Indefinite Null Argument and its Interaction with Negation

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ABSTRACT.

Japanese is classified as a Pro-drop language that allows phonologically unrealized arguments in finite clauses as long as contextually salient topic exists. Definite null arguments have received much attention in the literature, but indefinite uses of null arguments are also available. Following the analysis of Chinese null pronouns by Huang (1984), I claim that Japanese has an option to provide a free variable that is subject to Existential Closure. If the analysis is correct, it is expected that a free variable in monotone decreasing environments can be treated as Negative Polarity Items of existentials. I show that the prediction is correct even though Japanese adopts Negative Polarity Items of universals.

1 Introduction

Japanese allows phonologically unrealized arguments and the null argument receives an indefinite interpretation depending on the context:

(1) John-wa kuruma-o arat-ta. Bill-mo [∅] arat-ta.
John-TOP car-ACC wash-PAST Bill-also wash-PAST
'John washed a car'. 'Bill also washed (a car)'.

The purpose of this paper is to show that monotone decreasing expressions as well as a negation marker can be operators for the indefinite null argument. Specifically, I claim that Negative Polarity Items (NPIs) of the weak type are available in the deleted constituents in Japanese.

The organization of this paper is as follows. In section 2, I first introduce the classificatory parameters of the strong and weak NPIs. Japanese adopts the strong type: NPIs are universal quantifiers and the licenser for them is a sentential negation marker. By contrast, the weak type is treated as an existential quantifier and monotone decreasing expressions can be licensers. *Any* in English is an example of the weak type (Ladusaw 1979). In section 3, I show that the *some-any* alternation discussed by Klima (1964) is observable in Japanese. Since the given information is required for ellipsis (Schwarzschild 1999; Merchant 2001), the alternation

shows that the null argument is treated as an existential quatifier. Section 4 is a brief overview of monotone decreasing expressions that are typically associated with NPIs of the weak type. Finally, section 5 is the conclusion of this paper.

2 Strong NPIs and Weak NPIs

NPIs are expressions that are licensed in the scope of a negative operator. The licensing condition on the NPIs in English is rather 'loose' compared with that of the NPIs in Japanese. As the glosses show, scope of *fewer than*, and *if*-clause can be licensers for the NPIs in English, while Japanese NPIs are not admitted in the environments. Hence, the following Japanese examples are not grammatical:

(2) * 5-nin ika-no kyosi-wa nani-mo yon-da.
five-CL fewer.than-GEN teacher-TOP what-even read-PAST
'Fewer than 5 teachers read anything'.

(3) * Mosi Ichiro-ga nani-mo katta-ra, watasi-wa odoroku.
if Ichiro-NOM what-even buy(-then) I-TOP be.surprised
'If Ichiro bought anything, I would be surprised'.

Ladusaw (1979) claims that English NPIs are licensed in monotone decreasing environments. Note that the NPIs in the examples in (2-3) receive an indefinite interpretation. I adopt the functional analysis of NPI licensers discussed by Zwarts (1998). The definition of monotone decreasing function from Zwarts (1998, 214) is shown in (5):

(4) Only sentences in which a monotone decreasing expression occurs, can contain a negative polarity item of the weak type.

(5) A monotone decreasing function: Let B and B* be two Boolean algebras. A function f from B to B* is said to be monotone decreasing iff for each two elements X and Y of the algebra B: if X $\subseteq$ Y, then $f(Y) \subseteq f(X)$.

According to the functional definition by Zwarts (1998, 224), sentential negation denotes an anti-morphic function, of which semantic value is equivalent in the following formulae. Since the licenser for Japanese NPIs is a sentential negation marker, the semantic value of the wide scope universals and that of the narrow scope existentials are not distinguishable. Hence, the equivalence formulae in (7) are established. For the descriptive purpose, I call NPIs in English 'weak NPIs' and NPIs in Japanese 'strong NPIs':

(6) An anti-morphic function: Let B and B* be two Boolean algebras. A function f from B to B* is said to be anti-morphic iff for each two elements X and Y of the algebra B: (a) $f(X \cup Y) = f(X) \cap f(Y)$, (b) $f(X) \cap (Y) = f(X \cap Y)$, (c) $f(-X) = -f(X)$

(7) a. $\neg\exists = \forall\neg$
b. $\exists\neg = \neg\forall$

There are other factors to distinguish the two types of NPIs. I consider the locality condition here.

(8) a. Licenser: monotone decreasing, or anti-morphic
b. Locality: long distance or clause-bound

Long distance licensing of *any* is possible, while Japanese NPIs require a local licenser. The NPI *dare-ni-mo* in the following example is not licensed by the sentential negation marker in the matrix clause, because it is intervened by the clause-boundary. As the gloss exhibits, the NPI *anyone* is possible, because the negation marker c-commands it and the long distance licensing is possible for the weak NPI.

(9) * Ichiro-wa [$_{\text{CP}}$ Kyoko-ga dare-ni-mo au to] omotte-nai.
Ichiro-TOP Kyoko-NOM who-GEN-even see COMP think-NEG
'Ichiro does not think that Kyoko will see anyone'.

From the discussion above, it is concluded that Japanese NPIs belong to strong types. NPIs are universal quantifiers and require a local negation marker. By contrast, English NPIs are weak types. They are existential quantifiers and have a number of licensers. English NPIs do not require clause-internal licensers and NPIs are licensed as long as they are under the scope of monotone decreasing expressions.

3 *Some-Any* Alternation

Klima (1964) observes that *some* and *any* can be altered depending on the environments. The following contrast shows that VP-deletion does not necessarily recover the antecedent VP as it is. The strike-out indicates the deleted constituents. *Someone* is copied in the deleted VP in (10a) and *anyone* in (10b). On the other hand, when the VPs in the conjoined clauses are different, *some* and *any* can be altered. Therefore, *someone* is turned into *anyone* in negative in (10c) and *anyone* into *someone* in assertive in (10d). If it is assumed that semantic identity is required for ellipsis (Merchant 2001; Schwarzschild 1999), it is concluded that *any* falls under the category of existential quantifiers. Hence, both *some* and *any* satisfy the identity requirement in the deleted constituents, altering with each other.

(10) a. John will see someone, and Mary will ~~see someone~~ (, too).
b. John will not see anyone, and Mary will not ~~see anyone~~ (, either).
c. John will see someone, but Mary will not ~~see anyone~~.
d. John will not see anyone, but Mary will ~~see someone~~.

Interestingly enough, the *some-any* alternation can be found in Japanese null arguments. Given that Japanese NPIs are universal quantifiers, this cannot be expected. Existential quantifiers and universal quantifiers cannot be identical, violating the identity requirement for ellipsis.

(11) a. Ichiro-wa dareka-ni au-si, Kyoko-mo [∅] au-darou.
Ichiro-TOP someone-GEN see-and Kyoko-also see-will
'Ichiro will see someone, and Kyoko will see ~~someone~~'.
b. Ichiro-wa dare-ni-mo awa-nai-si, Kyoko-mo [∅]
Ichiro-TOP who-GEN-even see-NEG-and Kyoko-also
awa-nai-darou.
see-NEG-will
'Ichiro will not see anyone, and Kyoko will not see ~~anyone~~'.
c. Ichiro-wa dareka-ni au-kedo, Kyoko-wa [∅] awa-nai-darou.
Ichiro-TOP someone-GEN see-but Kyoko-TOP see-NEG-will
'Ichiro will see someone, but Kyoko will not see ~~anyone~~'.
d. Ichiro-wa dare-ni-mo awa-nai-kedo, Kyoko-wa [∅] au-darou.
Ichiro-TOP who-GEN-even see-NEG-but Kyoko-TOP see-will
'Ichiro will not saw anyone, but Kyoko will see ~~someone~~'.

Note that the null argument does not simply copy the antecedent as it is in the *some-any* alternation in Japanese. For example, if the null argument in (11c) copied its antecedent *dareka*, the semantic representation would not be appropriate: the representation would express partial negation and it would be paraphrased as 'There is some specific individual such that Kyoko will not see him or her'. The Japanese existential expression *dareka* is a positive polarity item and thus it should take scope over the negation. Compare the null argument and *dareka* in (12b):

(12) a. Ichiro-wa dareka-ni au-darou.
Ichiro-TOP someone-GEN see-will
'Ichiro will see someone'.
b. Kyoko-wa [∅] awa-nai-darou. ≠ Kyoko-wa [dareka-ni]
Kyoko-FOC saw-NEG-will Kyoko-FOC [someone-GEN]
awa-nai-darou.
saw-NEG-will
'Kyoko will not see anyone'. ≠ 'Kyoko will not see someone'.

Of relevance to the present discussion is the fact that a null argument can function as a weak NPI. A null argument is a free variable and the indefinite null argument is assigned its semantic value by Existential Closure that applies at the appropriate semantic representation. If a free variable is under the scope of negation, the semantic representation will be identical to that of narrow scope existential NPIs: $\neg\exists$. Japanese adopts strong NPIs, but Japanese has an option to utilize weak NPIs as long as the semantic condition is satisfied at LF. This is possible in the deleted constituents, because a null argument by its silent nature is free from morphological constraints.

If a null argument can be treated as a weak NPI, the expectation is that its behaviour should correspond to that of weak NPIs. It can be licensed in a long distance fashion and it can be used in monotone decreasing environments, receiving an indefinite interpretation. In the next section, I will provide the empirical data, demonstrating that a null argument in monotone decreasing environments can be treated as NPIs of existentials.

4 Weak NPIs in Japanese

It has been pointed out that there are two types of NPIs. Japanese adopts the strong type composed of an indeterminate NP + the universal particle *mo*, the morphological combination of universal quantifiers (Kuroda 1965; Watanabe 1992). They are semantically universal quantifiers and require a local negation marker.

By contrast, deleted constituents are, by their phonologically silent nature, free from morphological constraints. Hence, all that is important is a representation reflected at LF. LF representation for weak NPIs is the one in which weak NPIs are under the scope of monotone decreasing expressions. In the environments, weak NPIs receive an indefinite interpretation. Specifically, weak NPIs are interpreted as complete negation under the scope of negation marker expressed as $\neg\exists$. The representation can be composed in Japanese, because Japanese can provide a free variable in deleted constituents. The semantic value of a null argument can remain unspecified until LF and the representation will be identical to that of weak NPIs when monotone decreasing expressions give a quantificational value to a null argument.

As is discussed in the previous section, weak NPIs can be licensed as long as they are under the scope of licensers. The licensers need not be clause-internal. The weak NPI *anyone* in (13a) is licensed, because the negation marker in the matrix clause c-commands it. Even if it is contained in the deleted VP in (13b), it is correctly approved. The long distance licensing of the null argument in Japanese is shown in (13d). Compare the ungrammaticality of the overt strong NPI *dare-ni-mo* in (13c) that requires a local negation marker.

(13) a. John does not think that Mary will see anyone.

b. Ichiro thinks that Mary will see someone, but John does not ~~think that Mary will see anyone~~.

c. * John-wa [Mary-ga dare-ni-mo au-to] omotte-nai.
John-TOP Mary-NOM who-GEN-even see-COMP think-NEG
'(Lit.) John does not think that Mary will see anyone'.

d. Ichiro-wa [Mary-ga dareka-ni au-to] omot-te iru-kedo,
Ichiro-TOP Mary-NOM someone-DAT see-COMP think ASP-but
John-wa [Mary-ga [∅] au-to] omotte-nai.
John-TOP Mary-NOM see-COMP think-NEG
'Ichiro thinks that Mary will see someone, but John does not think that Mary will see anyone'.

The null argument in (13d) can be interpreted either as a specific individual or under the scope of sentential negation. On the first reading, the translation would be 'There is some specific individual in the discourse such that John does not think that Mary will see him or her'. The second reading is shown in the gloss and it reflects the NPI reading of the null argument. The availability of narrow scope existentials shows that a null argument can behave as a weak NPI.

Weak NPIs such as *any* can be used in monotone decreasing environments, receiving an indefinite interpretation. I show the parallel behaviour between a null argument and weak NPIs. Note that overt NPIs in Japanese composed from an indeterminate NP and the universal particle *mo* cannot be used in these environments: the semantic function of overt NPIs is to denote wide scope universals shown as $\forall\neg$. Hence, overt NPIs in Japanese cannot be licensed by monotone decreasing expressions and cannot receive an indefinite interpretation.

The first sentence in (14a) has the NPI *nani-mo* that is licensed by the clause internal negation marker. The null argument in the second sentence in (14b), on the other hand, is an indefinite description. As is reflected in the gloss, this correctly captures the nature of weak NPIs. *Anything* can be used in conditionals, receiving an indefinite interpretation. Note that the NPI *nani-mo* cannot be licensed in conditionals without a negation marker as shown in (14c). The recovered meaning for the null argument in (14b) corresponds to the weak NPI *anything*, not *nani-mo*:

(14) a. Mosi May-ga nani-mo kawa-na-kereba, watashi-wa
if May-NOM what-even buy-NEG-if I-TOP
odoroku darou.
be.surprised will
'If May did not buy anything, I would be surprised'.

b. Mosi Ichiro-ga [∅] katte-mo, mata odoroku kedo.
if Ichiro-NOM buy(-then) also be.surprised
'If Ichiro bought anything, I would also be surprised'.

c. * Mosi Ichiro-ga nani-mo katte-mo, mata odoroku kedo.
if Ichiro-NOM who-even buy(-then) also be.surprised
'If Ichiro bought anything, I would also be surprised'.

In the scope of *fewer than*, the null argument in (15b) shows the parallel behaviour with the weak NPI *anything* as is reflected in the gloss. Hence, it receives an indefinite interpretation. Note that the overt NPI *nani-mo* in (15c) cannot be used in the environment, because overt NPIs require a clause internal negation marker.

(15) a. 5-nin ika-no gakusei-wa nani-mo yoma-nai.
five-CL fewer.than-GEN student-TOP what-even read-NEG
'(lit.) Fewer than 5 students doesn't read anything'.

b. 5-nin ika-no kyosi-wa [∅] yon-da (kedo).
five-CL fewer.than-GEN teacher-TOP read-PAST
'Fewer than 5 teachers read anything'.

c. * 5-nin ika-no kyosi-wa nani-mo yon-da (kedo).
five-CL fewer.than-GEN teacher-TOP what-even read-PAST
'Fewer than 5 teachers read anything'.

From the discussion above, it is concluded that a null argument can be a free variable and the semantic value can be assigned by monotone decreasing expressions on a par with weak NPIs. The semantic representation corresponds to weak NPIs, and the parallel behaviour between them supports the proposed analysis. Japanese does not have a weak type NPI in its lexicon, but the semantic representation corresponding to weak NPIs is available in deleted constituents. This is possible, because null arguments are free from morphological constraints.

5 Conclusion

This paper has shown that NPIs in Japanese belong to a strong type, but a weak type can be used in deleted constituents. Japanese has an option to provide a free variable that is subject to Existential Closure, deriving an indefinite use of null arguments (Hoji 1998; Tomioka 2003). A null argument in monotone decreasing

environments is treated as a weak NPI. The availability of phonologically unrealized weak NPIs is confirmed by the following data: the *some-any* alternation, long distance licensing, and an indefinite use in the monotone decreasing environments.

Although Japanese does not have an existential expression that is not positive polarity, the representation corresponding to NPIs of existentials is available in deleted constituents. The proposed analysis shows that the nature of LF-representation is universally identical and the parametric difference of individual languages is attributable to the lexical properties in each language.

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