

Japanese Honorific Systems in Generalized Phrase Structure Grammar Framework*

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1. Introduction

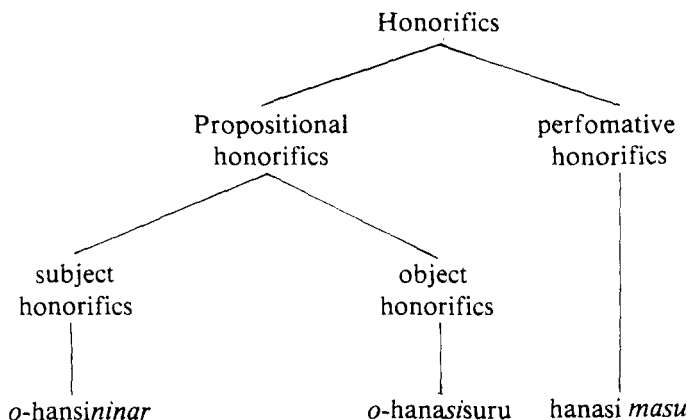
The Japanese language like so many non-European languages such as Korean, Javanese and Tibetan has a tight grammatical system of honorifics. For example, in Japanese when a subject denotes a person to whom a speaker wants to express his deference, he employs a special form of a verb by prefixing 'o'-and suffixing '-ninar' to a verb base. Not only verbs but also nouns, pronouns and adjectives have special forms of honorific expressions in Japanese. In the tradition of Japanese grammar, whether to use honorifics or not was simply viewed as a lexical matter sporadically triggered by some social factors. So it was considered to be quite outside the domain of grammar as advocated Minoru Watanabe, to give only one out of many such traditional grammarians. We will not follow this tradition but will follow a new frame of reference as proposed by Harada(1976), Shibatani(1978), and Kuno(1983), all of whom consider the phenomenon as purely grammatical, that is, as one triggered by subject or object noun phrases.

This paper presents, though tentatively, a description of Japanese honorifics in the theoretical framework of what is called Generalized Phrase Structure Grammar and aims at showing to what extent the theory fares well in describing the systems of Japanese.

Before going into details a word about 'honorifics' will be in order. In what follows the expression will be used for a cover term of what was called in the traditional Japanese grammar 'sonkeigo' (honorific expressions),

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'kenjyogo' (humble expressions), and 'teineigo' (polite expressions). We will not follow the old terminology but will adopt Harada's classificatory scheme as shown below, since his basic assumptions are correct in that he claims that 'this hierarchical classification is motivated primarily by the location of the NP referring to an SSS (a person socially superior to the speaker).'



It is characteristic of honorific expressions that they are describable in terms of three factors of (1) a topicalized person or a thing usually denoted by a subject or object noun phrase, (2) a hearer, and (3) a speaker, and their relative hierarchy of deference with respect to each other.

Subject Honorifics

It is employed in the following two cases:

(a) A topicalized person or a thing denoted by a subject noun phrase is higher than a speaker or a hearer in terms of a social status, while the latter two factors are equal in social status. For example, we say as follows.

- (1) Kimura sensei ga irassyaru.
 Prof. Kimura subj. comes (= Prof. Kimura comes.)

In this sentence 'irassyaru' is used as a suppletive honorific form of 'kuru' meaning 'come', since the topicalized person 'Kimura sensei' is regarded as superior in social rank to a speaker or a hearer.

(b) When a topicalized person denoted by a subject noun phrase and a hearer are both superior in their respective social position to a speaker, we use honorifics for a topicalized person and polite expressions for a hearer.

- (2) Kimura sensei ga irassyai masu.
Prof. Kimura subj. comes

'masu' in (2) is a polite expression, which is used when a speaker wants to express respect to a hearer.

- (3) Kimura sensei ga watakushi ni hon o omiseninatta.
Prof. Kimura me a book showed
(Prof. Kimura showed me a book.)

In this case the relative superiority of social status on the part of the subject noun phrase 'Kimura sensei' to 'ni' marked indirect object triggers an honorific affix on a verb 'miser' meaning 'show'.

In all of these cases it is a person denoted by a subject that triggers honorifics on a verb.

Object honorification.

Let us go to what is called object honorification.

- (4) Watakushi wa Yamada sensei ni ootoonokoto o ohanashisi ta.
I subj Prof. Yamada to about my brother tell past
(= I told Prof. Yamada about my younger brother.)
- * (5) Watakushi wa ootoo ni Yamada senseino koto o ohanashisi
I subj. to my brother about Prof. Yamada tell
ta.
past
(= I told my younger brother about Prof. Yamada.)
- (6) Watakushi wa Yamada sensei ga okakininatta gohon o oyomisi ta.
I subj. Prof. Yamada wrote a book read past
(= I read a book which Prof. Yamada wrote.)
- (7) Watakushi wa kanai ni Yamada sensei o ookurasesi ta.
I my wife Prof. Yamada let send off past
(= I let my wife send off Prof. Yamada.)

In the sentence (4) the relative inferiority on the part of a person denoted by subject noun phrase 'watakushi' to the one denoted by an object noun 'Yamada sensei ni' can be said to be the direct cause of 'o---si' affixation on the verb base 'hanahi', while the ungrammaticality of (5) is attributable

to a relative superiority of social hierarchy of the person denoted by 'otooto ni' meaning 'to my younger brother' to 'watakushi'.

In (6) the inferior status of 'watskushi' as compared with 'Yamada sensei ga okakininatta gohon' 'meaning' a book which Prof. Yamada wrote' would be the direct cause of 'o---si' affixation on a verb stem 'yom', though it would be apparently strange to compare an animate being and an inanimate thing 'a book'.

Lastly, it should be noticed that the relative difference of social status between the persons denoted by the 'ni' marked object and the 'o' marked object, not between the subject person and object person will also cause a triggering effect on the verb stem turning it to 'o-okurase-si'. In the transformational terms, this is the case in which a sentence such as 'Kanai wa Yamada sensei o okuru' meaning 'my wife sends off Prof. Yamada' is embedded in a matrix sentence, but in the present framework no such embedding operation is admitted, so that this is an exceptional case in which a 'ni' marked object noun triggers an honorific affix on a verb stem. It should be emphasized that in all the other cases of subject and object honorification a relative difference of social hierarchy between a subject and object noun phrase can act as a trigger on a verb base, affixing a relevant affix depending upon whether a subject is the direct cause of subject or object honorification.

So far we have said nothing about a performative honorifics. What is crucial with this is that in this case only two factors of a hearer and a speaker are relevant, which is quite contrastive with propositional honorifics. This is quite clear if we compare the sentence (8) with the sentence (2) above.

- (8) Ootoo wa asu kaeri masu.
 my brother tomorrow go back
 (= My younger brother will go back tomorrow)

As is evident from the sentence above, only two factors of a speaker and a hearer are relevant in deciding the use of performative type of honorifics. In what follows we will be concerned only with a case of what is called propositional honorifics, in which another factor other than a speaker or a hearer is relevant in triggering a subject or an object honorifics.

2. Subject Honorification

Let us start with a very simple case and see how we can formalize the rule of subject honorification in Japanese.

- (9) Yamada sensei ga hon o yon da.

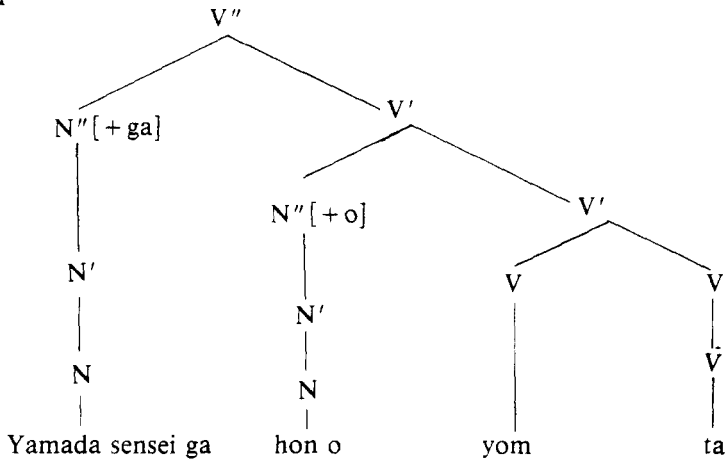
Prof. Yamade a book read past
 (= Prof. Yamada read a book.)

When the subject NP 'Yamada sensei' in the above sentence is considered to express a person who has a socially superior status to a speaker, *o* is prefixed to the verb stem 'yom' and 'ninar' is suffixed to the same verb. So we say as (10).

(10) Yamada sensei ga hon o o-yom-i-ninar ta.

The structure of (9) can be represented as follows in the framework of X bar syntax adopted in Gazdar, Pullum and Sag (1982).

Fig. 1



It will be evident from the constituent structure that the subject NP triggers an honorificatory affix on the verb 'yom', which is structurally speaking, c-commanded by the subject but we cannot have recourse to this kind of structural terms in GPSG framework. So the question arises how to formalize this triggering relationship between the two constituents.

Suppose we put a feature +SH, an abbreviation of 'subject honorification,' on the subject NP 'Yamada sensei' since it is usually considered to be a speaker. This feature must be transported as far down to the verb stem 'yom'. In order to handle this kind of feature percolation, the notion of 'Control Agreement Principle' as advocated in Gazdar & Pullum (1982) will be useful. This notion depends heavily on Keenan's claim that function symbols may present a morpheme whose form is determined by the

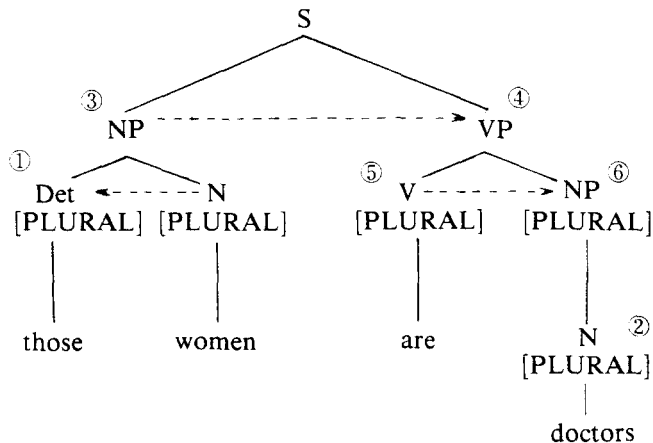
noun class of the argument expression. What motivates such a claim is, according to Gazdar & Pullum, that the 'reference of a nominal argument α can, in general, be determined independently of the interpretation of any functor expression depending on α , while the converse is not true.' This dependence, according to Keenan, is reflected syntactically in the fact that the morphological form of a functor may vary with the form of an argument, but not vice versa.' Instead of using 'function' and 'argument', Gazdar & Pullum employs the terms 'controllee' and 'controller's, the latter notion being equivalent to that of argument-passing function that applies to some controllee, as well as to the usual notion of argument.

What is characteristic of Keenan, and Gazdar & Pullum's definition of function-argument is that these notions are given both semantic and morphological definition: the referent of a function is defined as being dependent on that of an argument, while the morphological shape of a function is dependent on that of an argument. By having recourse to the notion of control-controllee agreement, Gazdar & Pullum define their so called Control Agreement Principle (CAP) as follows.

If β_i controls β_j , then $AGR(\alpha_i) = AGR(\alpha_j)$

N.B. ' α ' stands for a category in an instantiated rule A, and ' β ' for its counterpart in a rule B which A instantiates.

Together with the so called 'Head Feature Convention' (HFC), which stipulates in effect that mother and head carry the same feature, the transfer of agreement feature in English can be diagrammed as follows.



In the case of Japanese, however, there is no morphological correspondence between a subject and a predicate verb, so that transportation

of features by means of HFC and CAP does not work. Instead, we will have recourse to what we call ‘Predicate Argument Feature Sharing Principle’ (PAFSP), in addition to HFC.

Predicate Argument Feature Sharing Principle:

If α and β are in a predicate-argument relation, that is, if a referent of a predicate is determinable by that of an argument, while that of the latter can be determined independently of the first, the following relation always holds between the predicate and the argument.

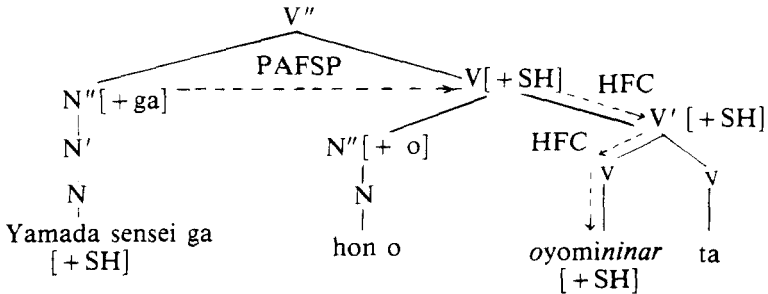
$$\begin{matrix} \alpha (\wedge \beta) & \dashrightarrow & \alpha (\wedge \beta) \\ +F & & +F +F \end{matrix}$$

N.B. F: arbitrary feature

Through the combined effect of HFC and PAFSP, the sentence (9) can be honorificized by the following process of feature transportation.

(10) Yamada sensei ga hon o oyomininar ta.

Fig. 2



The predicate argument structure of (10) is as follows:

(10') ((yom)hon) (Yamada sensei)

From Fig. 2 and (10') it will be clear that a feature +SH attached to the subject noun phrase ‘Yamada sensei’ is carried over to the topmost V'' by PAFSP and then trickles down to the downmost verbase ‘yom’, turning it to ‘oyomininar’ by HFC and a phonological realization rule.

Let us proceed to a more complex case in which a verb phrase is composed of several complex constituents. It was pointed out by Perlmutter that sentence (11) has two readings shown in Fig. 3 and 4 below.

(11) John began to work.

Fig. 3

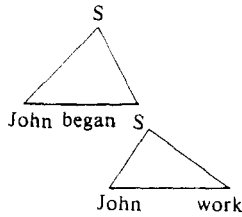
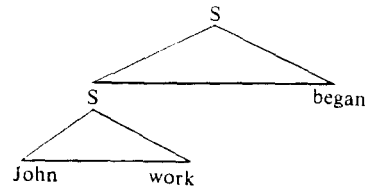


Fig. 4



The one reading is a case where 'begin' is used as a transitive verb taking a sentential object 'John work', while the other is the one in which 'begin' is used as an intransitive verb taking a sentence as subject. Kuno observes a similar case in Japanese where 'hajimeru' (begin) or 'owaru' (finish) is employed. For example, sentence (12) below is ambiguous between two readings: the one is a transitive use of 'hajimeru', the other is an intransitive use of the verb. These two readings are shown below as Fig. 5 and 6.

- (12) Tanaka sensei ga tegamio kaki hajimeru.
 a. Tanaka sensei begins to write a letter.
 b. Tanaka sensei's writing a letter begins.

Fig. 5

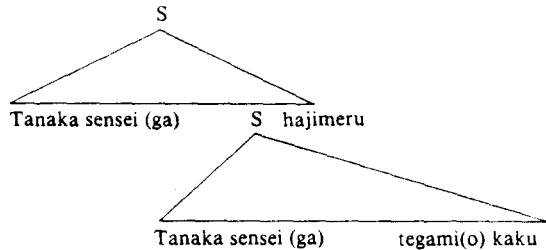
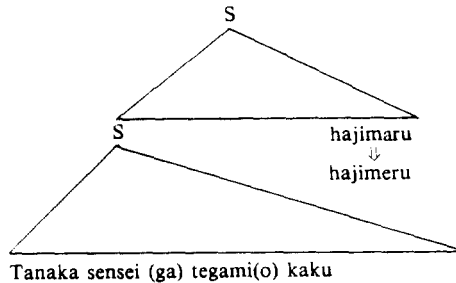


Fig. 6



According to Kuno(1983), the two different readings correspond to two different behaviours in terms of honorification, which can be summarized as follows.

The honorific form of a complex verb consisting of $V_1 + V_2$ is generated (a) by putting a prefix *o-* and a suffix *-ninar* to the whole sequence of $V_1 + V_2$ if V_2 is a transitive verb.

(b) by putting the affix to the first element, i.e., V_1 , if V_2 is an intransitive verb.

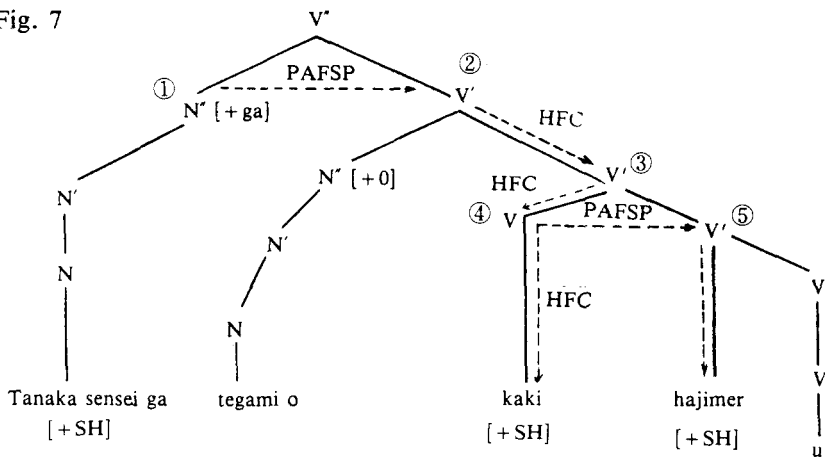
The sentence (13) is the former, while (14) is the latter case, respectively.

(13) Tanaka sensei ga tegami o *okakihajimeninar*.
(Prof. Tanaka begins writing a letter.)

(14) Tanaka sensei ga tegami o *okakininar-i-* hijimeru.
(Prof. Tanaka's writing a letter begins.)

The next problem is how to formalize this 'o---ninar' affixation in each case. Let us begin, first of all, with the sentence (13). The structure of the sentence can be diagrammed as follows.

Fig. 7



The predicate-argument structure of (13) corresponding to Fig. 7 is as follows.

(15) {(hajimeru (kaki) tegami) (Tanaka sensei)}

As is shown in Fig. 7, +SH attached to the subject NP 'Tanaka sensei' is transferred to ② by PAFSP, tricking down to the node ③ by HFC, being then transported as far down to the node ④ by the same convention and reaches down to 'kaki'. Through PAFSP the feature +SH is carried to

the node ⑤, being further carried down to 'hajimeru'.

Since +SH is attached both to 'kaki' and 'hajimeru', the application of the phonological realization rule will automatically generate such an ungrammatical string as 'o-kaki-ninar-i-o-hajime-ninaru'. In order to filter out such a string we must stipulate the following rule:

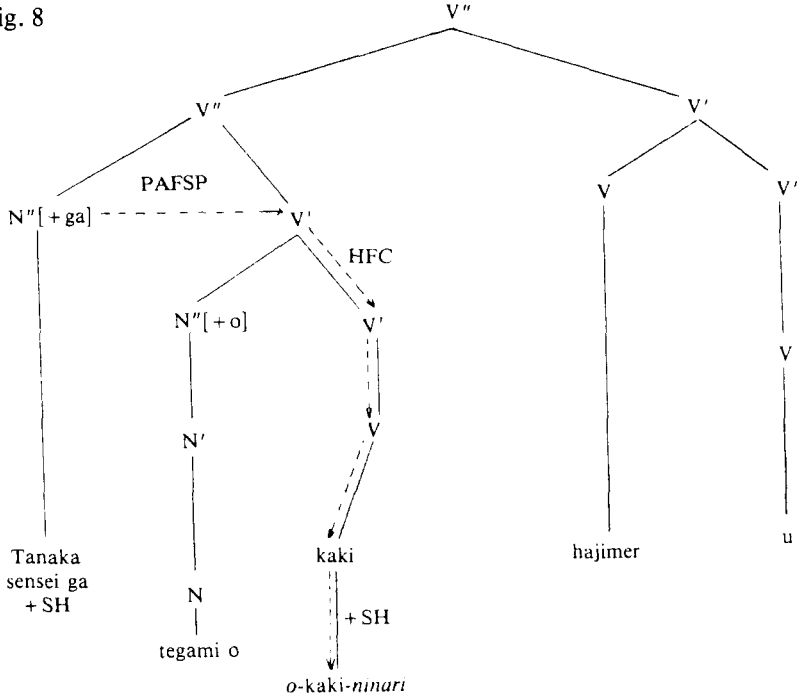
Unification of Honorific Feature

$$\begin{array}{ccc}
 V_1 + V_2 & \dashrightarrow & \underbrace{[V_1 + V_2]} \\
 [+SH] \quad [+SH] & & [+SH] \\
 [+Aux] & & \\
 [+hajimer] & &
 \end{array}$$

The rule says in effect that if both V_1 and V_2 have +SH attached to them, and if V_2 has a feature +Aux, and +hajimer, the sequence of $V_1 + V_2$ has only one +H, the doubly occurring +SH's being reduced to one +SH.

Let us turn to sentence (14), in which 'hajimer' meaning 'begin' is used as an intransitive verb. The structure of (14) can be represented as follows.

Fig. 8



The predicate-argument corresponding to (14) is as follows.

(15) (hajimeru) {((kaki) tegami) Tanaka sensei }

Through the operations of PAFSP and HFC, the feature attached to the subject noun phrase ‘Tanaka sensei’ is carried as far down to ‘kaki’, turning it *o-kaki-ninar* as expected.

3. Object Honorification

So far we have dealt with a case of subject honorification, where a topicalized person usually expressed by a subject noun, is higher in his social hierarchy than a speaker or a hearer. In that case a subject noun can be a trigger of an honorific expression. On the other hand, as we have already mentioned earlier, there are two cases of object honorification: one is a case of object honorification triggered by a subject, that is, a case where the person denoted by an object noun is superior to the person expressed by a subject. This is quite a converse case of subject honorification. The other is a case of object honorification triggered by another object in a sentence, that is, when a person denoted by one of the two objects is lower in his social status than a person expressed by another object noun, the first can be a trigger of object honorification of the second object. Let us call the first case ‘object honorification triggered by subject’, and the second case ‘object honorification triggered by a second object’.

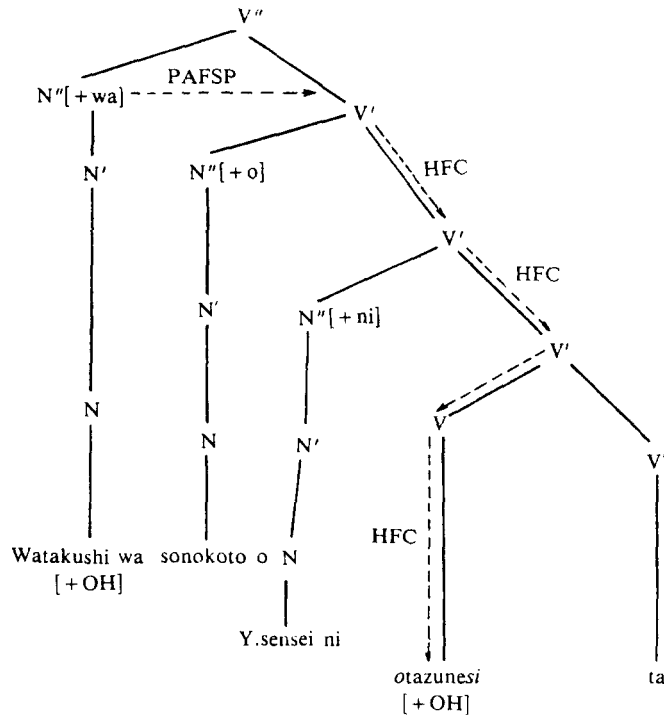
3.1 Object honorification triggered by subject

Let us begin with a simple case such as follows.

(16) Watakushi wa sonokoto o Yamada sensei ni otazunesi ta.
 I the matter to Prof. Yamada ask past
 (= I asked Prof. Yamada about the matter.)

Since the person expressed by ‘ni’ marked object noun phrase ‘Prof. Yamada’ is considered to be superior in terms of social position to the person denoted by subject noun phrase ‘I’, the subject can be a trigger of object honorification, turning the verb base to ‘otazunesi’ from ‘tazuner’. The whole picture of transportation of the feature object honorification, abbreviated as ‘OH’ attached to the subject can be diagrammed as follows.

Fig. 9



As is clear from the structure shown above, the feature +OH is carried down to the verb base 'tazuner', turning it to its objec honorified form 'otazunesi'. This is a parallel case of subject honorification, the only difference being the affixing of 'o---si', instead of 'o---ninar' to a verb base.

3.2 Object honorification triggered by a second object

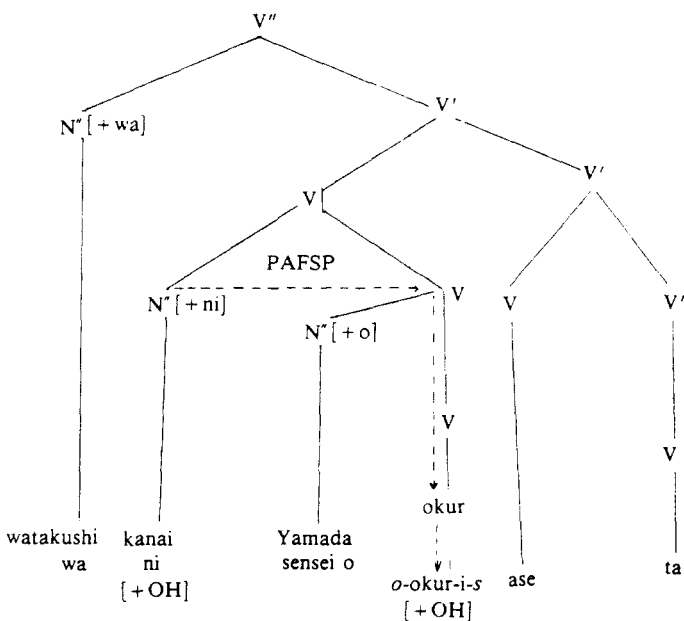
So far we have touched upon rather a simple case where a subject noun phrase can be a direct cause of object honorification. Let us proceed to a more complex case in which an element other than a subject noun can be a trigger of 'o---si' affixation on a verb.

- (17) Boku wa kanai ni Yamada sensei o okurase ta.
 I my wife Prof. Yamada let send off past
 (= I let my wife send off Prof. Yamada.)

In this sentence the trigger of 'o---si' affixation is a 'ni' marked noun phrase or what might be called an indirect object of ditransitive verb 'okur'

meaning 'to send off'. When the social status of 'ni' marked indirect object is lower than that of 'o' marked direct object, not a subject but the indirect object can be a trigger of 'o---si' affixation. The structure and the whole process of the affix transportation can be diagrammed as shown below.

Fig. 10



The predicate-argument structure is as follows.

- (18) ((ta (sase (((okuru) Yamada sensei) kanai))) watakushi)
 = ((past (cause(((send off) Prof. Yamada) my wife))) I)

As is clear from this restatement in terms of predicate-argument structure 'my wife' acts as an argument, while 'send off Prof. Yamada' works as a predicate. Since a feature is carried over from an argument to a predicate, and since the social status of a person denoted by 'my wife' is lower than that of 'Prof. Yamada', the feature +OH is transported from 'my wife' as far down to 'okuru', which turns into 'o-okuri-s' by being affixed by the object honorific element.

Let us turn to a more complicated sentence which has roughly the following 'deep structure'.

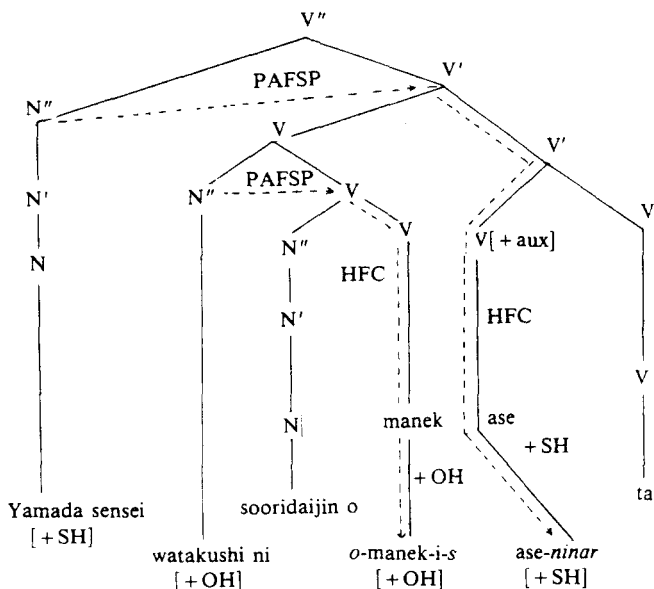
- (18) Yamada sensei wa watakushi ni sooridaijin o omaneki sase
 Prof. Yamada me the Prime Minister invite cause
 ninatta
 past
 (= Prof. Yamada caused me to invite the Prime Minister.)

- (19) [_S Prof. Yamada [_S I invite the Prime Minister] cause]

The tree diagram is represented as Fig. 11, together with the whole picture of +SH and +OH transportation and the predicate-argument shown as (20).

- (20) (ta (sase ((manek (sooridaijin)) watakushi))) (Yamada sensei)
 = (past (cause ((invite (the Prime Minister)) I))) (Prof. Yamada)

Fig. 11



Since 'watakushi' meaning 'I' is lower than 'sooridaijin' meaning 'Prime Minister' in terms of social hierarchy, the object honorific feature +OH is attached to 'I', and since 'invite the Prime Minister' and 'I' stand in a predicate-argument structure, the feature +OH is carried over to the verb

base ‘manek’ turning it to ‘o-manek-i-s’. On the outer layer of the sentence, ‘Prof. Yamada’ and the rest of the sentence are also in a predicate-argument structure, so that +SH is transported from the subject noun phrase to ‘ase’ since the social position denoted by ‘Prof. Yamada’ is higher than the one of the speaker. Though +SH is attached to ‘ase’ by PAFSP and HFC, it is not realized as ‘o-ase-ninar’ since ‘ase’ has [+aux] as a feature. When a [+aux] attached verb is preceded by another verb, it combines with the preceding element becoming into one unit. It is to this unit that the honorific affix ‘o---ninar’ is put. The whole process of honorific marker affixation can be stated as follows:

- a. basic form: V + ‘ase’[+aux]
- b. object honorification: o-V-i-s + ase
- c. subject honorification: o-V-i-s + ase
+ SH
- d. diffusion of +SH: o-V-i-s + ase
+ SH + SH
- e. unification of +SH: o-V-i-s + ase
+ SH
- f. phonological realization rule: o-o-V-i-s + ase + ninar
- g. dropping of one ‘o’: o-V-i-s-aseninar
e.g. o-manek-i-s-aseninar

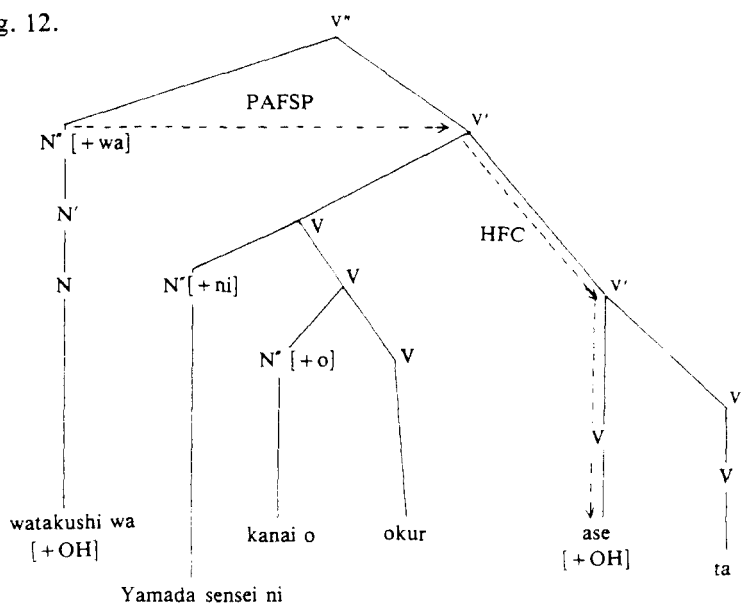
Sentence (21), whose structure is shown in Fig. 12, shows how ‘o---si’ object honorification form is affixed to a complex verb consisting of a verb base and a verb with the feature [+aux].

- (21) Watakushi wa Yamada sensei ni kanaio ookurasesi ta.
I Prof. Yamada my wife cause to send off past
(= I caused Prof. Yamada to send off my wife.)

Since the person denoted by ‘watakushi’ meaning ‘I’ is considered to be lower than the one expressed by ‘ni’ marked indirect object ‘Yamada sensei ni’, +OH is attached to the subject ‘I’ which acts as a trigger of +OH transportation as far down to ‘ase’ but because ‘ase’ is [+aux] marked, it does not become ‘o-ase-ninar’. As we have already mentioned above, ‘ase’ combines directly with a preceding verb base turning itself into one single unit, to which ‘o---si’ is affixed as a whole. The whole process of the affixation can be summarized as follows:

- a. basic form: V + 'ase' [+ aux]
- b. object honorification: V + ase + OH
- c. diffusion of object honorification: V + ase
+ OH + OH
- d. unification of +OH : $\underbrace{V + ase}_{+OH}$
- e. phonological realization rule: o-V + ase -si
e.g. o-okur + ase - si

Fig. 12.

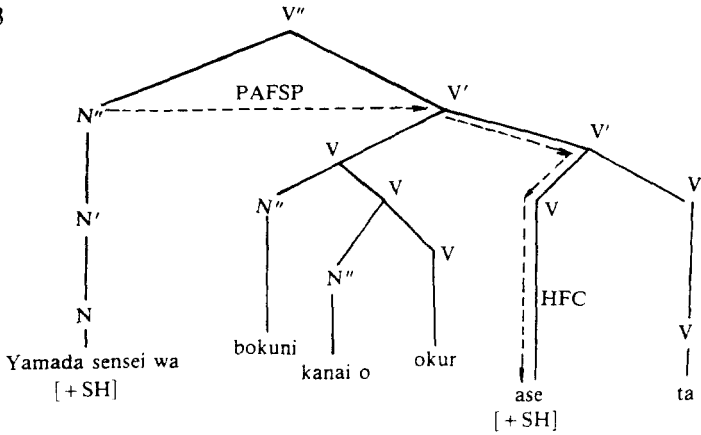


It should be mentioned in passing that o---ninar' affix shows a similar behaviour to 'o---si' affix, as the example below demonstrates.

- (22) Yamada sensei wa bokuni kanai o okuraseninata.
 Prof. Yamada me my wife let send off
 (= Prof. Yamada caused me to send off my wife.)

As Fig. 13 shows, 'o---ninar' honorificatory affix triggered by 'Yamada sensei' meaning 'Prof. Yamada' is put not to 'ase' directly but to a complex form 'okur + ase' which forms a unitary verb form as a whole, as in the case of the preceding sentence (21).

Fig. 13



Let us summarize what we observed in 2.2. When a verb element consists of two constituents, V_1 and V_2 , with the feature [+aux] being attached to V_2 , the following statement will hold.

- a. $V_1 + V_2 [+aux]$ ----- \rightarrow $o-V_1-i-s + V_2$
 +OH e.g. $o\text{-manek-i-s-ase-[ta]}$

When V_1 has +OH attached to it, the feature will not expand to the next element, that is, V_2 but will be realized on V_1 alone, turning the whole sequence to $o-V_1-i-s + V_2$, as the example shows. This is the case of the sentence (17).

- b. $V_1 + V_2 [+aux]$ ----- \rightarrow $o-[o-V-i-s + V_2]\text{-ninar}$
 +OH +SH e.g. $\phi\text{-[omanek-i-s-ase]-ninar}$

When V_1 is +OH attached and V_2 is +SH attached, the feature attached to V_2 expands to the preceding constituent, that is, to V_1 so that the subject honorification will apply to the whole sequence of $V_1 + V_2$. This is the case of the sentence (18) above.

- c. $V_1 + V_2 [+aux]$ ----- \rightarrow $o[V_1 + V_2]\text{si}$
 +OH e.g. $o\text{-manek-ase-si (ta)}$

Quite parallel to the case of b above, when V_2 is +OH marked, the feature +OH permeates to the preceding element, that is, V_1 and turns the whole sequence into $o-V_1 + V_2\text{-si}$. (21) is the case in point.

From b and c we can draw the following generalization.

$$\begin{array}{ccc} V_1 + V_2 [+aux] & & \underbrace{V_1 + V_2} \\ +\alpha & & +\alpha \end{array}$$

When the second constituent V_2 has $+aux$ and when it receives $+\alpha$, which is either $+SH$ or $+OH$, the feature in question expands to the preceding element, that is, V_1 and the sequence of $V_1 + V_2$ as a whole receives the feature $+\alpha$.

4. Noun Phrase Honorification

It sometimes happens in Japanese that noun phrases have an honorificatory prefix 'o' or 'go' depending on the following lexical item. For example, we say as follows:

- (23) a. Yamada sensei no onimotsu (= Prof. Yamada's luggage)
 b. Yamada sensei no goshisoku (= Prof. Yamada's son)

It would be interesting if we can explain this kind of phenomena in terms of some underlying principle, instead of an ad hoc explanation. It should be noticed that in these two cases of noun phrase honorification 'Yamada sensei' acting as a possessor triggers the prefix '(g)o'.

In Pollard-Sag (1983) possessor-possessed relation is formalized as follows:

- (24) Kim's cat = the ($\lambda y(\text{cat}(y) \ \& \ \text{Poss}(\text{Kim}^*)(y^*))$)

If we adopt this notation, (23) a and b would be represented as follows:

- (25) a. the ($\lambda y(\text{luggage}(y) \ \& \ \text{Poss}(\text{Prof. Y}^*)(y^*))$)
 b. the ($\lambda y(\text{son}(y) \ \& \ \text{Poss}(\text{Prof. Y}^*)(y^*))$)

Why 'no' marked modifier 'Yamada sensei no' meaning 'Prof. Yamada's' can be a trigger of the honorificatory prefix for the head of the noun phrase 'nimotsu' meaning 'luggage' can be explained as follows:

1. There must be two predicate-argument structures standing in a conjunct relation with a common variable as an argument: $A(y) \ \& \ B(y)$
2. The predicate of the first conjunct is a function denoted by a common noun. e.g. luggage (y)
3. The predicate acting as a second conjunct must be a two-place predicate denoting 'possessor-possesee relation, abbreviated henthforth as 'Poss', with one of the two arguments applied to it being an individual denoting

- a possessor, and the other being an individual variable denoting a possesee. The individual variable of the first and the second predicate standing in a conjunct relation must be the same variable. e.g. luggage (y) & Poss (Prof. Yamada*) (y*)
4. When the two argument individual variables are bound by the same λ operator, any features possessed by the argument denoting a possessor can be shared by a noun denoting the predicate of the first conjunct. Let us take 25(a) for example and see how this will work.

There are two predicate-argument structures standing in conjunct relation: e.g. luggage (y) & Poss (Prof. Yamada) (y).

The predicate of the first conjunct is a function denoted by a common noun 'luggage'.

The first argument applied to the two place predicate 'Poss' denotes an individual expressing a possessor 'Prof. Yamada'. The individual variable acting as an argument for the first and the second predicate-argument structure is 'y' in this case. Since the two occurrences of the same variable 'y' are bound by the same λ operator, the feature +H attached to 'Prof. Yamada' can also be shared by 'luggage', a noun denoting the predicate of the first predicate-argument structure. By this process 'Prof. Yamada' can function as a trigger of feature +H on a common noun 'nimotsu' turning it to 'onimotsu'.

Let us take the next example and see how the above principle works.

- *(26) Ootoo no onimotsu
(= my brother's luggage)

Even though the example can be translated into 'the(λy (luggage (y) & Poss(my brother *) (y*))), 'otooto no nimotsu' cannot be a possible candidate for the honorific prefixation, since we do not attach the feature +H to 'otooto' meaning 'my younger brother'. Therefore the statement made above can correctly predict that (26) is ungrammatical.

Let us turn to a more complex case where a noun phrase modifier denoting a possessor triggers the honorificatory prefix *o-*, triggering in its turn another 'o' prefix so that there are two prefixes in succession.

- (27) Yamada sensei no okaasama no oyashiki
Prof. Yamada's mother's estate

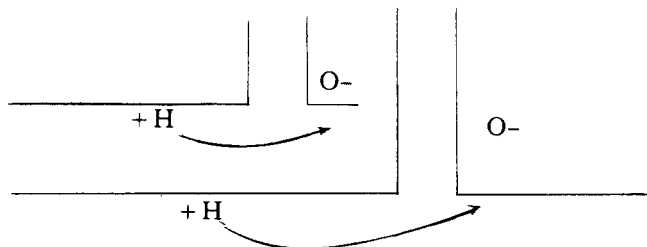
In this example, 'Yamada sensei no' and 'okaasama' constitute immediate constituents, and 'Yamada sensei no okaasama' and 'oyashiki' can con-

stitute other immediate constituents on the outer layer of the noun phrase. This is shown below as (28):

(28) Yamada sensei no | okaasama no | oyashiki

In this phrase 'Yamada sensei no' triggers 'o' in 'okaasama', which constitutes an immediate constituent to the preceding 'Yamada sensei', so that 'Yamada sensei no okaasama' as a whole, not 'okaasama' alone, will receive the feature +H since the phrase constitutes an immediate constituent. The feature in its turn is inherited by 'yashiki' turning it to 'oyashiki'. Thus it is clear that the 'o' prefixation is accomplished according to the structure of immediate constituents. This is diagrammed as follows.

Fig. 14



The whole picture of λ operator binding is represented as follows:

(29) The $\{\lambda x(\text{house}(x) \ \& \ \text{Poss}(\text{the}(\lambda y(\text{mother}(y) \ \& \ \text{Poss}(\text{Prof. Yamada}^*)(y^*))))^*(x))\}$

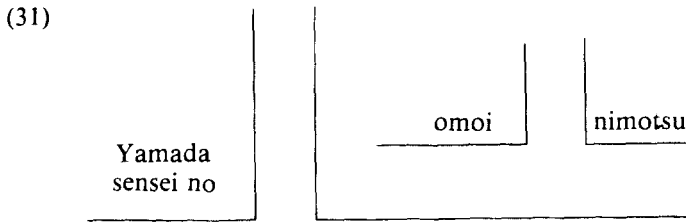
As (29) shows, since 'Yamada sensei no kaasama' satisfies the four conditions of λ operator binding, 'o' is prefixed to 'kaasama' turning it 'okaasama', and since 'Yamada sensei no okaasama no yashiki' as a whole also satisfies the conditions on the next layer, 'o' is prefixed to 'yashiki' turning it to 'oyashiki'. As is evident, the whole process of λ operator binding is carried out quite parallel to the immediate constituent structure of the phrase.

The next problem is how to filter out the following ungrammatical phrase in which 'o' is prefixed to 'omoi' meaning 'heavy'.

*(30) Yamada sensei no oomoi nimotsu
Prof. Yamada's heavy luggage

The undesirable sequence can be filtered out if we stipulate that +H is attached to the second element of the immediate constituents. The immediate

constituency of (30) can be shown as follows.



The λ operator binding will be represented as (32).

(32) the $\{\lambda x (\text{omoi nimotsu})(x) \ \& \ \text{Poss (Yamada sensei}^*)(x^*)\}$

It should be mentioned in passing that the following example, though it does not stand in possessor-possessee relation between 'Yamada sensei' and 'Amerika eno goshuppatsu' (Prof. Yamada's departure to America), 'goshuppatsu' meaning 'departure' inherits the feature +H from 'Prof. Yamada'. What there is a relation of subject-predicate relation between the two constituents 'Yamada sensei' and 'Amerika eno goshuppatsu' because the phrase can be reduced to such a sentential form as 'Yamada sensei wa Amerika e goshuppatsu ninaru.' But we cannot have recourse to a transformational derivation for the existence of the honorific prefix 'go'. By setting up two place predicate such as SP (subject-predicate) the phrase is translatable into the following logical notation.

(33) The $\{\lambda x (\text{Amerika e no shuppatsu } (x) \ \& \ \text{SP (Yamada sensei}^*)(x^*)\}$

By the similar mechanism of +H transportation we adopted in the case of possessor-possessee relation, we can explain the occurrence of 'go' prefix. It should be added that by the stipulation the feature is correctly placed before 'shuppatsu' not before 'Amerika'.

We can also correctly explain the occurrence of 'go' prefix in the following example by having recourse to (1) the principle of placement of +H on the second element of immediate constituents, (2) the setting up of two-place predicate relation such as SP mentioned above, and (3) the principle of λ operator binding. The case in point is the following.

(33) Tanaka sensei no	Monbushoo e no	jyoonashito no
Prof. Tanaka's	to the Ministry	everything is
	of Education	all right

gohookoku

report

(= Prof. Tanaka's report to the Ministry of Education that everything is all right)

But we will not go into details here.

We will end this section dealing with noun phrase honorification with a case of a noun with a relative clause. In Gunji(1981) a noun with a relative clause is analyzed as follows according to the tradition of Partee(1975).

(34) Naomi o aisiteiru otoko

Naomi loves man

(= a man who loves Naomi)

→ λ XX {û(love (u, n) & man (u))}

This says in effect that the denotation of 'Naomi o aisiteiru otoko' is a set of sets of properties of an individual who loves Naomi and who is a man'. Let us for the moment assume to adopt this traditional analysis and see how the honorificized noun clause with a relative clause can be analyzed.

(35) Yamada sensei ga okakininata gohon

Prof. Yamada has written a book

(= a book which Prof. Yamada wrote)

The logical notation corresponding to (35) is (36), whose format is the same as in the case of a nominal phrase denoting a possessor-possessee relation, so that the same four conditions will be satisfied for the feature +H attached to 'Yamada sensei' to be transported to 'hon' meaning 'a book'.

(36) λXX { ^λu (write (Prof. Yamada, u) & book(u) }

The only difference is that while in the possessor-possessee relation the predicate is a two place relation denoting possession, in the case of a noun phrase with a relative clause the predicate can be any verb denoting two place relation.

Sentence (37) is an example where the noun phrase (35) above occurs as an object.

(37) Watakushi wa Yamada sensei ga okakininata gohon o

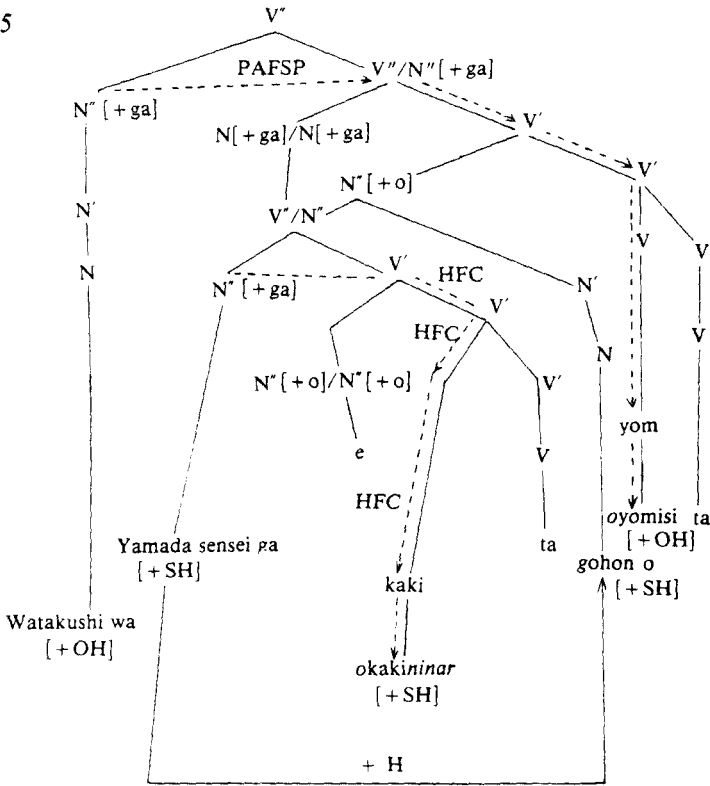
I Prof. Yamada wrote a book

oyomisita.

read

(= I read a book which Prof. Yamada wrote.)

Fig. 15



Let us observe how the whole sentence is generated by such conventions as HFC, PAFSP or λ operator binding condition. First, *okakininar* is generated by transporting the feature +H attached to the subject 'Yamada sensei' as far down to 'kaki' by PAFSP and HFC in the domain of a relative clause preceding the head noun 'gohon'.

Next, 'gohon' is generated by sharing +H which is attached to 'Yamada sensei' by the λ operator binding condition stated above.

Thirdly, 'oyomishi' is triggered by the subject 'watakushi' (= I), which is considered to be socially less superior to a referent of 'hon' meaning 'a book written by Prof. Yamada'. The feature +OH attached to 'watakushi' is carried as far down to 'yom' by PAFSP and HFC.

5. Semantics

For the moment we will leave the semantics of the honorific system of Japanese untouched but it does not mean that the problem is beyond the

descriptive power of our present framework adopted here. Since the truth conditions of honorific and non-honorific sentences are quite the same, it will not be necessary to add a new mechanism for the purpose. The meaning of honorific sentences can be captured in terms of what is called conventional implicature, whose formalization in the framework of Montague grammar has already been attempted in Karttunen-Peters(1975, 1979), and later applied to Korean in Ik-Hwan Lee(1980) and modified by the present writer in Ikeya(1982) to be applicable to Japanese.

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