\
\text{Case IV} & \text{A} & \text{A-bar} \\
\end{array}
\]

Case I and Case II are ruled out by Müller’s generalization (or more general principles that derive it). Case III and Case IV do not violate Müller’s generalization. In Case III, the coordinate structure is A-scrambled, which cannot be undone or “reconstructed.” Therefore, it contains unbound traces, at LF, in violation of the PBC. The remaining possibility is Case IV. The grammaticality of (103c) suggests that Case IV is allowed by the grammar. In fact, it not only obeys Müller’s generalization, but it also satisfies that PBC at LF, as the A-bar scrambling of the coordinate structure can be undone in LF. Note that, if the PBC were to apply at S-structure, (103c) should be ruled out. Thus, the grammaticality of (103c) strongly suggests that the PBC as an S-structure requirement does not exist. The following examples point to the same conclusion.

\[
\begin{array}{ccc}
\text{(105) (= (16))} & \\
\text{a.(?) [[(Tom-ga} \ Mary-ni \ \text{ringo-o} \ 2-tu] \text{ to } \text{[(Bob-ga} \ Mary-to \ \text{apple-ACC} \ 2-CL] \text{ and } \text{[(Bob-NOM} \ Nancy-ni \ \text{ringo-o} \ 3-tu]) \text{ gave (koto).} \\
\text{Nancy-to} \ \text{apple-ACC} \ 3-CL]\text{ gave}} \\
\text{Lit. ‘[Tom two apples to Mary] and [Bob three bananas to Mary] gave.’} \\
\text{(Tom gave two apples to Mary and Bob gave three bananas to Mary.)} \\
\end{array}
\]
Consider further the following examples.
(107) a.? John-ga [[[[Tom-ga Mary-ni ringo-o 2-tu] to John-NOM [[[Tom-NOM Mary-to apple-ACC 2-CL] and [Bob-ga Mary-ni banana-o 3-bon]] ageta to] [Bob-NOM Mary-to banana-ACC 3-CL]]] gave that]
omotteiru (koto).

Lit. ‘John believes [that [Tom two apples to Mary] and [Bob three bananas to Mary] gave.’

(John believes that Tom gave two apples to Mary and Bob gave three bananas to Mary.)

b.? Mary-ni John-ga [[[Tom-ga ti ringo-o 2-tu] to
Mary-to, John-NOM [[[Tom-NOM ti apple-ACC 2-CL] and

(I) "across-the-board"

[Bob-ga ti banana-o 3-bon]] ageta to]
[Bob-NOM ti banana-ACC 3-CL]] gave that]

A-bar scrambling

nomotteiru (koto).

believe

c.? [[[Tom-ga ti ringo-o 2-tu] to [Bob-ga ti
[[[Tom-NOM ti apple-ACC 2-CL] and [Bob-NOM ti

banana-o 3-bon]], Mary-ni, John-ga [ti ageta to]
banana-ACC 3-CL]], Mary-to, John-NOM [ti gave that]

(II) A-bar scrambling

nomotteiru (koto).

believe

This derivation, like the derivation of the ungrammatical (99c), contains A-bar scramblings, in violation of Müller’s generalization. Thus, the example (107c) should be as unacceptable as (99c), yet it is only mildly awkward (probably due to parsing difficulties). The sentence is grammatical because it has (at least) two conceivable alternative derivations that obey Müller’s generalization, as shown below.
(108) a. ?John-ga [ [[Tom-ga Mary-ni ringo-o 2-tu] to John-NOM [[ [[Tom-NOM Mary-to apple-ACC 2-CL] and [Bob-ga Mary-ni banana-o 3-bon]] ageta to] [Bob-NOM Mary-to banana-ACC 3-CL]] gave that] omotteiru (koto).

Lit. ‘John believes [that [Tom two apples to Mary] and [Bob three bananas to Mary] gave.’

(John believes that Tom gave two apples to Mary and Bob gave three bananas to Mary.)


that] believe

that] believe
In these derivations, A-traces ($t_i$) are created in the coordinate structure, which subsequently undergoes A-bar scrambling. These derivations conform to Müller’s generalization, hence the resultant structure is grammatical.
To summarize so far, we have seen that the PBC does not apply in overt syntax. This is a desirable result from the perspective of the minimalist program, in which S-structure does not have independent status unlike in earlier theories. A question then arises as to whether the PBC applies at LF. We have seen that, to account for the ungrammaticality of (99c), it is necessary to rule out the two derivations listed in (101). Derivation II is excluded by Müller’s generalization. In Derivation I, there is an unbound A-bar trace at LF, which was ruled out by appealing to the PBC. Thus, there seems to be evidence that A-bar traces must be bound at LF. The following examples demonstrate the same point.20

(110) a. John-wa [Bill-ga sono ie-o katta koto]-o
   sūranai.
   know-not
   ‘John doesn’t know that Bill bought that house.’

b. ?Sono ie-o, John-wa [Bill-ti katta koto]-o
   sūranai.
   know-not

   (I)

(II)

c.* [Bill-ti katta koto]-o sono ie-o, John-wa ti
   sūranai.
   know-not

What we do not have is evidence showing that traces left behind by A-movement and head-movement are subject to the PBC at LF. In view of the examples of the following sort, in which traces of A-moved or head-moved elements appear to be unbound, it seems likely that they are immune to the PBC (but see Huang, 1993; and Takano, 1995).

   Mary-NOM gave, NL-TOP [John-to apple-ACC 3-CL ti] be
   Lit. ‘It is [three apples to John] that Mary gave.’

b. [How (ti) likely (ti) to ti win] is John?

c. what John, is [is (ti) likely (ti) to ti win]
The PBC then is reduced to the requirement that A-bar traces (variables) must be bound at LF. Since this is a special case of the more general requirement that variables must be bound at LF (which for example rules out a pronoun interpreted as bound variable but not c-commanded by its antecedent at LF), the residue of the PBC need not be stipulated as such in the grammar. If so, the PBC can be, hence should be, eliminated from grammar as an independent syntactic condition.

5. Conclusion

In this article, we have argued for the existence of string vacuous overt verb raising in head final languages, based on data from Japanese, a prototypical SOV language. This conclusion is incompatible with the recent proposal by Fukui and Takano (1998) that the “base” word order is universally Spec-complement-head, and head final languages are languages which do not have overt head movement (see also Takano, 1996). Instead, the empirical result of the present paper supports the more traditional view of clausal architecture crucially incorporating the Head Parameter with its two values [head initial] / [head final] (Chomsky, 1981), or its modified versions, such as the one proposed in Saito and Fukui (1998).

The establishment of the presence of overt verb raising in Japanese (and in some head final languages, more generally) opens up a new possibility of analyzing various phenomena in head final languages (as well as head initial languages) in terms of remnant constituent movement (e.g., remnant vP movement), and has a number of far-reaching consequences to be pursued in future research.

Appendix A: Numerals Quantifiers and Conjunctive Particles

The conjunctive particle to ‘and’ in Japanese, like many other particles in this language, is a phonological clitic. It cliticizes to the element immediately preceding it, as shown in (112).

(112) X-to

The X here must be a nominal-like element:

(113) *X-to, unless X is a nominal-like category

Thus, to cannot occur to the immediate right of an adjective or a case marker, as shown in (114).
(114) a. [N ringo]-to mikan-o (tabeta).
   apple-and orange-ACC (ate)
   ‘(Someone ate) apples and oranges.’

b.*[ringo-[case marker o]-to mikan-o (tabeta)
   apple ACC-and orange-ACC (ate)
   ‘(Someone ate) red and green apples.’

c.*[a akai]-to aoi ringo-o (tabeta)
   red-and blue apple-ACC (ate)
   ‘(Someone ate) red apples and green apples.’

d. akai [N ringo]-to aoi ringo-o (tabeta).
   red apple-and blue apple-ACC (ate)
   ‘(Someone ate) red apples and green apples.’

Numeral quantifiers count as “nomainal-like” elements for the purpose of the morpho-phonological filter (113). Thus, unlike (114b), where to ‘and’ is cliticized to the accusative case marker, (115) is grammatical.

(115) Ringo-o [NQ 3-tu]-to mikan-o (2-tu) (tabeta).
   apple-ACC 3-cl-and orange-ACC (2-cl) (ate)
   ‘(Someone ate) three apples and (two) oranges.’

The copula da ‘be’ is subject to a similar (but somewhat weaker) morpho-phonological constraint. Thus, when constructing examples with a coordinate structure (or a clefting), it is necessary to ensure that they do not violate the condition in (113). It is for this reason that most of the examples in this paper contain numeral quantifiers.

Japanese has another “conjunctive particle,” i.e. sosite ‘and’. Unlike to, sosite is not a clitic, hence it is not subject to the condition in (113). Thus, other things being equal, sosite would better serve for our experiments. For example, we argued in section 2 that (116) suggests that the verb raises overtly as in (117).

(116) Mary-ga [John-ni ringo-o 2-tu] to [Bob-in
   Mary-NOM [[John-to apple-ACC 2-cl] and [Bob-to
   banana-o 3-bon]] ageta (koto).
   banana-ACC 3-cl] gave
   ‘(The fact that) Mary gave two apples to John and three bananas to Bob.’
If we use *sosite* instead of *to* the numeral quantifiers can be dropped, thereby making the example simpler, as shown in (118) for example.

(118) Mary-ga John-ni ringo-o (2-tu), *sosite* Bob-ni Mary-NOM John-to apple-ACC (2-CL) and Bob-to banana-o (3-bon), ageta (koto).
    banana-ACC (3-CL) gave

Other things are not equal, however. What is crucial for our purposes is that the process shown in (117) is syntactic movement. Examples with *to* satisfy this requirement. Thus, as we saw in section 2, the following example with *to* is ungrammatical because the embedded verbs cannot raise to matrix positions across the tensed clause boundary, a familiar situation found in other languages as well.

(119) *[Mary-ga John-ga ringo-o 2-tu] to [Nancy-ga
    [[Mary-NOM John-NOM apple-ACC 2-CL] and [Nancy-NOM
    Bob-ga banana-o 3-bon]] katta to omotteiru (koto)
    Bob-NOM banana-ACC 3-CL]] bought that believe
    Lit. ‘[[Mary John two apples] and [Nancy Bob three bananas]]
    believes that bought.’
    (Mary believes that John bought two apples, and Nancy believes
    that Bob bought three bananas.)

However, if we replace *to* with *sosite*, the example becomes acceptable:

(120) Mary-ga John-ga ringo-o 2-tu, *sosite* Nancy-ga
    Mary-NOM John-NOM apple-ACC 2-CL and Nancy-NOM
    Bob-ga banana-o 3-bon katta to omotteiru (koto).
    Bob-NOM banana-ACC 3-CL bought that believe
    Lit. ‘Mary John two apples, and Nancy Bob three bananas,
    believes that bought.’
    (Mary believes that John bought two apples, and Nancy believes
    that Bob bought three bananas.)

If the matrix subjects are marked with the topic marker *wa* (or contrastive *wa*), the sentence becomes even better:
Mary-wa John-ga ringo-o 2-tu, sosite Nancy-wa Mary- TOP John- NOM apple- ACC 2- CL and Nancy- TOP Bob-ga banana-o 3-bon katta to omotteiru. Bob-NOM banana- ACC 3- CL bought that believe

Lit. ‘Mary John two apples, and Nancy Bob three bananas, believes that bought.’

(Mary believes that John bought two apples, and Nancy believes that Bob bought three bananas.)

These cases suggest that examples with sosite cannot be used as a test for verb raising. The following sentence also demonstrates that sosite should not be used as a constituency test.

Mary-wa Stanford-no igakubu-ni hairi, sosite Mary- TOP Stanford- GEN medical school to enter, and John-wa Harvard-no, igakubu-ni haitta. John- TOP Harvard- GEN medical school-to entered

Lit. ‘Mary entered Stanford’s medical school, and John entered Harvard’s medical school.’

In (122), the materials placed in strike-out are optional. Since they are not a syntactic constituent, and since it is generally impossible to syntactically extract “noun + postposition” stranding a genitive modifier of that noun, whatever process responsible for this optionality is not sensitive to syntactic constituency, and it cannot be a syntactic movement. This shows that the examples with sosite such as (120) need not be derived by syntactic movement, hence they cannot be used to detect syntactic head movement.

APPENDIX B: PHASE AND ITS DOMAIN

In his discussion of “phrase,” Chomsky (1998) notes the following generalization.

A phase (i.e., CP and VP) may undergo movement (e.g., fronting, pseudo-clefting, extraposition), whereas the domain (= complement) of the head of a phase (i.e., TP and VP) cannot.

The following pseudo-cleft examples help to illustrate this point.
(124) a. What John believes is [CP that he is a genius].
b.*What John believes that is [VP he is a genius].
c. What John did (yesterday) was [vP give a watch to Mary].
d.*What John gave (yesterday) was [vP a watch to Mary].

Coordinations involving TPs and VPs are possible, as shown below. This is compatible with the above generalization, because coordination is not a movement operation.

(125) a. John gave [vP [vP a watch to Mary] and [vP a book to Sue]].
b. John believes that [TP [TP Mary is a pianist] and [TP Nancy is a linguist]].

Given (123), a question arises as to whether it holds universally or it is subject to cross-linguistic variation. In this connection, consider again the following Japanese examples.

da. be
Lit. ‘It is [three apples to John] that Mary gave.’
(Mary gave three apples to John.)
da. be
Lit. ‘It is [Mary three apples to John] that gave.’

In section 2.2, we suggested that what is (pseudo-)clefted in (126a) may be either VP or vP, and the clefted constituent in (126b) is IP (= Chomsky’s TP). If this conclusion is literally correct, we must say that the generalization in (123) holds only in some languages including English but not Japanese. This is one possibility. Another, more interesting, possibility is that the generalization (123) holds universally. In this case, examples like (126a–b) must be reanalyzed in a way compatible with this generalization. Given the clause structure assumed in this paper (repeated as (127) below), what is clefted in (126a) must be vP with a trace of the subject in its Spec.

(127) [CP [IP SU_i [vP t_i [vP IO [v′ DO V]] v]] I] C]
(Head movements are not represented here)
What about (126b)? If the subject in Japanese obligatorily raises to the Spec of IP in overt syntax, the clefted constituent in (126b) cannot be anything other than IP, a conclusion incompatible with the generalization in (123). Thus, if (123) is a universal generalization, we must conclude that the subject in Japanese only optionally moves to the Spec of IP, as suggested by Kuroda (1988) and others, and that the clefted constituent in (126b) is vP with the subject in its Spec.

Let us next consider a way of deriving the generalization in (123) from more general principles. Chomsky (1998, p. 22) suggests the following condition.

(128) Phase-Impenetrability Condition

In phase \( \alpha \) with head H, the domain of H is not accessible to operations outside \( \alpha \), but only H and its edge.

Given the phase-impenetrability condition, nothing in the domain of H (including the domain itself) can be extracted out of the phase headed by H unless it moves to the Spec of H prior to the completion of the phase. The condition yields a form of Subjacency among many others. Now, we would like to suggest that the generalization in (123) follows from the phase-impenetrability condition and another general principle which bars too short a movement. Several researchers have suggested that movement should be neither too long (a familiar locality condition on movement) nor too short (e.g., Fukui (1993), Koizumi (1993)). For the sake of concreteness, we assume the following condition taken from Koizumi (1993) (but any proposal to the same effect (in the relevant respect) would do.)

(129) No Vacuous Links (NVL):

*movement from \( \alpha \) to \( \beta \) if \( \alpha \) and \( \beta \) are equidistant from \( \gamma \).

To see the rational behind this condition, let us consider the abstract structure in (130) where two positions \( \alpha \) and \( \beta \) are equidistant from another position \( \gamma \) (in the sense defined in Chomsky (1993)).

(130) *(II) (I)

\[
\begin{array}{c}
\alpha \\
\downarrow
\end{array} \quad \begin{array}{c}
\beta \\
\downarrow
\end{array} \quad \begin{array}{c}
\gamma \\
\downarrow
\end{array} \\
\begin{array}{c}
(I) \\
\end{array} \quad \begin{array}{c}
(II) \\
\end{array} \quad \begin{array}{c}
(III) \\
\end{array}
\]

Link I and Link III are of the same length by definition, which in turn renders the length of Link II virtually “zero.” Since links of zero length are superfluous in the light of derivational economy, the formation of Link II should be prohibited.

Given the No Vacuous Links, the domain (= complement) of H (= the
head of a phase) cannot move to the Spec of $H$, because the complement and the Spec are equidistant. If the domain of $H$ cannot move to the Spec of $H$, it cannot be extracted out of the phase headed by $H$ because of the phase-impenetrability condition. Thus, the generalization in (123) is deducible from the phase-impenetrability condition in (128) and a general principle against too short a movement, such as the No Vacuous Links.

NOTES

I would like to thank Jun Abe, Noam Chomsky, Dany Fox, Ken Hale, Hisatsugu Kitahara, Kazuki Kuwabara, Howard Lasnik, Alec Marantz, Shigeru Miyagawa, Toshifusa Oka, David Pesetsky, Mamoru Saito, Ulvi Sauerland, Yui Takano, Ayumi Ueyama, Akira Watanabe, and anonymous JEAL reviewers for helpful comments and discussion.

Japanese examples with an object gap such as (ib) are ambiguous between the two readings shown below.

(i) a. John-wa [zibun-no tegami]-o sute-ta.
   John-TOP self-GEN letter-ACC discard-PAST
   ‘John threw out self,’s letters.’

   b. Mary-mo [e] sute-ta.
   Mary-also discard-PAST
   = ‘Mary also threw out self,’s letters.’
   = ‘Mary also threw out John,’s letters.’

Following a hypothesis due to Huang (1987a, 1987b), Otani and Whitman (1991) argue that the ambiguity of (ib), especially the availability of the first reading (“sloppy reading”), suggests that the verb raises out of the VP, creating an empty VP analogous to the empty VP in the English example (iib), whose ambiguity is to be accounted for along the lines of Sag (1976) and Williams (1977).

(ii) a. John threw out his letters.


Presenting various kinds of counterexamples to Otani and Whitman’s analysis, Hoji (1988) convincingly shows that the first reading of (ib) is not the genuine sloppy reading one can find with VP deletion constructions such as (iib). Hoji argues such a reading arises in two different ways, neither of which requires V-raising. If Hoji (1998) is correct, examples like (ib) have no bearing on the issue of V-raising. Besides, Otani and Whitman’s (1991) analysis, if correct, only indicates that the verb raises out of VP before LF interpretive rules (such as Williams’ Derived VP rule) apply. Thus, strictly speaking, it does not show the verb raises before SPELL-OUT. The latter remark also applies to the arguments for verb raising presented in Whitman (1991).

This is purely for the sake of exposition and concreteness. If clauses have more articulated structures, including other functional categories such as Agr, it would not affect the force of our central arguments.

Most examples used in this paper contain floating numeral quantifiers such as 2-tu ‘two pieces’ because the examples become (slightly) awkward if they are left out for the reason mentioned in the Appendix A. In addition, koto ‘fact’ is added at the end of the examples to avoid unnaturalness arising from the absence of a topic phrase. We neglect koto ‘fact’ in the English translations.

If subjects in Japanese may stay in situ at vP Spec, the coordinated structures in (6) and
(7) can be vP. If this turns out to be the case, the examples only show that main verbs overtly raise to I. See the Appendix B for a relevant discussion.

5 Strictly speaking, the discussion in this section shows only that verbs may undergo overt verb raising, and it does not show that they must raise overtly. Given the current minimalist assumption that movement takes place only when it is necessary, however, it seems reasonable to suppose that overt verb raising in Japanese is in fact obligatory. We will come back to this issue in section 2.3, where we will present a piece of empirical evidence for this conclusion.

6 Japanese has only one cleft construction, which thus coresponds both to it-cleft construction and to wh-cleft (pseudo-cleft) construction in English.

7 Based on examples similar to (18b), Kuwabara (1996) has independently reached the conclusion that Japanese has overt V to I raising. I would like to thank Kazuki Kuwabara for fruitful discussion.


9 The example in (23b) is due to Mamoru Saito (personal communication).

10 Another possible problem with the Gapping analysis of the Japanese sentences in question is that, although the number of remnants in Gapping is usually limited to two (Jackendoff 1971), the Japanese coordination examples are completely acceptable with more than two remnants.

(i) a. Becky loves Bob, and Joni Marty, too.
   b. *Becky sent this book to Bob, and Joni that article to Marty.

(ii) [[Mary-ga ototoi John-ni ringo-o 2-tu] to [Nancy-ga
   [[Mary-NOM two-days-ago John-to apple-ACC 2-cl.] and [Nancy-NOM
   kinoo Bob-ni banana-o 3-bon]] ageta (koto).
   yesterday Bob-to banana-ACC 3-cl.] gave
   Lit. ‘[Mary apples to John two days ago] and [Nancy three bananas to Bob
   yesterday] gave.’
   (Mary gave two apples to John two days ago, and Nancy gave three bananas
to Bob yesterday.)

Johnson (1994) suggested that Gapping sentences such as (46b) are derived by across-the-board verb raising. Our analysis, of course, is compatible with this analysis of Gapping phenomena.

11 (55) without sono zizitu ‘the fact’ is grammatical if it is analyzed as an instance of the so-called right Dislocation Construction. sono zizitu ‘the fact’ is added to the end of the sentence to exclude this (irrelevant) possibility.

12 Sohn (1994) seems to be aware of the contrast between the cases where naze follows the other fronted wh and the cases where naze precedes the other wh. Thus, he gives ‘?(?)’ to (ia) and ‘??’ to (ib).

(i) a.?(!?;Dare-o, naze, John-wa [[Mary-ga t t uttaeta to iu] uwasa]-o
   wh-ACC why TOP NOM sued rumour
   kiita-no?
   heard-Q
   ‘Why, did John hear [the rumour [that Mary sued the man t]]?’

b. ?!(Naze, dare-o, John-wa [[Mary-ga t t uttaeta to iu] uwasa]-o
   who-ACC TOP NOM sued rumour
   kiita-no?
   heard-Q
However, no analysis is presented for this systematic contrast in his paper.

13 I owe (93b) to Toshifusa Oka (personal communication).

14 The bold faced elements in (94) are secondary predicates. They are not NP-internal modifiers. For the syntactic distribution of secondary predicates in Japanese, see Koizumi (1994).

15 The slight unnaturalness of (97) is due to the fact that both the subject and the object are associated with numeral quantifiers, which usually causes mild awkwardness. If the NQs associated with the subjects are removed, the sentence becomes quite natural:

(i) 

[[(Tyugokuzin-ga 4-hon] to [nihonzin-ga 6-pon]] ronbun-o

[[Chinese-nom 4-cl] and [Japanese-nom 6-cl]] paper-acc

happyoosita (koto).

Lit. 'Chinese four and Japanese six presented papers.'

(Chinese presented four papers, and Japanese presented six papers.)

If an example like (95) shows, as claimed in Kamito (1977), that the NQ associated with the subject is a part of the subject NP (or DP), the sentence in (i) should "show" that the NQ associated with the object is a part of the subject constituent, a conclusion no one would accept.

16 Collins (1994) argues that all known cases of PBC violations involve either downward movement or chain interleaving, and that, since both downward movement and chain interleaving are ruled out by a version of the principle of Economy of Derivation, the PBC is redundant. Unfortunately, Collins’ ingenious proposal cannot accommodate the examples in (99), which involve neither downward movement nor chain interleaving.

17 Kitahara (1997) proposes a way of deriving Müller’s generalization from his version of economy principles.

18 Scrambling in Japanese can be divided into three types with respect to its "distance" or "length": S(hort-distance)-scrambling, M(iddle-distance)-scrambling, L(ong-distance) scrambling (Tada (1993), cf. also Mahajan (1990)).

(i) a. S-scrambling: S DO, IO t i V

b. M-scrambling: XP, S . . . t i . . . V

c. L-scrambling: XP, . . . [ . . . t i . . . V] ("[ . . . ]" indicates a tensed clause boundary)

It is widely assumed among Japanese linguists that S-scrambling is purely A-movement, and L-scrambling is purely A-bar movement. M-scrambling is considered to be ambiguous between A and A-bar movement (Tada (1993) and Saito (1992) among others, but see Yoshimura (1992) for a different view).

19 That a constituent that has undergone A-scrambling may subsequently undergo A-bar scrambling is shown in Tada (1993) (cf. also Mahajan, 1990; and Saito, 1992). See Abe (1993) for a different view.

20 The marginality of (110b) may be due to a weak violation of Subjacency. The contrast between (110b) and (110c) is still robust.

21 Probably the examples in (120) to (122) involve PF deletion operating on strings of words and morphemes (cf. Saito, 1986; and Abe and Hoshi, 1997).

REFERENCES


Koizumi, Masatoshi (1993) “Try for the Middle,” ms, MIT.


Koizumi, Masatoshi (1993) “Try for the Middle,” ms, MIT.


Moltmann, Friederike (1992) Coordination and Comparatives, PhD dissertation, MIT.


Received: February 24, 1999
Revised: October 27, 1999

Department of Linguistics
Tohoku University
Kawauchi, Aoba-ku
Sendai, 980–8579
Japan
E-mail: Koizumi@alum.mit.edu