On the Interpretation of 'Null Anaphora' in Japanese*

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0. Introduction

One of the most controversial topics in current linguistic theorizing involves the status of so-called null anaphora. Japanese is a language which, presumably, exhibits instances of "null anaphora". For example, consider the following:

(1) a. John-ga [Bill-ga Mary-o mita] to itta
         -NOM   -ACC saw   said
         'John said that Bill saw Mary'

    b. John-ga [___ Mary-o mita] to itta
        'John said that ___ saw Mary'

Both sentences are well-formed. In (1a), all the arguments of the predicate are overtly represented in phrase structure, while, in (1b), the GA-marked argument in the embedded clause is not expressed overtly. This GA-marked argument, it has been argued, involves an instance of "null anaphora". <1>

The central issue seems to be to determine the property or properties, if any, of instances of null anaphora, and to account for the range of possible antecedents. In Chomsky (1981), (1982), and Huang (1984), for example, the "null anaphor" in (1b) would be an Empty Category [$_{NP}$ e] ("pro" in Chomsky and "pronominal" or "variable" in Huang) which is present at the Phrase-Structure (PS) level of representation. Furthermore, it is assumed that the Empty Category has intrinsic properties such as person and gender, with its referential possibilities being accounted for by rules and/or principles, which are defined over the Phrase Structure level of representation.
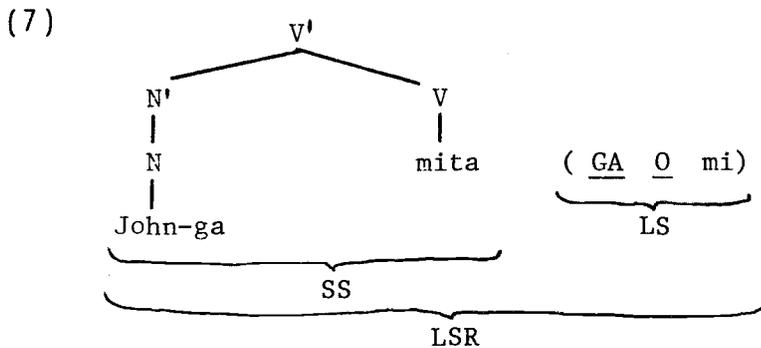
Such a position is compatible with the view that the argument structure information is faithfully represented at all levels of representation (e.g., PS and Logical Form (LF) level). This is what the Projection Principle of Government Binding theory accomplishes.<2> However, if one does not adopt this view, then it is necessary to posit principles to account for the intuitions associated with these so-called null anaphora cases which may involve not just the PS level of representation. I will explore such an alternative.

The organization of this paper is as follows: In Section 1, I will first outline the assumptions which will be basic to understanding the proposed principles required to account for specific interpretations associated with certain predicate types in Japanese. The approach I take is in the spirit of Modular Grammar (MG) (cf. Farmer (1984)). In Section 2, I will introduce some of

Huang's (1984) assumptions, and compare my analysis with his account of "null anaphora".

1. Analysis

1.1. Theoretical Framework and Some Assumptions

As noted in the Introduction, I will assume a modular approach to the analysis of "null anaphora" in Japanese. I will first present some assumptions which the following discussion will be based upon.

First of all, I will assume that the Linguistic System consists of at least four components: Syntactic, Semantic, Phonological, and Pragmatic components. <3> Each component consists of rules and principles which are defined over that domain. "Overgeneration" within a component naturally results under a modular view. The various components have a constraining effect on each other and may even "override" the principles of another component.

Second, I will be utilizing the following vocabulary:

(2) a. Syntactic Structure (SS)
    b. Lexical Structure (LS)
    c. Lexical-Syntactic Representation (LSR)

Syntactic Structure is defined by the phrase structure rule of (3) <4> plus lexical insertion and feature percolation.

(3) X' ------> X'* X (X: a place holder; the category
                      is not specified)

Lexical Structure represents the number and type of arguments of a predicate, and Lexical-Syntactic Representation is the pair: SS, LS. For example, a representation of the sentence in (4) is given in (5):

(4) John-ga Mary-o mita
                   saw
    'John saw Mary'

(5)

Third, I will not be assuming that there are phonologically-null entities at SS (e.g., Empty Categories in the sense of Chomsky

(1981)). Therefore, if an argument of a predicate is not overtly represented at SS, then this argument is, in fact, missing at that level. Hence, the representation of sentence (6) will be given as (7):

(6)   John-ga   mita
                saw
      'John saw ___'

(7)

```
                    V'
              _____|_____
             N'            V
             |             |
             N            mita        ( GA  O  mi)
             |                         ‾‾‾‾‾‾‾‾‾‾
         John-ga                           LS
         ‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾
                  SS
         ‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾
                     LSR
```

As we can see in (4-5), the predicate mi takes two arguments. (4) is the example in which all the arguments that the predicate requires are overtly expressed in SS. In (6), on the other hand, only one argument can be associated with an N' (i.e., evaluated). <6> Notice that the SS of (6), i.e., left half of (7), does not have another N' node or an [e]. In
                                         NP
short, if there is no word at SS, the argument is missing at SS. The analogue to [e] in Modular Grammar is an unevaluated
                         NP
argument slot in LS.

1.2   Sanctioning

Following Farmer (1984), "sanctioning" is defined as involving "some element [which] allows or permits a syntactic entity to occur" (p.110), and distinguishes between syntactic and lexical sanctioning. For example, syntactic sanctioning in English is accomplished by case assignment, which is sensitive to structural properties, i.e., Nominative case is assigned to [NP, S] and Accusative is assigned to [NP, VP]. For Japanese, syntactic sanctioning by way of case assignment is, presumably, inoperative since position plays no role in determining the Grammatical Function of the N' constituent. (Japanese is a so-called scrambling language.) Rather, the case particles such as GA, O, and NI play the role of syntactically sanctioning an N' since it is by way of the particles that overt N's are associated with argument slots of a predicate. These particles are randomly associated with N's at SS and systematically assigned to argument slots of predicates by way of case linking rules. In short, the case particles can be viewed as playing a similar kind of role to case assignment in English. Lexical sanctioning involves an N' being affiliated with an argument slot of a predicate, and is executed by way of evaluation.

In Japanese, an N' constituent may or may not be associated with an argument slot, i.e., it may or may not be lexically sanctioned. When an N' is lexically sanctioned, it has been coindexed with some argument slot in the LS. I will be concerned with the interpretation of indexed N' constituents and unevaluated argument slots.

Let us look at lexical sanctioning in detail, focusing on evaluation. Lexical sanctioning is carried out by way of evaluation. According to Farmer (1984), evaluation is defined as "coindexing an overt NP with an argument position in a PAS (=Predicate Argument Structure) [i.e., =LS]", and is further divided into two stages, "Direct Evaluation" and "Indirect Evaluation". The definition just stated above can be directly applied to characterize Direct Evaluation in Japanese, which is described below:

(8)   John-ga Bill-o   mita
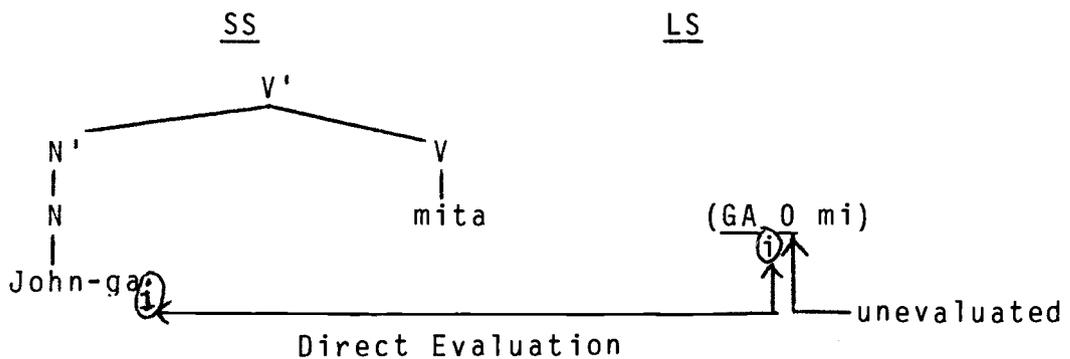   -NOM   -ACC saw
      'John saw Bill'

Direct Evaluation

Syntactic Structure (SS)   Lexical Structure   (LS)

(Case particle
linking rules
have already
applied)
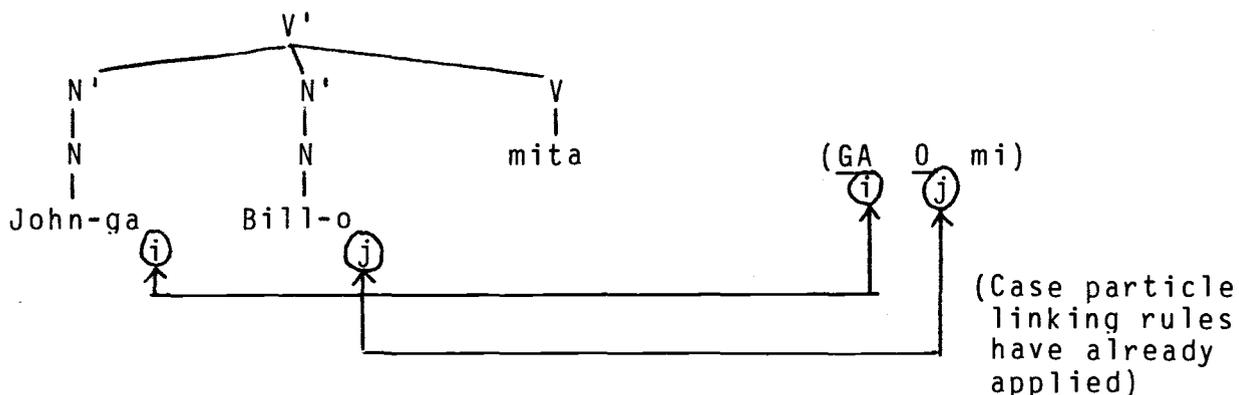
As we see in (8), what Direct Evaluation does in Japanese is to coindex an N' with an argument slot which is marked with the same case particle. When an argument slot in LS is not realized at SS, the argument slot is left without an index, as in (9):

(9)   John-ga mita
         -NOM saw
      'John saw _____'

```
                    V'
              ╱          ╲
          N'              V
          │               │
          N              mita            (GA O mi)
          │                                 ⓘ↑
    John-gaⓘ ←─────────────────────────────┘ └──unevaluated
```

Direct Evaluation

This illustrates the case of the unevaluated argument. The O-marked argument slot in LS is, at this point, an unevaluated argument slot. The interpretation of an unevaluated argument slot is left completely open within the sentential grammar unless marked otherwise, and will be determined contextually. (I will state this situation as a principle below.) On the other hand, there are some "marked" cases in which a predicate requires a specific evaluation of an unevaluated argument. I will refer to this evaluation as Controlled Evaluation, and will be discussed in detail below.

1.3   Rules and Principles

In this section, we will focus on LS on the one hand, and LSR on the other hand, the latter in particular being crucial for the mechanisms relevant to the construal of unevaluated arguments. Let us first consider the principles defined over LS. Above all, the following two principles, which are proposed in Farmer (1984) for English, can apply to Japanese as well.

(10)   Lexical Level

        [structural]

            Predicate Argument Principle

            The lexicon provides the argument structure [i.e., LS] of predicates (e.g., verbs)

        [pragmatic]

            Disjoint Reference Principle

            The arguments of a predicate are intended to be disjoint, unless marked otherwise

The Predicate Argument Principle should be clear by now. For example, it provides the LS for the verb mi ('to see'): (___ ___ mi), which is a two-place predicate. The case linking rules <7> are to be applied to this structure, deriving (GA O mi). What the Disjoint Reference Principle states is that whatever satisfies the GA-marked argument slot and the O-marked argument slot, in the present example, are intended to be disjoint, i.e.,

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$\underline{GA}{\neq}\underline{0}$. Thus, in the following sentences, the referents of the name John are intended to be disjoint in (11a), and whatever satisfies x and y are disjoint in (11b), i.e., two different individuals or entities are being picked out.

> (11) a. John-ga John-o   mita
>   -NOM   -ACC saw
>   'John saw John'
>
>   b. mita
>   saw
>   '___ saw ___' i.e., 'x saw y, where x≠y'

Let us now turn to the LSR level over which rules and principles are defined to yield the evaluation of unevaluated arguments. I will use the term Controlled Evaluation, which is defined as follows:

> Given V'1 and V'2, whose heads are alpha and beta, respectively, when a sister of alpha dominates V'2 and alpha is a control verb, an unevaluated argument slot of the corresponding LS representation of beta is assigned the index of the corresponding LS representation of alpha.

The choice of the argument slot whose index is assigned to the unevaluated argument slot depends on the type of predicate (i.e., subject control verbs or object control vebs).
    When we investigate sentences with control predicates, we find some regularities, which motivate conditions on indexing throughout Controlled Evaluation.

(A) SUBJECT CONTROL <8>

> (12) a. John-ga Bill-ni [___(-ga) Mary-o shootaisuru] to
>   i   j   i/*j   invite
>   yakusokusita
>   promised
>
>   'John promised Bill that ___ will invite Mary'
>   i   j   i/*j
>
>   b. *John-ga Bill-ni [Mary-ga ___(-o) shootaisuru] to
>   i   j
>   yakusokusita
>
>   'John promised Bill that Mary will invite ___'
>   i   j
>
>   c. *John-ga Bill-ni [Mary-ga Tom-o shootaisuru] to
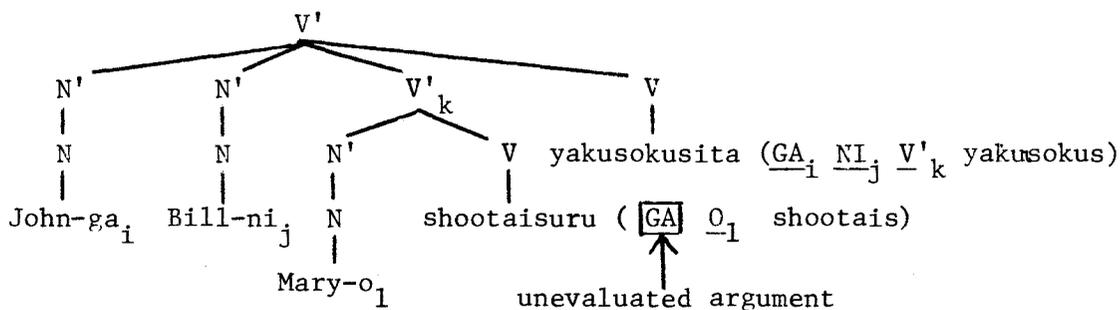>   yakusokusita
>
>   'John promised Bill that Mary will invite Tom'

d. John-ga Bill-ni [___$_i$(-ga) ___$_i$(-o) shootaisuru] to
    $_i$ $_j$
    yakusokusita

    'John$_i$ promised Bill$_j$ that ___$_i$ will invite ___'

e. ___$_i$(-ga) Bill-ni [___$_i$(-ga) Mary-o shootaisuru] to
         $_j$
    yakusokusita

    '___$_i$ promised Bill$_j$ that ___$_i$ will invite Mary'

f. ___$_i$(-ga) ___$_j$(ni) [___$_{i/*j}$(-ga) ___(o) shootaisuru] to
    yakusokusita

    '___$_i$ promised ___$_j$ that ___$_{i/*j}$ will invite ___'

g. *___$_i$(-ga) ___$_j$(-ni) [___$_i$(-ga) ___$_i$(o) shootaisuru]
    to yakusokusita

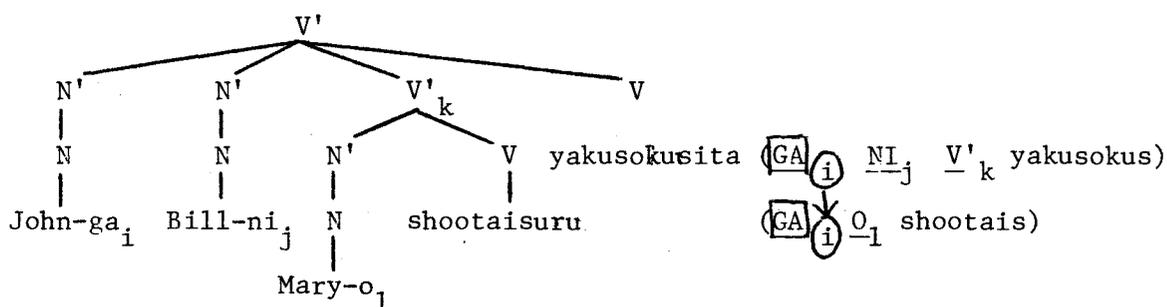   '___$_i$ promised ___$_j$ that ___$_i$ will invite ___$_i$'

Just as in the case of <u>promise</u> in English, <u>yakusokus</u> ('to promise') is a subject control verb. That is, the verb requires that the embedded subject be interpreted as controlled by the matrix subject <9> (i.e., the subject of <u>yakusokus</u>). Thus, the failure to satisfy this requirement results in the oddity of (12b,c). It is interesting to note what is going on in (12e,f,g). In these sentences, neither the matrix subject nor the embedded subject is overtly expressed at SS. This suggests that the Controlled Evaluation involved in subject control cases as in (12) has to do with associating argument slots with each other directly rather than associating overt N's. (13) illustrates the relationship between the two predicates with respect to indexing for Controlled Evaluation:

(13)   John-ga Bill-ni [___$_{i/*j}$(-ga) Mary-o shootaisuru] to
       $_i$ $_j$
       yakusokusita

       'John$_i$ promised Bill$_j$ that ___$_{i/*j}$ will invite Mary'

a. Direct Evaluation

$$V'$$

N' N' V'$_k$ V

N N N' V yakusokusita ($\underline{GA}_i$ $\underline{NI}_j$ $\underline{V'}_k$ yakusokus)

John-ga$_i$ Bill-ni$_j$ N shootaisuru ($\boxed{GA}$ $\underline{0}_1$ shootais)

Mary-o$_1$ ↑
unevaluated argument

⇓

b. Controlled Evaluation

$$V'$$

N' N' V'$_k$ V

N N N' V yakusokusita ($\boxed{GA}_{\textcircled{i}}$ $\underline{NI}_j$ $\underline{V'}_k$ yakusokus)

John-ga$_i$ Bill-ni$_j$ N shootaisuru ($\boxed{GA}_{\textcircled{i}}$ $\underline{0}_1$ shootais)

Mary-o$_1$

Thus, as I have stated above, no matter how arguments are
realized at the SS-level, the GA-marked argument in an embedded
clause is always controlled by the matrix GA-marked argument. That
is, the Controlled Evaluation for this type of matrix predicate can
be schematized as follows:

(14) Controlled Evaluation

matrix: ($\boxed{GA}_i$ $\underline{NI}_j$ $\underline{V'}_k$ yakusokus)

embedded: ($\boxed{GA}_i$ $\underline{0}_1$ shootais)
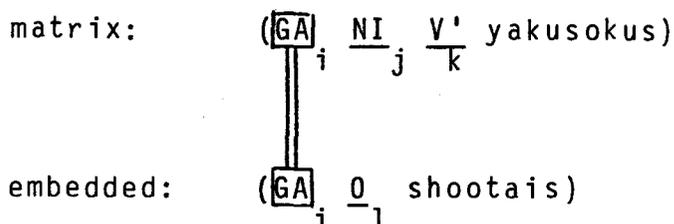
In sum, this Controlled Evaluation procedure is stated as a rule
below:

(15) <u>Subject Control Rule</u><10> (defined over LSR)

      The subject of the embedded clause is obligatorily
      assigned the same index as that of the matrix
      subject, if the predicate of a matrix clause is a
      subject control predicate (e.g., <u>yakusokus</u> ('to promise'))

An interesting consequence should be noted: Since the Subject
Control Rule is obligatory, it follows that the object in an
embedded clause can never be "controlled" by the matrix subject
because of the Disjoint Reference Principle. Thus, in (12f), for
example, the Subject Control Rule predicts the matrix <u>GA</u>-marked
argument and the embedded <u>GA</u>-marked argument are interpreted as
being the same individual. On the other hand, the Disjoint
Reference Principle states that the <u>GA</u>-marked and <u>O</u>-marked arguments
in the embedded clause of (12f) are intended to be disjoint. As a
result, the conjuction of the Subject Control Rule and the Disjoint
Reference Principle automatically accounts for the embedded object
in (12f) never being "controlled" by the matrix subject, as can be
seen in (12g).

(B) NON-SUBJECT CONTROL

    (16) a.   John-ga Bill-ni [___(-ga) Mary-o shootaisuru] koto-
            i j $*i/j$ invite
       o kitaisita
        expected

       'John expected Bill to invite Mary'

      b.   Bill-ni John-ga [___(-ga) Mary-o shootaisuru] koto-
           j i $*i/j$
       o kitaisita

       'John expected Bill to invite Mary'

      c.   John-ga [___(-ga) Mary-o shootaisuru] koto-o Bill-
          i $*i/j$ j
       ni kitaisita

       'John expected Bill to invite Mary'

      d.   [___(-ga) Mary-o shootaisuru] koto-o John-ga Bill-
          $*i/j$ i j
       ni kitaisita

       'John expected Bill to invite Mary'

      e.   John-ga Bill-ni [___(-ga) ___(-o) shootaisuru]
          i j $*i/j$
       koto-o kitaisita

   'John expected Bill to invite ___'

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f. *John-ga Bill-ni [Tom-ga (Mary-o) shootaisuru]
         i   j   k
    koto-o kitaisita

    'John expected Bill for Tom to invite (Mary)'

g. John-ga ___(-ni) [___(-ga) Mary-o shootaisuru]
         i   j   *i/j
    koto-o kitaisita

    'John expected ___ to invite Mary'

h. ___(-ga) ___(-ni) [___(-ga) ___(-o) shootaisuru]
       i   j   *i/j
    koto-o kitaisita

    '___ expected ___ to invite ___'
       i   j

i. *___(-ga) ___(-ni) [___(-ga) ___(-o) shootaisuru]
       i   j   *i/j   j
   koto-o kitaisita

   '___ expected ___ to invite ___'
      i   j   j

With non-subject control verbs such as <u>kitais</u> ('to expect') in a
matrix predicate, the subject of the embedded clause is always
interpreted as identical with the matrix non-subject, i.e., the <u>NI</u>-
marked arguments in the above examples. As we can see in (16b,c,d),
the linear order does not play a role. That is, even when the non-
subject (i.e., the <u>NI</u>-marked argument) is scrambled, the result is
the same: i.e., the embedded subject is controlled by the matrix
non-subject.

     Controlled Evaluation is carried out by assigning the same
index to the two argument slots in question:

(17) John-ga Bill-ni [___(-ga) Mary-o shootaisuru] koto-o
           i   j   *i/j
      kitaisita
      'John expected Bill to invite Mary'

      (a) <u>Direct Evaluation</u>
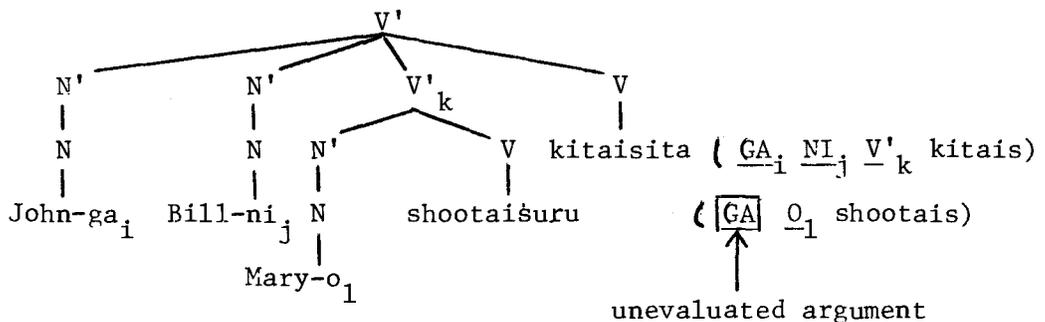
(b) Controlled Evaluation
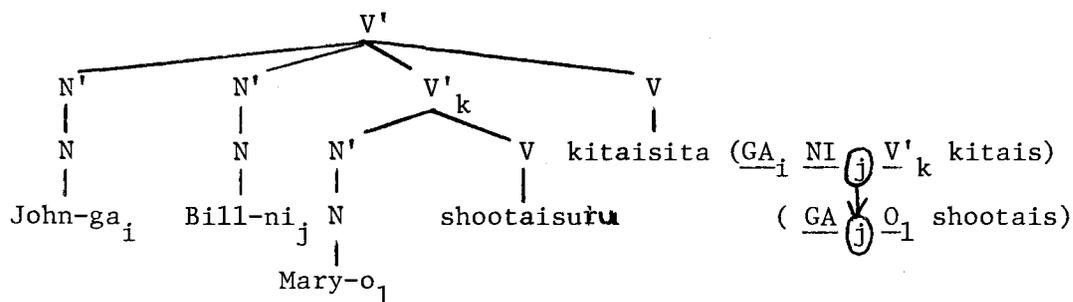
As we can see, the GA-marked subject in an embedded clause must be assigned the same index as that of the matrix non-subject. Notice also that this rule is borne out even when the matrix non-subject, which controls the embedded subject, is not overtly expressed at SS, as we can see in (16g,h,i). Hence, the following relationship always holds:

(18) Controlled Evaluation

matrix: $(\underline{GA}_i \; \boxed{\underline{NI}}_j \; \underline{V'}_k \; kitais)$

embedded: $(\boxed{\underline{GA}}_j \; \underline{O}_1 \; shootais)$
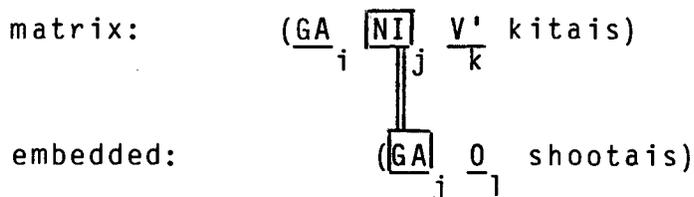
The unacceptable interpretations in (16) result when (18) is not satisfied. The rule is stated as follows, as parallel to the Subject Control Rule above:

(19) Non-Subject Control Rule<11>   (defined over LSR)

The subject of the embedded clause is obligatorily assigned the same index as that of the matrix non-subject, if the predicate of a matrix clause is a non-subject control predicate (e.g., kitais ('to expect'))

(C)   PASSIVE

(20) a.   *John-ga [Bill-ga ___(-ni) mi-rareta] to itta
               i   i   see-passive   said
          'John said that Bill was seen (by ___)'
              i   i

b.   John-ga [___(-ga) Bill-ni mirareta] to itta
     'John said that ___ was seen by Bill'

(21) a. *John-ga [Bill-ga ___(-ni) kunshoo-o atae-rareta] to
        i   i   medal   give-passive
      itta
      said
      'John said tht Bill was given a medal (by ___)'
             i   i

    b. John-ga [___(-ga) Mary-ni kunshoo-o atae-rareta] to
        itta
        'John said that ___ was given a medal by Mary'

(22) a. *John-ga Mary-ni [Bill-ga ___(-ni) mi-rareta] to
        i   j   i   i/j   see-passive
        itta
        said
        'John said to Mary that Bill was seen (by ___)'
             i   j   i/j

    b. John-ga Mary-ni [___(-ga) Bill-ni mi-rareta] to
        itta
        'John said to Mary that ___ was seen by Bill'

First, we will examine the (b) sentences of (20-22). With
these sentences, it does not seem to be the case that some "marked"
condition should be stated on the interpretation of unevaluated
arguments. In this case, the interpretation of unevaluated
arguments is determined contextually. I will come back to these
cases below.
On the other hand, a specific requirement appears to be
necessarily stated in order to block the (a) sentences of (20-22),
i.e., the cases where the NI-marked arguments are not overt.
Consider the following diagrams, which describe LSR's after Direct
Evaluation:

(23) *John-ga [Bill-ga ___ (-ni) mi-rareta] to itta
         i   j   i
     'John said that Bill was seen (by ___)'
         i   j   i

     Direct Evaluation

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(24) *John-ga Mary-ni [Bill-ga ___(-ni) mi-rareta] to itta
         i   j   i/j
      'John said to Mary that Bill was seen (by ___)'
         i   j   i/j

Direct Evaluation

$$
\begin{array}{c}
\text{V'} \\
\end{array}
$$

N'   N'   V'$_k$ V

N   N   V'   V   itta $(\underset{S}{GA}_i\ \underset{}{NI}_j\ V'_k\ iu)$

John-ga$_i$ Mary-ni$_j$ N   mi-rareta $(\ (\underset{\phi}{NI}\ \underset{S}{GA}_1\ mi)\ rare)$

Bill-ga$_1$

where $\emptyset$ and $\underline{S}$ represent "suppressed subject" and "subject", respectively. Suppose, for the moment, the NI-marked arguments in passive are not evaluated after Direct Evaluation. Then, it seems it would trigger further evaluation. What should be prevented is the following situation:

(25)   for (23)

       matrix: $(\boxed{GA}_i\ \underline{V'}_j\ iu)$
                            |
                            ✕
       embedded: $(\ (\boxed{NI}_i\ \underline{GA}_k\ mi)\ rare)$

(26)   for (24)

       matrix: $(\boxed{GA}_i\ \underline{NI}_j\ \underline{V'}_k\ iu)$ $(\underline{GA}_i\ \boxed{NI}_j\ \underline{V'}_k\ iu)$

                        ✕   or   ✕

       embedded: $(\ (\boxed{NI}_i\ \underline{GA}_1\ mi)\ rare)$ $(\ (\boxed{NI}_j\ \underline{GA}_1\ mi)\ rare)$

One could propose a principle or a filter to rule out these relationships in (25-26). On the other hand, if we do not assume that the NI-marked argument in passive are unevaluated after Direct Evaluation, further evaluation procedures will no longer be necessary. We will take the latter position following Farmer's (1984:122) assumption for English passive that "the output of 'passive' word formation is a 'verb' whose subject is bound in some sense and is therefore not an 'unevaluated argument' (i.e., is not construed as an unevaluted argument slot...)" Since the NI-marked

arguments in passive are not unevaluated in (23-24), they will not trigger further evaluation.

(D)   UNDETERMINED CASES

(27) a.   John-ga [___(-ga) Bill-o mita] to itta
                          saw   said
'John said ___ saw Bill'

b.   John-ga [Bill-ga ___(-o) mita] to itta
'John said Bill saw ___'

c.   John-ga [___(-ga) ___(-o) mita] to itta
'John said ___ saw ___'

d.   ___(-ga) [___(-ga) ___(-o) mita] to itta
'___ said ___ saw ___'

In the above examples, the matrix predicate does not trigger Controlled Evaluation. In this case, the unevaluated argument slot will not be assigned any index, and the interpretation of the unevaluated argument slot is completely open. That is, the interpretation of the unevaluted argument slots in (27) is determined by knowledge of the world and by the context in which the sentence is uttered. For example, the GA-marked argument slot in (27a) could be John or someone else. To see how the interpretation of an unevaluated argument depends on context more precisely, contrast the following examples.

(28) a.   John-ga [Mary-ga ___(-o) damasita] koto-o
                                    deceived

yorokondeiru
is pleased

'John is pleased that Mary deceived ___'

b.   John-ga [Mary-ga ___(-o) damasita] koto-o
                                    deceived

urandeiru
reproaches

'John reproaches Mary to have deceived ___'

Notice that (28a) and (28b) have identical structures, with the embedded O-marked argument being unevaluated. In (28a), the predicate, yorokondeiru ('be pleased') can prejudice the hearer into inferring that something good happened to John. Furthermore, the hearer would assume that Mary deceived someone. It is unlikely that Mary deceived John, since it is not normally the case that a person would be pleased to be deceived. Based on mutual contextual beliefs and knowledge of the world, it is likely that nobody would be pleased to be cheated. This is why the construal of the unevaluated argument slot in (28a) as someone other than John can be one possible interpretation. Turning to (28b), the matrix verb, urandeiru ('reproach') suggests that the hearer infer that something

bad or infavorable happened to John. Thus, if the unevaluated
argument of (28b) is construed as John, it will make perfect sense
for John to reproach Mary. Notice, at this point, the triggering
factor of each interpretation of the unevaluated arguments (i.e.,
someone other than John in (28a) and John in (28b)) is inferential
in nature (i.e., pragmatic). Notice, furthermore, the above
interpretation changes under the following situation: Suppose, in
(28a), the hearer has good reason to believe that John is pleased to
be cheated (e.g., John loves Mary madly, and he would be pleased
even though he was cheated by her.). Then, the hearer would
interpret the unevaluated argument slot as being satisfied by John,
contrary to the above interpretation. In (28b), suppose the hearer
has good reason to believe that Mary cheated John's brother. Then,
the hearer would construe the unevaluated argument as being
satisfied by John's brother. Again, this interpretation differs
from the one discussed above.

It is clear by now that given contextual appropriateness and
mutual contexual beliefs <13> play a crucial role in the
interpretation of the unevaluated argument slots in (27-28). Thus,
in the syntactic domain, the construal of the unevaluated argument
slot is completely open since structural properties do not trigger
Controlled Evaluation. Rather, the interpretation in question is
affected by a given context, i.e., pragmatic factors. The only
restriction on the construal of the unevaluated argument, then, is
that whatever satisfies the unevaluated slot is probably disjoint
from whatever satisfies the other agument slots of the same
predicate (cf. Disjoint Reference Principle above); otherwise it is
left open, to be inferred from context. (29) below is the LSR of
(27a):

(29)
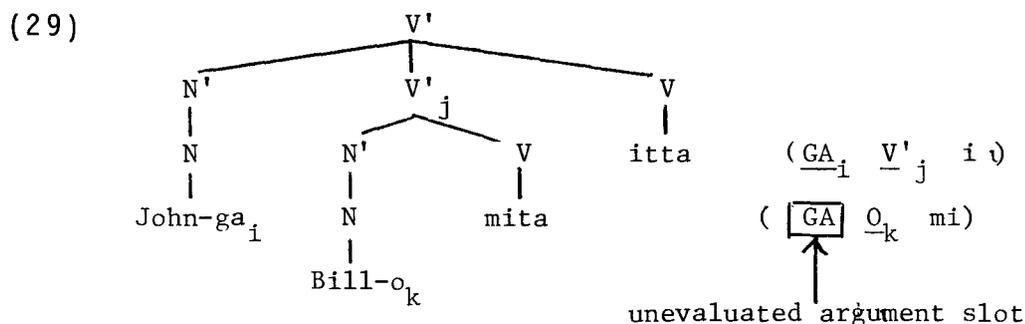
Let us state a principle for this undetermined case.

(30)   Unevaluted Argument Principle (defined over LSR)

The construal of an unevaluated argument is
contextually determined, unless marked otherwise

Notice that the Unevaluated Argument Principle does not exclude the
possibility that in (27b), for example, the unevaluated argument is
interpreted as "coreferential" with John. What is crucial, however,
is that this "coreferential" interpretation is determined not by
structural properties, but by contextual information.

2.   Huang

In section 1, I have taken the position which does <u>not</u> assume Empty Categories. In this section, I will examine a structure-dependent analysis which assumes Empty Categories, and discuss some of the problems which would not arise in the approach taken in section 1.

One example of such an analyses as Huang (1984). I will introduce some of Huang's (1984) assumptions which are crucial to his cross-linguistic account of "null anaphora", and compare it with the analysis proposed above. First, he makes a distinction between "discourse-oriented" languages, such as Chinese and Japanese, and "sentence-oriented" languages such as English. He further emphasizes the presence of "zero topic" as a property of "discourse-oriented" languages, in order to account for a "null anaphor" which refers to some individual in discourse.   Consider the following example from Chinese:

(31) a.   Zhangsan shuo [Lisi bu   renshi ___]
                     say   not know
           'Zhangsan said that Lisi did not know ___ '

     b.   [e], [Zhangsan shuo [Lisi bu renshi e]]
            TOP   i   i

In (31a), the instance of "null anaphora" in object position can only be construed as "referring" to some individual in discourse. According to Huang, (31b) is the structure for (31a).

First I would like to make some general remarks. It is not clear at all what is meant by "discourse-oriented" languages, which are, according to Huang, the only languages that allow "zero topic". Apparently, "zero topic" has the following property: If a language allows non-overt expressions whose interpretation are contextually determined, "zero topic" functions as bridging the two (i.e., the non-overt expression and some individual in discourse) in order to establish a "referential relationship" between the two. However, situations of this kind can be found in English as well. Consider the following discourse:

(32)   My uncle told us to paint the wall. We have just
       finished it. But it is unclear what to do next.

The S-structrue for the last sentence is depicted in (33). (**PRO** is an instance of so-called "arbitrary PRO" in GB theory; i.e., the reference of PRO is supposedly arbitrary.)

(33) it is unclear [[what] [**PRO** to do t]]
                     S' COMP   i S   i

Notice, however, within a discourse such as in (32), the **PRO** in (33) can be interpreted as <u>we</u>. Suppose, then, instead of assuming **PRO** in the subject position of the infinitival clause, we simply posit an EC in this position, leaving the property of the EC unspecified.

Notice, in this case, the situation is exactly parallel to the Chinese example of (31): There is an EC whose antecedent is to be found in the discourse. Then, we could analyze the last sentence in (32) as (34), rather than (33):
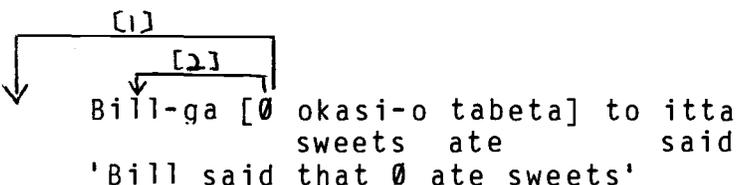
(34) [$\emptyset$] [it is unclear what $\emptyset$ to do]
    TOP i   i

where the EC ($\emptyset_i$) is bound by the zero topic in the sentence initial A-bar-position, and the latter functions as a bridge between the EC and the discourse antecedent we in (32). If this is the case, "zero topic" would not be contrasting feature of "discourse-oriented" languages such as Chinese and Japanese. That is, all languages are "discourse-oriented", which seems to be correct in any case. In this sense, we can collapse Chinese and English.

However, it is questionable to encode "discourse reference" in the form of a syntactic constituent which is a "zero topic" operator. I have taken the position that sentence-level grammar does not represent discourse reference. This would be impossible. The Unevaluated Argument Principle, which was proposed in Section 1, is my alternative to Huang's syntactic account.

The second important assumption Huang bases his argument on is that no language allows a "genuine object zero pronoun". <14> As many of the examples show above, this is not the case in Japanese, even given the definition of "pronominal" as in footnote 14. Furthermore, this claim amounts to nothing in the analysis proposed in Section 1. This is so, because all the instances of "null anaphora" are treated equally as unevaluted arguments in our analysis.
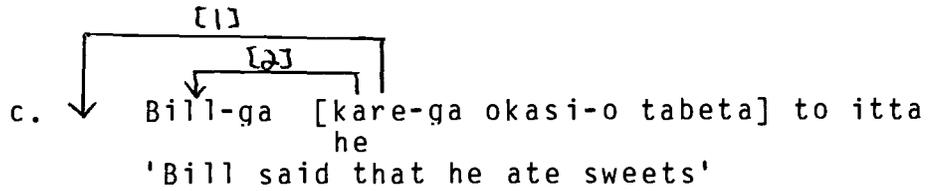
In this event, another question emerges as to Huang's distinction between "pronominal" and "variable". Roughly speaking, the situations in which the two entities are instantiated would be the following: "Null anaphora" which has an antecedent in an A-position within the same sentence is "pronominal", while "null anaphora" which has a discourse antecedent is a "variable". One clear difference between a pronominal and a variable resides in the position of the binder, i.e., A-position vs. A-bar-position. The examples in (35) illustrate this point.

(35)   [1]
                  [2]

a.   Bill-ga [$\emptyset$ okasi-o tabeta] to itta
                  sweets   ate   said
    'Bill said that $\emptyset$ ate sweets'

```
                         [1]
         ┌───────────────────────────┐
      b. │  X ......[      ↓0 ] [Bill-ga [0   okasi-o tabeta]
         ↓  ─i        TOP  i  ↑   j  ┘  i/j
            to itta              └─────┐
                                 [2]
```
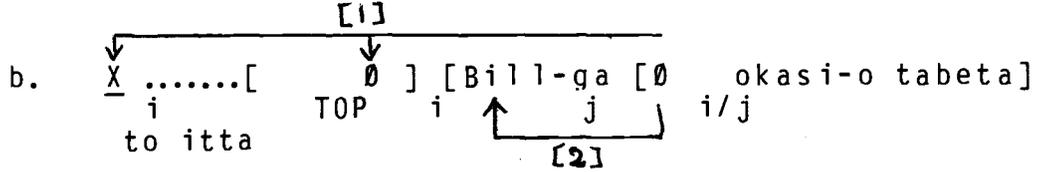
x=an argument in previous
discourse

```
              [1]
        ┌──────────────────┐
        │    [2]           │
        │  ┌───────┐       │
     c. ↓  Bill-ga [kare-ga okasi-o tabeta] to itta
                    he
        'Bill said that he ate sweets'
```

The two interpretations in (35a) (i.e., [1] and [2]) are described in (35b), where, by definition, the EC is a variable in the case of [1] since it is bound by an operator which is an A-bar-position (i.e., [0]), whereas the EC is pronominal in the
         TOP
case of [2] since it is bound by Bill, which is in an A-position and has an independent thematic role. (35c) contains an overt pronoun kare instead of an EC, and has the same range of possible interpretations as those in (35a). According to Huang, the EC in (35a) is defined differently depending on the type of binder. However, I claim the function of the EC is only one, as in (35c); i.e., "referring" to some entity. That is, the difference between "pronominal" and "variable" in (35) would not be the difference in property, but is simply the difference in the type of the binder. The following question arises: Is this distinction necessary? Furthermore, why should the structural properties of the antecedent be invoked? Put differently, is there any motivation for maintaining this distinction between "pronominal" and "variable" in accounting for the "reference" of an EC? None of these problems emerge in the analysis presented above because we have treated the two cases of "null anaphora", [1] and [2] in (35a), uniquely as one entity, i.e., unevaluated argument, and also because we do not depend upon the structural properties of the antecedents, which appear to have nothing to do with the "reference" of a "null anaphor".

3.   Conclusion

        In this paper, I have demonstrated how "null anaphora" (=unevaluted argument, in our terms) should be construed within the framework of Modular Grammar. In principle, different components of the grammar (e.g., syntactic, semantic, phonological, and pragmatic) can account for "null anaphora" phenomena, assuming that the relevant principles and rules may be defined at more than one level of representation (e.g., LS, SS, and LSR).
        The rules and principle proposed in this paper are listed below:

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(36)   <u>Subject</u> <u>Control</u> <u>Rule</u>   (defined over LSR)

The subject of the embedded clause is obligatorily assigned the same index as that of the matrix subject, if the predicate of a matrix clause is a subject control predicate (e.g., <u>yakusokus</u> ('to promise'))

<u>Non-Subject</u> <u>Control</u> <u>Rule</u>   (defined over LSR)

The subject of the embedded clause is obligatorily assigned the same index as that of the matrix non-subject, if the predicates of a matrix clause is a non-subject control predicate (e.g., <u>kitais</u> ('to expect'))

<u>Unevaluated</u> <u>Argument</u> <u>Principle</u>   (defined over LSR)

The construal of an unevaluated argument is contextually determined, unless marked otherwise

In sum, null anaphora is identified as an unevaluted argument at Lexical-Syntactic Representation (LSR), and the interpretation of the unevaluated argument largely depends on the way Controlled Evaluation operates on the basis of the above rules. A modular approach must necessarily involve various levels of representations as well as different types of components in order to account for the interpretation of null anaphora. Therefore, this approach is promising in that it accounts for the intuitions associated with so-called null anaphora. It would be important to extend this approach to reflexive <u>zibun</u> and overt pronouns such as <u>kare</u> and <u>kanojo</u> for a better understanding and explanation of anaphora problems in general.

FOOTNOTES

*I would like to thank Ann Farmer for her comments and patience. All errors are, of course, my own.

1. cf. Huang (1984).

2. Projection Principle is stated as follows (cf. Chomsky (1981:29)):

Projection Principle

Representations at each syntactic level (i.e., LF, and D- and S-structure) are projected from the lexicon, in that they observe the subcategorization properties of lexical items.

3. For the motivation of including pragmatics in the Linguistic System, see Harnish and Farmer (1984).

4. The phrase structure rule is adopted from Hale (1980) and Farmer (1980).

5. GA and O are instances of case particles, representing nominative and accusative, respectively. These case particles are assigned at LS by the Regular Linking Rule in Farmer (1984:66):

(i) Regular Linking Rule

a. Link leftmost 'S' argument slot: GA
b. Link rightmost argument slot: O
c. Elsewhere link: NI

6. I will come back to evaluation procedures in Section 1.2.

7. I assume the case linking rules in Farmer (1980). See also fn.5.

8. "___$_i$" should be interpreted as follows: For example, in (12a) whatever satisfies the GA-marked argument slot in LS (the predicate shootais ('to invite')) is intended to the same individual as John, which has the identical index, i, as "___$_i$".

However, when a blank space does not carry any index ("___"), no specific interpretation is required by the predicate type, and the reference of the slot is intended to be contextually determined. Although I presented an unevaluated argument slot as "___" for the ease of exposition, this does not mean that I assume empty categories at the SS level, as stated in detail above.

9. Following Farmer (1980, 1984), I assume "subject" is defined as the leftmost argument slot.

10. Consider the following sentences, which are the passive and

causative versions of (13), respectively:

(i) a.??Bill-ga John-ni [___(-ga) Mary-o shootaisuru] to
         i   j   *i/j
     yakusokus-are-ta
               passive

   'Bill was promised by John that ___ will invite
         i   j   *i/j
    Mary'

   b.??John-ni Bill-ga [___(-ga) Mary-o shootaisuru] to
          j   i   *i/j
     yakusokus-are-ta

(ii)   John-ga Bill-ni [___(-ga) Mary-o shootaisuru] to
          i   j   *i/j
     yakusokus-ase-ta
               causative

   'John made Bill to promise to invite Mary'

The Control Evaluation would be schematized as follows:

(iii) for (i)

       matrix: ((NI GA V' yakusokus) are)
                          j   i   k
                         Ø   S

                           ‖

       embedded: (GA O shootais)
                         j   l
                        S

(iv)   for (ii)

       matrix: ((GA NI V' yakusokus) ase)
                         i   j   k
                        S   S

                           ‖

       embedded: (GA O shootais)
                             j   l
                            S

On the basis of (iii) and (iv), the statement of the Subject Control
Rule in (15) is not quite right for the following reasons: First, in
(iii), the argument slot from which the embeded subject slot is
assigned the index is not the subject. Second, in (iv), the Subject
Control Rule will predict the embeded subject slot can be assigned
either the index of i or j, since both GA-marked argument and NI-
marked argument are defined "subject". Notice, however, that the
embedded subject is always assigned the index of "the leftmost
argument slot of a minimum predicate". This suggests that the

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Subject Control Rule in (15) might necessarily be re-stated.

11. For the same reason as stated in fn.10, the rule may need to be restated.

12. In the previous representations of LS's, I have eliminated the diacritic 'S'(ubject). As I noted in fn.9, however, those LS's should be taken to include the diacritic 'S'.

13. The terms "contextual appropriateness" and "mutual contextual belief" are introduced and discussed extensively in Bach and Harnish (1979).

14. What he refers to as "pronominal" (and "variable") is defined in terms of structural properties:

> (i) a.   An EC (=empty category) is pronominal if and only
>   if it is free or locally bound by an element with
>   an independent thematic role, and a non-
>   pronominal if not thematically bound
>
>   b.   An non-pronominal EC is an anaphor if and only
>   if it is locally A-bound, and a variable if
>   locally A-bar-bound

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