Conditions on Zero-Pronominalization *

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I

Kuroda (1965), comparing English and Japanese pronominalizations, suggested that the pronominalization in Japanese is simply the deletion of repeated nouns[1] and that therefore a zero form corresponds to English pronouns such as *he* or *she*. For example, in the following pair of sentences, Japanese does not phonetically specify the subject of the embedded clause, where English uses a phonetically specified pronoun.

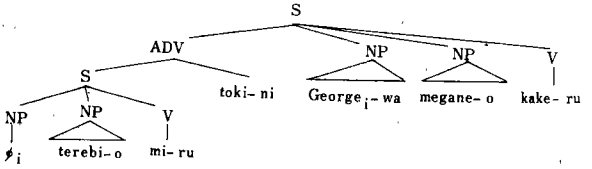
(1)

a. *When he$_i$ watches TV, George$_i$ wears glasses.*

b. [[ϕ_i *terebi-o mi-ru*]$_S$ *toki-ni*]$_{ADV}$ *George$_i$-wa*
TV-Obj watch-Pres when Top
megane-o kake-ru.
glasses-Obj wear-Pres

For convenience, I will call this phonetically unspecified element a ϕ-pronoun,[2] and will assume that there is a pronoun which is never phonetically realized and that the pronoun is dominated by an NP node. And I will represent the ϕ-pronoun by the symbol ϕ. Hence, (1b) is represented in the following way:[3]

(2)



The purpose of this paper is to clarify the syntactic conditions on ϕ-pronominalization in complex sentences. And for convenience, I will state the conditions as if they were conditions on the interpretive rules of coreference between the ϕ-pronoun and its antecedent. This does not necessarily mean that I am taking the Extended Standard Theoretical position. The conditions proposed in this paper may have to be on the deletion transformation (if ϕ-pronominalization is a deletion transformation), or they may have to be on the interpretive rules, or they may have to be output conditions.[4]

II

First note the following examples:[5]

(3)

The Antecedent Precedes the ϕ-Pronoun:

A. Forward and Downward ϕ-Pronominalization:

a. *John*$_i$*-wa* [ϕ_i (/ ?**kare*$_i$*-ga*) *okane-o* *hirot-ta*
Top he-Subj money-Obj pick up-Past
node]$_{ADV}$ *kooban-ni* *sore-o* *motte* *it-ta.*
because police-box-to it-Obj bringing go-Past
(ϕ=Subj)
'John$_i$, because ϕ_i had picked up money on the road, brought it to a police-box.'

b. *John*$_i$*-wa* [*Mary-ga* ϕ_i (/*kare*$_i$*ni*) *love-letter-o*
Top Subj he-to Obj
kure-ta *node*]$_{ADV}$ *sore-o* *tanin-ni* *mise-ta.*
give-Past because it-Obj others-to show-Past
(ϕ=IO)

'John$_i$, because Mary had given a love-letter to ϕ_i, showed it to others.'

c. *John$_i$*-wa [*Mary-ga* ϕ_i (/*kare$_i$-o*) *pistol-de utooto*
Top Subj he-Obj with try to shoot
si-ta node]$_{ADV}$ *hasitte nige-ta.* (ϕ =DO)
do-Past because running flee-Past
'John$_i$, because Mary tried to shoot ϕ_i, ran away.'

B. Forward and Upward ϕ-Pronominalization:

d. *sensei-wa* [*John$_i$-ga kanningu-o si-ta node*]$_{ADV}$
teacher-Top Subj cheated in the exam because
ϕ_i (/*kare$_i$-ni*) *reiten-o atae-ta.* (ϕ =IO)
he-to grade of zero-Obj give-Past
'The teacher, because John$_i$ had cheated in the exam, gave a grade of zero to ϕ_i.'

e. *John-wa* [*Tom-ga Mary$_i$-ni pistol-o kasi-ta*
Top Subj to Obj lend-Past
node]$_{ADV}$ ϕ_i (/*kanozyo$_i$-ni*) *tyuui-o harat-ta.*
because she-to attention-Obj pay-Past
(ϕ =IO)
'John, because Tom had lent a pistol to Mary$_i$, paid attention to ϕ_i.'

f. *John-wa* [*Tom-ga Mary$_i$-o misute-ta node*]$_{ADV}$
Top Subj Obj desert-Past because
ϕ_i (/*kanozyo$_i$-ni*) *nagusame-no tegami-o okut-ta.*
she-to consolation-of letter-Obj send-Past
(ϕ =IO)
'John, because Tom had deserted Mary$_i$, sent a letter of consolation to ϕ_i.'

g. *sensei-wa* [*John*$_i$*-ga* *zyugyootyuu-ni* *bentoo-o*
teacher-Top Subj classtime-during lunch-Obj
tabe-ta *node*]$_{ADV}$ ϕ_i (/*kare*$_i$*-o*) *sikat-ta.* (ϕ =DO)
eat-Past because he-Obj scold-Past
'The teacher, because John$_i$ had eaten lunch during the class, scolded ϕ_i.'

h. *John-wa* [*Tom-ga* *Mary*$_i$*-ni* *pistol-o* *kasi-ta*
Top Subj to Obj lend-Past
node]$_{ADV}$ ϕ_i (/*kanozyo*$_i$*-o*) *mihat-ta.* (ϕ =DO)
because she-Obj watch-Past
'John, because Tom had lent a pistol to Mary$_i$, watched ϕ_i.'

i. *John-wa* [*Tom-ga* *Mary*$_i$*-o* *hinansi-ta* *node*]$_{ADV}$
Top Subj Obj accuse-Past because
ϕ_i (/*kanozyo*$_i$*-o*) *kabat-ta.* (ϕ=DO)
she-Obj defend-Past
'John, because Tom had accused Mary$_i$, defended ϕ_i.'

(Notice that in (d) through (i), full-pronominalization is much better than ϕ-pronominalization. In (b) and (c), both full-pronominalization and ϕ-pronominalization are good. In (a), full-pronominalization is not allowed, but this is due to a functional constraint, which I discuss in another paper of mine. (See Nakai (in preparation).)

(4)

The Antecedent Follows the ϕ-Pronoun:

A. Backward and Upward ϕ-Pronominalization:

a. *ϕ_i [*John*$_i$*-ga* *okane-o* *hirot-ta* *node*]$_{ADV}$
Subj money-Obj pick up-Past because

kooban-ni *sore-o* *todoke-ta.* (ϕ=Subj)
police-box-to it-Obj bring-Past
'ϕ_i, because John$_i$ had picked up money on the road, brought it to a police-box.'

b. *ϕ_i [*Mary-ga* *John$_i$-ni* *love-letter-o* *kure-ta*
Subj to Obj give-Past
node]$_{ADV}$ *sore-o* *tanin-ni* *mise-ta.* (ϕ=Subj)
because it-Obj others-to show-Past
'ϕ_i, because Mary had given a love-letter to John$_i$, showed it to others.'

c. *ϕ_i [*Mary-ga* *John$_i$-o* *pistol-de* *utooto* *si-ta*
Subj Obj with try to shoot do-Past
node]$_{ADV}$ *hasitte* *nige-ta.* (ϕ=Subj)
because running flee-Past
'ϕ_i, because Mary tried to shoot John$_i$, ran away.'

B. Backward and Downward ϕ-Pronominalization:

d. *sensei-wa* [ϕ_i *kanningu-o* *si-ta* *node*]$_{ADV}$ *John$_i$-ni*
teacher-Top cheated in the exam because *to*
reiten-o *atae-ta.* (ϕ=Subj)
grade of zero-Obj give-Past
'The teacher, because ϕ_i had cheated in the exam, gave John$_i$ a grade of zero.'

e. *John-wa* [*Tom-ga* ϕ_i *pistol-o* *kasi-ta* *node*]$_{ADV}$
Top Subj Obj lend-Past because
Mary$_i$-ni *tyuui-o* *harat-ta.* (ϕ=IO)
to attention-Obj pay-Past
'John, because Tom had lent a pistol to ϕ_i, paid attention to Mary$_i$.'

f. *John-wa* [*Tom-ga* ϕ_i *misute-ta* *node*]$_{ADV}$
Top Subj desert-Past because
Mary$_i$*-ni* *nagusame-no* *tegami-o* *okut-ta.* (ϕ=DO)
to consolation-of letter-Obj send-Past
'John, because Tom had deserted ϕ_i, sent a letter of consolation to Mary$_i$.'

g. *sensei-wa* [ϕ_i *zyugyootyuu-ni* *bentoo-o* *tabe-ta*
teacher-Top classtime-during lunch-Obj eat-Past
node]$_{ADV}$ *John*$_i$*-o* *sikat-ta.* (ϕ=Subj)
because Obj scold-Past
'The teacher, because ϕ_i had eaten lunch during the class, scolded John$_i$.'

h. *John-wa* [*Tom-ga* ϕ_i *pistol-o* *kasi-ta* *node*]$_{ADV}$
Top Subj Obj lend-Past because
Mary$_i$*-o* *mihat-ta.* (ϕ=IO)
Obj watch-Past
'John, because Tom had lent a pistol to ϕ_i, watched Mary$_i$.'

i. *John-wa* [*Tom-ga* ϕ_i *hinansi-ta* *node*]$_{ADV}$ *Mary*$_i$*-o*
Top Subj accuse-Past because Obj
kabat-ta. (ϕ=DO)
defend-Past
'John, because Tom had accused ϕ_i, defended Mary$_i$.'

The above examples show that ϕ-pronominalization is impossible when the ϕ-pronoun both commands and precedes the antecedent. That is, only the backward and upward ϕ-pronominalization ((4 a) through (4 c)) produces unacceptable sentences. There-

fore, the following condition, which is similar to the condition on English pronominalization proposed by Langacker (1969), may be proposed:

(5)

Condition on ϕ-Pronominalization

A ϕ-pronoun can be coreferential with an NP unless the ϕ-pronoun both commands and precedes the NP.

The above condition, though it seems intuitively correct, cannot be supported. The reason is that the ϕ-pronoun is invisible. How can one tell that the ϕ-pronoun is before the adverbial clause in (4 a) through (4 c) when the ϕ-pronoun is not realized by any overt morpheme? It is possible that the ϕ-pronoun, which is the subject in (4 a) through (4 c), follows the adverbial clause. Indeed, the full-pronoun subject can follow the adverbial clause, as seen below:

(6)

[*Mary-ga* *John*$_i$*-o* *pistol-de* *utooto* *si-ta* *node*]$_{ADV}$
Subj Obj with try to shoot do-Past because
kare$_i$-wa *hasitte* *nige-ta.*
he-Top running flee-Past
'Because Mary tried to shoot John$_i$, he$_i$ ran away.'

Also in the examples (3 d) through (3 i), where the ϕ-pronoun is shown in the matrix clause, one cannot tell in fact whether the ϕ-pronoun precedes or follows the adverbial clause.[6, 7] This claim is supported by the following argument. Consider these examples:[8]

(7)

a. *sensei-wa* [*John*$_i$*-ga* *kanningu-o* *si-ta* *node*]$_{ADV}$
teacher-Top Subj cheated in the exam because
SUBJECT ADVERBIAL CLAUSE
kare$_i$*-ni* *reiten-o* *atae-ta.*
he-to grade of zero-Obj give-Past
IO DO V
'The teacher, because John$_i$ had cheated in the exam, gave him$_i$ a grade of zero.'

b. *sensei-wa* *John*$_i$*-ni* [*kare*$_i$*-ga* *kanningu-o* *si-ta*
SUBJECT IO ADVERBIAL CLAUSE
node]$_{ADV}$ *reiten-o* *atae-ta.*
DO V

(7b) shows that the adverbial clause can be positioned between the indirect object and the direct object. Now consider (3d), which is repeated here:

(3)

d. *sensei-wa* [*John*$_i$*-ga* *kanningu-o* *si-ta node*]$_{ADV}$ ϕ_i
SUBJECT ADVERBIAL CLAUSE IO
reiten-o *atae-ta.*
DO V

Since the adverbial clause can be between the indirect object and the direct object as shown in (7b), it is possible to interpret the structure in such a way that the ϕ-pronoun precedes the adverbial clause in (3d). (3d′) is a possible interpretation.

(3)

d′. *sensei-wa* ϕ_i [*John*$_i$*-ga kanningu-o si-ta node*]$_{ADV}$
SUBJECT IO ADVERBIAL CLAUSE
reiten-o atae-ta
DO V

In case of (3 d′), the ϕ-pronoun both commands and precedes the antecedent, but the sentence is good. Therefore the condition stated in (5) cannot be supported.

Thus, since it is not known whether the ϕ-pronoun precedes or follows the adverbial clause when the ϕ-pronoun is in the matrix clause and its antecedent is in the adverbial clause, another condition must be proposed instead of (5). Since what the examples (4 a), (4 b), and (4 c) show is that upward ϕ-pronominalization is prohibited, in cases where the ϕ-pronoun is in the subject position of the matrix clause, the following condition is suggested:

(8)

Prohibition of ϕ-Pronominalization of Matrix Subjects

Given a complex sentence where NP_1 is the subject of the matrix clause and NP_2 is a constituent of an embedded clause:

If NP_1 is a ϕ-pronoun and NP_2 is a full NP, then NP_1 and NP_2 are noncoreferential.

(8) may be generalized, because in (3 d) through (3 i), where upward ϕ-pronominalization is claimed to be possible, full-pronominalization is much better than ϕ-pronominalization. It is not unreasonable to propose the following more general

condition on ϕ-pronominalization:

(9)

Prohibition of Upward ϕ-Pronominalization

Given a complex sentence where NP_1 is in the matrix clause and NP_2 is in an embedded clause:

If NP_1 is a ϕ-pronoun and NP_2 is a full NP, then NP_1 and NP_2 are noncoreferential.

If (9) is a correct formulation of the condition on ϕ-pronominalization, then it is preferred in Japanese for the ϕ-pronoun not to command its antecedent.

The condition in (9) seems to me justifiable when the following ungrammatical examples, each of which contains a factive clause, are considered.[9]

(10)

a. * [[*John*$_i$-*ga* *zyugyootyuu-ni* *bentoo-o* *tabe-ta*]$_S$
Subj classstime-during lunch-Obj eat-Past
koto-ga]$_{NP}$ ϕi *warui* *kekka-o* *motarasi-ta.*
fact-Subj bad consequence-Obj bring-Past
(ϕ =IO)
'That John$_i$ had eaten his lunch during the class brought ϕ_i a bad consequence.'

b. * [[*Bill-ga* *John*$_i$-*o* *home-ta*]$_S$ *koto-ga*]$_{NP}$ ϕ_i
Subj Obj praise-Past fact-Subj
sukut-ta. (ϕ=DO)
save-Past
'That Bill had praised John$_i$ saved ϕ_i.'

c. *ϕ_i [[*John*$_i$-*ga* *kanningu-o* *si-ta*]$_S$ *koto-o*]$_{NP}$

Subj cheated in the exam fact-Obj

kakusi-ta. (ϕ=Subj)

conceal-Past

'ϕ_i kept it secret that John$_i$ had cheated in the exam.'

In order to account for the ungrammaticality of the examples in (10), I proposed the following condition in Nakai (1974):

(11)

No NP in the matrix sentence can be deleted on the basis of identification with an NP in the embedded sentence.

(I regarded ϕ-pronominalization as Equi-NP Deletion in the paper.)

(11) can be restated in the following way:

(12)

Prohibition of ϕ-Pronominalization Involving Factive Clauses

Given a complex sentence with an embedded clause which is factive (i.e., S+*koto*):

No ϕ-pronoun in the matrix clause can be coreferential with a full NP in the factive clause.

Of course, (12) is a special case of (9).

So far, the condition stated in (8) or (9) seems to work well. But there are counter-examples to the condition. Consider the following examples, where the ϕ-pronoun in the matrix subject position can be coreferential with the subject of the embedded clause:

(13)

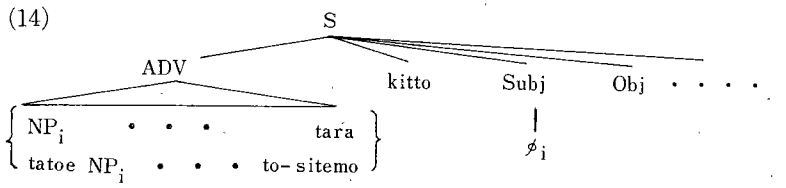
a. [[*John*$_i$-*ga* *Mary*$_j$-*to* *kekkonsi-tara*]$_{ADV}$ *kitto* ϕ_i ϕ_j
Subj with marry-if I'm sure
ie-ni *tozikomete* *oku-yo*]$_S$ (ϕ_i=Subj. ϕ_j=DO)
house-in shutting up keep
'If John$_i$ gets married to Mary$_j$, ϕ_i will shut ϕ_j up in the house, I'm sure.'

b. [[*John*$_i$-*ga* *koko-ni* *i-tara*]$_{ADV}$ *kitto* ϕ_i
Subj here-in is-if I'm sure
yorokobu-daroo]$_S$ (ϕ=Subj)
will be glad
'If John$_i$ were here, ϕ_i would be pleased, I'm sure.

c. [[*tatoe* *Oo*$_i$-*ga* *battaa* *dat-ta* *to-sitemo*]$_{ADV}$
even if Oh-Subj batter had been
ϕ_i *zettaini* *ano* *tama-wa* *ute-nakkat-ta* *daroo*]$_S$
never that ball-Top hit-not-Past I think
(ϕ=Subj)
'Even if Oh$_i$ had been the batter, ϕ_i could never have hit the ball, I think.'

The examples in (13) are counter-examples to (8) if the following structure is assumed:

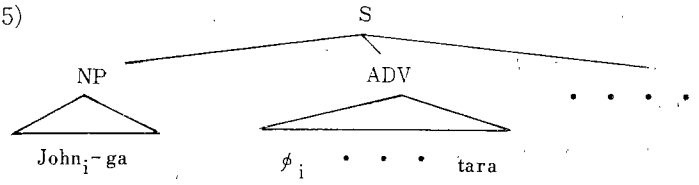
(14)



But there is no justification for assuming the above structure. If other structures where the ϕ-pronoun does not command the antecedent are justified, then the examples in (13) will not be counter-examples to (8) any more.

One possibility is that in (13a) and (13b), *John-ga* is not the subject of the embedded clause but the subject of the matrix clause. In that case, the structure would be as follows:

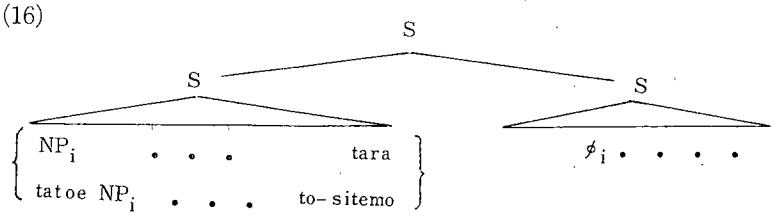
(15)



If (15) is the correct structure, (13a) and (13b) are not counter-examples, because it is the antecedent that commands the ϕ-pronoun. But this assumption does not account for (13c), because in (13c), the subject *Oo-ga* is between the set phrases *tatoe . . . to-sitemo*, which clearly indicates that *Oo-ga* is the subject of the embedded clause.

The other possibility is to assume that coordination is involved. If this is the case, the sentences in (13) would have the following structure:

(16)



If (16) is the correct structure, the examples in (13) are not counter-examples to (8) because the ϕ-pronoun does not command the antecedent.

Though it seems to me that (16) is the correct structure, I do not know which is the most justifiable among (14), (15), and (16) at present.

If should also be noticed that the ϕ-pronominalizability of NP's in the matrix clause is heavily dependent on the nature of the embedded sentence containing the antecedent. Notice that all of the examples in (3) and (4) are of the type S+*node*, and that the adverbials in the examples in (13) are of the type S+*tara*, or S+*to-sitemo*.[10]

To sum up, I have proposed three conditions on ϕ-pronominalization, which are repeated here:

(8)

Prohibition of ϕ-Pronominalization of Matrix Subjects

Given a complex sentence where NP_1 is the subject of the matrix clause and NP_2 is a constituent of an embedded clause:

If NP_1 is a ϕ-pronoun and NP_2 is a full NP, then NP_1 and NP_2 are noncoreferential.

(9)

Prohibition of Upward ϕ-Pronominalization

Given a complex sentence where NP_1 is in the matrix clause and NP_2 is in an embedded clause:

If NP_1 is a ϕ-pronoun and NP_2 is a full NP, then NP_1 and NP_2 are noncoreferential.

(12)

Prohibition of ϕ-Pronominalization Involving Factive Clauses

Given a complex sentence with an embedded clause which is factive (i.e., S+*koto*):

No ϕ-pronoun in the matrix clause can be coreferential with a full NP in the factive clause.

(8) and (12) are special cases of (9). The applicability of (8) and (9) is dependent on the nature of the adverbial clause containing the antecedent.

Notice that only upward ϕ-pronominalization is constrained. In Japanese, downward ϕ-pronominalization takes place freely, but upward ϕ-pronominalization does not.[11] Upward (and forward) full-pronominalization is much better than upward ϕ-pronominalization. (See examples (3d) through (3i).)

One example to support my claim that upward ϕ-pronominalization is not favored in Japanese is the S-*noni* construction discussed in Kitagawa (1972). According to Kitagawa, in the S_1 + *noni* + S_2 construction (this *noni* is a purpose *noni*), if an NP in S_1 and an NP in S_2 are coreferential, the NP in S_1 must be the ϕ-pronoun (or in other words, the NP must be deleted, if ϕ-pronominalization is deletion). Consider the following examples:

(17)

a. *watasi-wa* [[*Mary-ga* ϕ_i (/* *sore*$_i$-*o*) *tabe-ru*]$_{S_1}$
I-Top Subj it-Obj eat-Pres
noni]$_{ADV}$ *bagel*$_i$-*o* *kat-ta*. (Downward, ϕ=DO)
in order Obj buy-Past
'I bought a bagel in order for Mary to eat it.'

b. **watasi-wa* [[*Mary-ga bagel*$_i$*-o tabe-ru*]$_{S_1}$ *noni*]$_{ADV}$
ϕ_i (/**sore*$_i$*-o*) *kat-ta.* (Upward. ϕ=DO)

c. **watasi-wa* [[*Mary-ga bagel*$_i$*-o tabe-ru*]$_{S_1}$ *noni*]$_{ADV}$
bagel$_i$*-o kat-ta.*

When ϕ-pronominalization applies obligatorily, it is downward ϕ-pronominalization that applies.

Thus, downward ϕ-pronominalization is unmarked and upward ϕ-pronominalization is marked. Therefore, as the following examples show, when upward ϕ-pronominalization is possible, downward ϕ-pronominalization is also possible, but not vice versa.[12]

(18)[13]

a. [*John*$_i$*-ga koko-ni i-tara*]$_{ADV}$ ϕ_i *kitto*
Subj here-in is-if I'm sure
yorokobu-daroo. (Upward. ϕ=Subj)
will be pleased
'If John$_i$ were here, ϕ_i would be pleased, I'm sure.'

b. [ϕ_i *koko-ni i-tara*]$_{ADV}$ *John*$_i$*-wa kitto*
yorokobu-daroo. (Downward. ϕ=Subj)
'If ϕ_i were here, John$_i$ would be pleased, I'm sure.'

(19)

a. * [*John*$_i$*-ga hirotte kita*]$_S$ *koinu-o* ϕ_i *daizini*
Subj picked up puppy-Obj carefully
sodate-ta. (Upward. ϕ=Subj)
bring up-Past
'The puppy which John$_i$ had picked up on the road,
ϕ_i brought up carefully.'

b. [ϕ_i *hirotte kita*]$_S$ *koinu-o* *John$_i$-wa* *daizini sodate-ta.*
(Downward. ϕ = Subj)
'The puppy which ϕ_i had picked up on the road, John$_i$ brought up carefully.'

III

As I have discussed above, downward ϕ-pronominalization takes place freely, whether the ϕ-pronoun precedes or follows its antecedent. However, Ohso (1976) claims that backward ϕ-pronominalization[14] is not possible except in certain cases. In this section I will argue against her claim.

First, consider the following examples given in Ohso (1976) (The grammaticality judgements are Ohso's):

(20)

a. *John-wa* [*Mary$_i$-ga* *haitte* *kuru*]$_S$ *nari,*
Top Subj entering come as-soon-as
ϕ_i *donarituke-ta.* (Ohso's (90a). ϕ = DO)
shout-Past
'John, as soon as Mary$_i$ came into the room, shouted at ϕ_i.'

b. **John-wa* [ϕ_i *haitte kuru*]$_S$ *nari, Mary$_i$-o*
donarituke-ta. (Ohso's (90b). ϕ = Subj)
'John, as soon as ϕ_i came into the room, shouted at Mary$_i$.'

(21)

a. *John-wa* [*Bill$_i$-ga* *Boston-ni* *kita*]$_S$ *toki,*
Top Subj to came when
ϕ_i *Mary-o* *syookaisi-ta.* (Ohso's (91a). ϕ = IO)
Obj introduce-Past

'John, when $Bill_i$ came to Boston, introduced Mary to ϕ_i.'

b. **John-wa* [ϕ_i *Boston-ni kita*]$_S$ *toki, Bill*$_i$*-ni Mary-o syookaisi-ta.* (Ohso's (91b). ϕ=Subj)

'John, when ϕ_i came to Boston, introduced Mary to $Bill_i$.'

(22)

a. *John-wa* [*Hanako*$_i$*-ga byookini naru*]$_S$ *made,*
Top Subj sick become till
ϕ_i *eigo-o osie-ta.* (Ohso's (92a). ϕ=IO)
English-Obj teach-Past

'John, until $Hanako_i$ became sick, taught English to ϕ_i.'

b. **John-wa* [ϕ_i *byookini naru*]$_S$ *made, Hanako*$_i$*-ni eigo-o osie-ta.* (Ohso's (92b). ϕ=Subj)

'John, until ϕ_i became sick, taught English to $Hanako_i$.'

From the examples given above, Ohso concludes that backward ϕ-pronominalization is impossible. To further support her claim, she argues that ϕ-pronominalization becomes possible if Scrambling applies so that the antecedent may precede the ϕ-pronoun.[15] Consider the following examples:

(20′)

John-wa Mary$_i$*-o* [ϕ_i *haitte kuru*]$_S$ *nari donarituke-ta.* (Ohso's (90′). ϕ=Subj)

(21′)

John-wa Bill$_i$*-ni* [ϕ_i *Boston-ni kita*]$_S$ *toki Mary-o syookaisi-ta.* (Ohso's (91′). ϕ=Subj)

(22′)

John-wa Hanako$_i$*-ni* [ϕ_i *byookini naru*]$_S$ *made eigo-o osie-ta.* (Ohso's (92′). ϕ=Subj)

I have different judgements of the above sentences. I think it is possible that the ϕ-pronoun can refer to Mary in (20b), Bill in (21b), and Hanako in (22b), though such readings are less dominant. In the dominant reading, the ϕ-pronoun refers to the subject of each sentence. The important thing is that the same is true in (20′), (21′), and (22′). It seems to me that in (20′), (21′), and (22′), the subject is still predominantly coreferential with the ϕ-pronoun. Therefore, her examples are not strong evidence for her claim. Besides, I provide the following examples, where the ϕ-pronoun is predominantly coreferential with an NP which follows the pronoun.

(23)

a. *sensei-wa* $[[\phi_i$ *kanningu-o si-ta*$]_S$ *node*$]_{ADV}$.
teacher-Top cheated in the exam because
John$_i$*-ni reiten-o atae-ta.* (ϕ=Subj)
to grade of zero-Obj give-Past
'The teacher, because ϕ_i had cheated in the exam, gave a grade of zero to John$_i$.'

b. *sensei-wa* $[[\phi_i$ *zyugyootyuu-ni bentoo-o tabe-ta*$]_S$
teacher-Top classtime-during lunch-Obj eat-Past
node$]_{ADV}$ *John*$_i$*-o sikat-ta.* (ϕ=Subj)
because Obj scold-Past
'The teacher, because ϕ_i had eaten lunch during the class, scolded John$_i$.'

c. *John-wa* $[[[\phi_i$ *byookini natte*$]$ ϕ_i *hatarake-naku*
Top sick become work-not
naru$]_S$ *made*$]_{ADV}$ *Mary*$_i$*-o kokitukat-ta.* (ϕ=Subj)
become till Obj work-not Past

'John worked $Mary_i$ so hard that ϕ_i could not work because of illness.'

(This translation does not reflect the original linear order of the ϕ-pronoun and antecedent.)

d. $John_i$-*wa* [[ϕ_i ϕ_j *aisite ita*]$_S$ *kara koso*]$_{ADV}$
Top loving was because
$Mary_j$-*to* *kekkonsi-ta.* (ϕ_i=Subj. ϕ_j=DO)
with marry-Past
'$John_i$, because ϕ_i loved ϕ_j, married $Mary_j$.'

Another reason Ohso is wrong is that she makes contradictory remarks in her thesis. First she mentions that Japanese ϕ-pronominalization basically works forwards only and that backward ϕ-pronominalization is possible only when the antecedent is the predictable theme, following Kuno's hypothesis (Kuno (1972)) which is stated below:

(24)

The noun phrase that presents the predictable theme of the sentence cannot be pronominalized intrasententially.

(Kuno (1972: p. 319))

The following sentences may be used to illustrate Kuno's hypothesis:

(25)

a. * [$John_i$-*ga* *haitte* *kuru*]$_S$ *nari* ϕ_i *Mary-o*
Subj enter come as-soon-as Obj
donarituketa.[16] (Ohso's (99a). ϕ=Subj)
shout-Past

'As soon as John$_i$ came in, ϕ_i shouted at Mary.'

b. [ϕ_i *haitte kuru*]$_S$ *nari John*$_i$*-wa Mary-o donarituke-ta.* (Ohso's (99b). ϕ=Subj)

'As soon as ϕ_i came in, John$_i$ shouted at Mary.'

According to Kuno's hypothesis which Ohso is subscribing to, the ϕ-pronoun cannot be used in (25a) because the ϕ-pronoun has replaced the NP *John* (in the matrix clause) which presents the predictable theme, and (25b) is good because *John* (in the matrix clause), which presents the predictable theme, has not been pronominalized. And in such a case, she claims, backward ϕ pronominalization is allowed.

However, later she says:

> Unpredictable themes can actually undergo both forward and *backward* zero pronominalization, as shown by the following sentences. [Emphasis is mine.] [That is, backward ϕ-pronominalization is possible when the antecedent presents the unpredictable theme of the sentence.] (Ohso (1976: p. 55))

She gives the following sentences as examples:

(26) (Ohso's (110))

a. [*konoaida paatii-de hazimete* ϕ_i *ome-ni kakari-masi-ta*]$_S$ *ga, Tanaka-san-no okusan*$_i$*-wa kireina kata desu ne.*[17] (ϕ=IO)

the other day party-at for the first time met but of wife-Top beautiful person is

'I met ϕ_i for the first time at the party the other day; Tanaka's wife$_i$ is pretty, isn't she?'

b. [*konoaida paatii-de hazimete Tanaka-san-no okusan*$_i$*-ni ome-ni kakari-masi-ta*]$_S$ *ga,* ϕ_i *kireina kata desu ne.* (ϕ=Subj)

'I met Tanaka's wife$_i$ for the first time at the party the other day; ϕ_i is pretty, isn't she?'

(27) (Ohso's (111))

Ittai nani-ga atta n desu ka.
on-earth what-Subj happened

'What on earth happened?'

a. [*John*$_i$*-ga haitte kuru*]$_S$ *nari,* ϕ_i *Mary-o*
Subj enter come as-soon-as Obj
donarituke-ta n desu.[18] (ϕ=Subj)
shout-Past

'As soon as John$_i$ came in, ϕ_i shouted at Mary.'

b. [ϕ_i *haitte kuru*]$_S$ *nari, John*$_i$*-ga Mary-o donarituke-ta n desu.* (ϕ=Subj)

'As soon as ϕ_i came in, John$_i$ shouted at Mary.'

My examples ((28) and (29)) also prove that backward ϕ-pronominalization is possible when the antecedent presents the unpredictable theme:

(28)

Question: What happened?

Answer:

[[ϕ_i *kanningu-o si-ta*]$_S$ *node*]$_{ADV}$ *sensei-ga*
cheated in the exam because teacher-Subj
John$_i$*-ni reiten-o atae-ta n da.* (ϕ=Subj)
to grade of zero-Obj give-Past

'Because ϕ_i had cheated in the exam, the teacher gave a grade of zero to $John_i$.'

(29)

Question: What happened?

Answer:

[[[ϕ_i *byookini natte*] ϕ_i *hatarake-naku naru*]$_S$
sick become cannot work become
made]$_{ADV}$ *John-ga Mary*$_i$*-o kokitukat-ta n da.*
till Subj Obj work
(ϕ=Subj)
'Until ϕ_i became sick and could not work, John worked $Mary_i$ too hard.'

Now, what Ohso says is:

(i) Japanese ϕ-pronominalization basically works forwards only. (Examples (20), (21), and (22))

(ii) Backward ϕ-pronominalization is possible when the antecedent presents the predictable theme. (Example (25))

(iii) Unpredictable themes can undergo both forward and backward ϕ-pronominalization (Examples (26) and (27)) (That is, when both the ϕ-pronoun and the antecedent present the unpredictable theme of the sentence, both forward and backward ϕ-pronominalizations are possible.)

She does not prove at all that backward ϕ-pronominalization is impossible. What she does prove is that backward ϕ-pronom-

inalization is possible whether the antecedent is the predictable theme or the unpredictable theme. And my examples also prove that unpredictable themes can undergo backward ϕ-pronominalization. It should be concluded that backward ϕ-pronominalization is possible in Japanese.[19]

IV

According to Ohso, Japanese ϕ-pronominalization is an empathy-governed phenomenon and therefore is subject to the Empathy Constraint, which Ohso states in the following way:[20]

(30)

Empathy Constraint

When two NPs are coreferential and when the speaker is empathizing with the referent of these two NPs [that is, the speaker is describing the event from the referent's point of view], the second NP can be zero pronominalized only when it is either in subject position or when it is in the object position of an object-centered verb like *kureru* [*kureru* 'give' requires the speaker to take the point of view of the referent of the object NP. / S. N.]. (Ohso (1976: p. 37))

For example, in (31a), the speaker is empathizing with, that is, taking the point of view of, John, and therefore, the ϕ-pronoun in the embedded subject position can be coreferential with *John*. In (31b), though the ϕ-pronoun is in the object position, it can be coreferential with *John*, because the verb *kureru* is an object-centered verb.

(31)

a. *John*$_i$*-wa* [[ϕ_i *tukarete ita*]$_S$ *keredomo*]$_{ADV}$ *Mary-to*
Top tired was although with
tennis-o si-ta. (ϕ=Subj)
Obj play-Past
'John$_i$, although ϕ_i was tired, played tennis with Mary.'

b. *John*$_i$*-wa* [[*Mary-ga* ϕ_i *hon-o kure-ta*]$_S$ *node*]$_{ADV}$
Top Subj book-Obj give-Past because
kanozyo-ni orei-o it-ta. (ϕ=IO)
she-to thanks-Obj say-Past
'John$_i$, because Mary had given a book to ϕ_i, thanked her.'

Ohso (1976: p. 40) also mentions that "an NP which is not the empathy focus [that is, the speaker is not taking the point of view of the referent of the NP] can be zero pronominalized when it is coreferential with an NP which is not the empathy focus." And it seems to me that there are interesting principles or tendencies for choosing the antecedent of the ϕ-pronoun when the speaker is not empathizing with any of the referents. I will state the principles or tendencies below:

(32)

Principles for Choosing the Antecedent of the ϕ-Pronoun

(A) When there is only one ϕ-pronoun in the embedded clause, the ϕ-pronoun can be coreferential with any constituent in the matrix clause.

Examples:

a. *John-wa* [*φ iyagatte iru*]$_S$ *noni* *Mary-to*

Top unwilling is although with

tennis-o si-ta. (φ = Subj)

Obj play-Past

'John, although ϕ_i was unwilling, played tennis with Mary$_i$.'

b. *John-wa* [*φ gakkoo-ni iku*]$_S$ *maeni* *Mary-o*

Top school-ni go before Obj

korosi-ta. (φ = Subj)

kill-Past

'John$_i$ killed Mary$_j$ before $\phi_{i/j}$ went to school.'

c. *John-wa* [Tom-*ga* *φ hinansi-ta*]$_S$ *keredomo* *Mary-o*

Top Subj accuse-Past although Obj

kabat-ta. (φ = DO)

defend-Past

'John, although Tom accused ϕ_i, defended Mary$_i$.'

(B) When there is only one φ-pronoun in the matrix clause, the φ-pronoun can be coreferential with any constituent in the embedded clause.[21]

Examples:

a. *sensei-wa* [Tom-*ga* *kanningu-o* *si-ta*]$_S$ *node* *φ*

teacher-Top Subj cheated in the exam because

reiten-o *atae-ta.* (ϕ=IO)
grade of zero-Obj give-Past
'The teacher, because Tom$_i$ had cheated in the exam, gave a grade of zero to ϕ_i.'

b. *John-wa* [*Tom-ga* *Mary-o* *misute-ta*]$_S$ *node* ϕ

Top Subj Obj desert-Past because
nagusame-no *tegami-o* *okut-ta.* (ϕ=IO)
consolation-of letter-Obj send-Past
'John, because Tom had deserted Mary$_i$, sent a letter of consolation to ϕ_i.'

(C) When both the subject and a non-subject constituent of the embedded clause are ϕ-pronouns, the ϕ-pronoun in the subject position is coreferential with the subject of the matrix clause, and the ϕ-pronoun in the non-subject position is coreferential with a non-subject constituent of the matrix clause.

Examples:

a. *Taroo-wa* [ϕ_i ϕ_j *hukami-ni* *hikizurikon-de*] *Saburoo-o*

Top depth-to dragging-by Obj
obore-sase-ta. (Taken from Kitagawa (1974: p. 48))
drown-Past (ϕ_i=Subj. ϕ_j=DO)
'Taro$_i$, by dragging ϕ_i into the depth, drowned Saburo$_j$.'

(D) When both the subject and a non-subject constituent of the matrix clause are ϕ-pronouns, the ϕ-pronoun in the subject position is coreferential with the subject of the embedded clause, and the ϕ-pronoun in the non-subject position is coreferential with a non-subject constituent of the embedded clause.
(This principle is applicable where the conditions (8), (9), and (12) are inapplicable.)

Examples:

a. [*John-ga Mary-to kekkonsi-tara*] *kitto* ϕ_i ϕ_j

Subj with marry-if I'm sure

ie-ni tozikomete oku-yo. (ϕ_i = Subj. ϕ_j = DO)

house-in shut up keep

'If John$_i$ gets married to Mary$_j$, ϕ_i will shut ϕ_j up in the house, I'm sure.'

cf. [*John$_i$-ga Mary$_j$-to kekkonsi-tara*] *kitto nitiyoobi-ni-wa*

Sunday-on

kanozyo$_j$-wa kare$_i$-o ie-kara das-ana-i-yo.

she-Top he-Obj house-from will not let out

'If John$_i$ gets married to Mary$_j$, she$_j$ will not let him$_i$ go out of the house on Sunday, I'm sure.'

Let us return to the Empathy Constraint. Though Ohso does not deal with sentences which have more than one ϕ-pronoun, her theory seems to be able to account for the coreference relations between the ϕ-pronouns and their antecedents. Consider the following examples:

(33)

a. *John-wa* [ϕ_i ϕ_j *kiratte iru*]$_S$ *keredomo* *Mary-to*

Top hating is although with

kekkonsi-yoo to omotte iru. (ϕ_i=Subj. ϕ_j=DO)

marry-will thinking is

'John$_i$, although ϕ_i hates ϕ_j, is thinking of getting married to Mary$_j$.'

b. *John-wa* [ϕ_i ϕ_j *aisite ita*]$_S$ *kara koso* *Mary-to*

Top loving was because with

kekkonsi-ta. (ϕ_i=Subj. ϕ_j=DO)

marry-Past

'John$_i$, because ϕ_i loved ϕ_j, got married to Mary$_j$.'

c. *John-wa* [ϕ_i ϕ_j *buzyokus-are ta*]$_S$ *kara* *Mary-o*

Top insult-Passive-Past because Obj

nagut-ta. (ϕ_i=Subj. ϕ_j=IO)

hit-Past

'John$_i$, because ϕ_i had been insulted by ϕ_j, hit Mary$_j$.'

Let us assume that ϕ-pronominalization is the deletion of a coreferential NP as Ohso does in her thesis. Then the sentence underlying (33a) would be the following:

(34)

John$_i$-wa [*John$_i$-ga* *Mary$_j$-o* *kiratte iru*]$_S$ *keredomo* *Mary$_j$-to* *kekkonsi-yoo to omotte iru.*

Since the speaker is describing John's internal feelings, the speaker is empathizing with John. Therefore, the *John* in the embedded clause can be ϕ-pronominalized according to the Empathy Constraint. And since Mary is not the empathy focus, it can be ϕ-pronominalized, too.

The Empathy Constraint, though it is interesting, seems to be defective. Consider the following example:

(35)

John$_i$*-wa* $[[\phi_{i/j}$ *gakkoo-ni iku*$]_S$ *mae-ni* *Mary*$_j$*-o*
Top school-to go before Obj
korosoo-to$]_S$ *kangae-ta.* ($\phi_{i/j}$=Subj. ϕ_i=Subj)
kill think-past
'John$_i$ thought that ϕ_i would kill Mary$_j$ before $\phi_{i/j}$ wento to school.'

It is clear from the expression *John-wa . . . to kangae-ta* 'John thought that . . . .' that the speaker is taking John's point of view. The ϕ-pronoun in the most deeply embedded sentence should be coreferential with *John* but not *Mary* according to the Empathy Constraint. Actually, however, the ϕ-pronoun can be coreferential with either *John* or *Mary*. The Empathy Constraint should be refined.

V

To sum up, I have proposed three syntactic conditions on ϕ-pronominalization (in Section II):

(8)

Prohibition of ϕ-Pronominalization of Matrix Subjects

Given a complex sentence where NP_1 is the subject of the matrix clause and NP_2 is a constituent of an embedded clause:

If NP_1 is a ϕ-pronoun and NP_2 is a full NP, then NP_1 and NP_2 are noncoreferential.

(9)

Prohibition of Upward ϕ-Pronominalization

Given a complex sentence where NP_1 is in the matrix clause and NP_2 is in an embedded clause:

If NP_1 is a ϕ-pronoun and NP_2 is a full NP, then NP_1 and NP_2 are noncoreferential.

(12)

Prohibition of ϕ-Pronominalization Involving Factive Clauses

Given a complex sentence with an embedded clause which is factive (*i.e.*, *S+koto*):

No ϕ-pronoun in the matrix clause can be coreferential with a full NP in the factive clause.

(8) and (12) are special cases of (9). The applicability of (8) and (9) is dependent on the nature of the adverbial clause which contains the antecedent.

In Section Ⅲ, I have argued that backward ϕ-pronominalization is possible in Japanese, providing counter-examples to Ohsō's claim and pointing out Ohso's contradictions.

In Section Ⅳ, I have proposed principles for choosing the antecedents of the ϕ-pronoun when the Empathy Constraint is inap-

plicable. I have also pointed out the necessity for refinement of the Empathy Constraint.

FOOTNOTES

* I am grateful to Emmon Bach, Chisato Kitagawa, Barbara Partee, Tom Roeper, Ronald C. Taylor, and Edwin Williams for their comments and criticism on earlier versions of this paper.

I will use the following symbols in this paper:

Top : Topic Marker
Subj : Subject Case Marker
Obj : Object Case Marker
Past : Past Tense
Pres : Present Tense
ADV : Adverbial
IO : Indirect Object c
DO : Direct Object

1. To be accurate, Kuroda's pronominalization is not a deletion transformation. The repeated nouns are given the feature [+Pro] by the Pronominalization Rule and the nouns with the feature [+Pro] are deleted by a morphophonemic rule. He gives the following two rules :

Pronominalization Rule :

$$[+\text{Noun}] \longrightarrow [+\text{Pro}] \quad \text{in env.} \quad X - A - Y \underset{A}{} - Z$$

Morphophonemic Rule :

$$[+\text{Pro}] \longrightarrow \phi$$

2. I also call *kare* 'he' and *kanozyo* 'she' full-pronouns. In my terminology *pronominalization* refers to all types of anaphoric relations in Japanese. Hence,

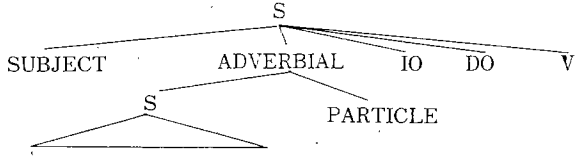
Pronominalization { ϕ-pronominalization / Full-pronominalization / Reflexivization }

Though I use the term pronominalization, I do not necessarily mean that what I call pronouns are derived from full nouns transformationally. I am taking a neutral position as to the dispute concerning the source and derivation of anaphors. The ϕ-pronoun may be derived from a full NP by a pronominalization transformation as Kuroda does in his thesis, or it may be introduced into the sentence in the base component and be interpreted by interpretive rules. Or ϕ-pronominalization may be simply a deletion transformation.

3. For convenience, I will represent the sequence NP+Particle as NP. I will also omit irrelevant details.

4. It should be borne in mind that these are not equivalent. (I am grateful to Emmon Bach for pointing this out.)

5. Throughout the paper, I will assume without justification that the adverbial clause is positioned between the subject NP and the other NP's at the deep structure level, as in the following illustration:



6. I am grateful to Emmon Bach for pointing this out.

7. Ohso (1976) is not aware of this fact, either. She gives the following examples without justifying the positioning of the ϕ-pronouns.

a. *John-wa* [*Mary*$_i$*-ga* *haitte* *kuru*] *nari,*
Top Subj enter come as-soon-as
ϕ_i *donarituke-ta.* (ϕ=DO)
shout-Past
'John shouted at her as soon as she came in.'

b. * [*John*$_i$*-ga* *haitte kuru*] *nari,* ϕ_i *Mary-o* *donarituke-ta.* (ϕ=Subj)
'John shouted at Mary as soon as he came in.

8. Following Kuno (1973), I assume that the basic word order in Japanese is: S - IO - DO - V.

9. In (10), the correct position of the ϕ-pronoun in the matrix clause is not known.

10. In relation to this problem, the following facts should be mentioned: When the ϕ-pronoun is not permitted, the other pronominal elements are

not permitted either, and when the ϕ-pronoun is permitted, the other pronominal elements are also permitted. For example,

a. [*John*$_i$-*ga* *okane-o* *hirot-ta* *node*]$_{ADV}$
Subj money-Obj picked up because
* ϕ_i/* *kare*$_i$-*wa*/* *ano baka*$_i$ *sore-o* *kooban-ni* *motte*
he-Top that fool it-Obj police-box-to bringing
it-ta.
go-Past
'Because John$_i$ had picked up money on the road, ϕ_i/he$_i$/that fool$_i$ brought it to a police-box.'

b. [*mosi* *John*$_i$-*ga* *koko-ni* *i-tara*]$_{ADV}$ ϕ_i /*kare*$_i$-*wa*/*ano* *baka*$_i$
if Subj here-in is-if he-Top that fool
kitto *yorokobu-yo*.
I'm sure will be pleased
'If John$_i$ were here now, ϕ_i/he$_i$/that fool$_i$ would be pleased I'm sure.'

In the *b* example, the dominant reading is that the ϕ-pronoun, *kare*, or *ano baka* refers to someone other than John. But it is also possible for the pronouns to refer to John.

One possible explanation may be that the *b* sentence does not have subordination but coordination, as I have mentioned above. That is, the structure of the *b* sentence may be as follows:

[[*mosi John*$_i$-*ga koko-ni i-tara*]$_S$ [ϕ_i /*kare*$_i$-*wa* /*ano baka*$_i$ *kitto yorokobu-yo*]$_S$]$_S$

The structure of the *a* sentence, then, is as follows:

[[[*John*$_i$-*ga okane-o hirot-ta*]$_S$ *node*]$_{ADV}$ * ϕ_i/* *kare*$_i$-wa/* *ano baka*$_i$ *sore-o kooban-ni motte it-ta*]$_S$

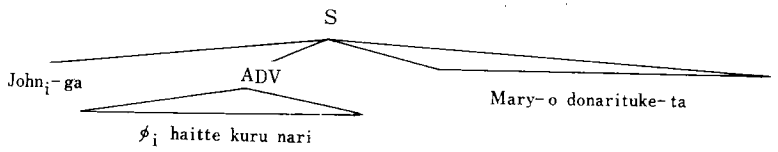
11. Does this imply that ϕ-pronominalization is a deletion transformation because, generally speaking, deletion is downward only? (But see Harada (1973) for an example of upward Equi-NP Deletion.)
12. Incidentally, full-pronominalizability depends on the linear order of the antecedent and the full-pronoun. Full-pronominalization is forward only.

Reflexivization is downward only. In this respect, reflexivization and ϕ-pronominalization are similar and they are different from full-pronominalization.

With respect to the applicability of the Empathy Constraint, reflexivization and ϕ-pronominalization behave differently from full-pronominalization. (For the Empathy Constraint, see Kuno and Kaburaki (1975) and Ohso (1976).)

These two facts may support the claim that full-pronominalization is an anaphoric device recently adopted on the analogy of the pronouns of European languages.

13. In (18), subordination and not coordination is assumed to be involved.
14. Ohso assumes that ϕ-pronominalization is a deletion transformation. But she distinguishes ϕ-pronominalization from Equi-NP deletion.
15. Ohso assumes ϕ-pronominalization to be applied after Scrambling.
16. As I have said above, it is not clear whether the ϕ-pronoun precedes or follows the adverbial clause.
17. According to Ohso (1976), *Tanaka-san-no okusan* presents the unpredictable theme though it is followed by *wa*, Topic Marker. NP+*wa* presents an unpredictable theme in a copulative sentence.
18. I think the structure of (27a) is not as Ohso presents it. I think the structure of (27a) should be something like the following:



If this is the correct structure, then the ϕ-pronominalization is downward.

19. One apparent case where backward ϕ-pronominalization is not allowed is when a Wh-word is the antecedent. Consider the following examples:

a. *dare$_i$-ga* [ϕ_i *okane-o hirot-ta node*]$_{ADV}$ *kooban-ni*
who-Subj money-Obj pick up-Past because police-box-to
sore-o motte it-ta no-ka. (Forward. ϕ = Subj)
it-Obj bringing go-Past Question
'Who$_i$, because ϕ_i had picked up money on the road, brought it to a police-box?'

a′. ?* [ϕ_i *okane-o hirot-ta node*]$_{ADV}$ *dare$_i$-ga kooban-ni sore-o motte it-ta no-ka* (Backward. ϕ = Subj)
'Because ϕ_i had picked up money on the road, who$_i$ brought it to a police-box?'

b. *sensei-wa dare$_i$-ni* [ϕ_i *kanningu-o si-ta node*]$_{ADV}$
teacher-Top who-to cheated in the exam because
reiten-o atae-ta no-ka. (Forward. ϕ = Subj)
grade of zero-Obj give-Past Question
'Who$_i$ did the teacher give a grade of zero to because ϕ_i had cheated in the exam?'

b′. ?* *sensei-wa* [ϕ_i *kanningu-o si-ta node*]$_{ADV}$ *dare$_i$-ni reiten-o atae-ta no-ka.* (Backward. ϕ = Subj)
'Because ϕ_i had cheated in the exam, who$_i$ did the teacher give a grade of zero to?'

c. *dare$_i$-ga* [ϕ_i *gohan-o tabe-nagara*]$_{ADV}$ *sinbun-o*
who-Subj meal-Obj eating newspaper-Obj
yomu no desu ka. (Forward. ϕ = Subj)
read Question
'Who$_i$ reads the newspaper while ϕ_i is eating a meal?'

c′. ?* [ϕ_i *gohan-o tabe-nagara*]$_{ADV}$ *dare$_i$-ga sinbun-o yomu no desu ka.* (Backward. ϕ = Subj)
'While ϕ_i is eating a meal, who$_i$ reads the newspaper?'

The ungrammaticality of the above examples can be explained in terms of Kuno's Predictability Reguirement on Backward Pronominalization, which says: "Do not pronominalize the lefthand noun phrase unless its referent is determinable (predictable) from the preceding context." (See Kuno (1975) for more details) See Nakai (1977) for a similar phenomenon in full-pronominalization.

20. For the details of "empathy," see Kuno and Kaburaki (1975) and Ohso (1976). It is not clear what Kuno and Kaburaki mean by "empathy." I take "empathy" to be the same as "point of view." So, "to empathize with a person" is "to describe the event from the person's point of view."

21. As I have said above, full-pronominalization is much better than ϕ-pronominalization in the following examples.

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