

Disjunction and Object Drop in Japanese*

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Abstract: In this paper, I present a new observation about some interpretive properties of disjunction and conjunction in Japanese in an ellipsis context and consider the implications of this observation for the analysis of null objects in Japanese. I conclude that Japanese has *pro* and V-stranding VP-ellipsis but not Argument Ellipsis to derive null object sentences.

1. Introduction

In Japanese, an object (as well as a subject) can be dropped relatively freely, as illustrated in (1). In the second conjunct in (1), the object is dropped and the null object (Δ) can refer to Bill.

- (1) Mary-wa Bill-o nagut-ta ga, John-wa Δ nagur-anak-atta.
Mary-TOP Bill-ACC hit-PAST but John-TOP hit-NEG-PAST
'Mary hit Bill, but John didn't hit Bill.'

Null object sentences like (1) can be derived at least in three ways, i.e. by employing *pro*, Argument Ellipsis, and V-stranding VP-ellipsis. This is illustrated in (2)

- (2) a. John-TOP *pro* hit-NEG-PAST
b. John-TOP ~~Bill~~-ACC hit-NEG-PAST
c. John-TOP [_{VP} ~~Bill~~-ACC *t*_{hit}] hit-NEG-PAST

The *pro* analysis is illustrated in (2a), where the object position is occupied by the null pronoun referring back to Bill. In (2b), the full noun phrase *Bill* is in the object position and the object NP is elided at PF (see Oku 1998, Kim 1999, Saito 2007, Takahashi 2008a, Takita 2011, among many others). Null object sentences like (1b) could also be derived by VP-ellipsis, as illustrated in (2c), where the verb *hit* moves out of VP and the remnant VP containing only the object *Bill* is elided (see Otani and Whitman 1991, Funakoshi 2012).

Among a number of different analyses of null objects in Japanese, there seems to be some consensus that Japanese has *pro* that can occupy the object position (see Kuroda 1965, Ohso 1976, Hoji 1985, among many others). An argument for the existence of a null object pronoun can be constructed on the basis of Condition B, as discussed in Takahashi 2008b. Without any

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linguistic antecedent, sentences like (3) are unacceptable under the reading where the null object takes the subject *John* as its antecedent.

- (3) * John₁-ga Δ₁ seme-ta.
 John-NOM criticize-PAST
 (intend) 'John criticized himself'

If the null object in (3) is a null pronoun, *pro*, (3) can be reduced to a Condition B violation on a par with (4), where an overt pronoun *him* occupies the object position.

- (4) * John₁ criticized him₁.

Thus, it is reasonable to conclude that Japanese has *pro*.

Given this, an important question in Japanese syntax is whether Japanese has other strategies to derive null objects than *pro* and if it does, which strategy it is (Argument Ellipsis, V-stranding VP-ellipsis, or both)? Logically speaking, we have the following four possibilities:

- (5) a. only *pro*
 b. *pro* + Argument Ellipsis
 c. *pro* + V-stranding VP-ellipsis
 d. *pro* + Argument Ellipsis + V-stranding VP-ellipsis

In this paper, I argue that (5c) is correct on the basis of some peculiar interpretive properties that disjunctive NPs and conjunctive NPs have when they are null. In section 2, I will present a new observation that a disjunctive expression *NP ka NP* and a conjunctive expression *NP-mo NP-mo*, when they are null, exhibit different interpretations from their overt counterparts. In section 3, I will consider each possibility in (5) in turn to see if it can account for the interpretive properties of null disjunction and conjunction and I conclude that Japanese has *pro* and V-stranding VP-ellipsis but not Argument Ellipsis to derive null object sentences.

2. An Observation

2.1. Null Disjunctive NPs

In English, sentences containing *or* and negation like (6) are ambiguous: *or* can take scope either under or over local negation.

- (6) John doesn't speak Spanish or French.
 (i) *John doesn't speak Spanish AND he doesn't speak French.* (NEG > or)
 (ii) *John doesn't speak Spanish OR he doesn't speak French.* (or > NEG)

The reading (i) follows from the de Morgan's laws (i.e. $\neg(p \vee q) = \neg p \wedge \neg q$) if we assume that English *or* is Boolean disjunction.

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On the other hand, the counterpart of (6) in Japanese is not ambiguous in the same way. (7) shows that disjunction *ka* can only scope over local negation, as Goro (2007) and Szabolcsi (2002) observe.¹

- (7) John-wa supeingo ka furansugo-o hanas-ana-i.
 John-TOP Spanish or French-ACC speak-NEG-PRES
 ‘John doesn’t speak Spanish or French.’
 (i) * John doesn’t speak Spanish AND he doesn’t speak French. (NEG > or)
 (ii) John doesn’t speak Spanish OR he doesn’t speak French. (or > NEG)

One might argue that the lack of the narrow scope reading of disjunction in (7) suggests that Japanese *ka*, unlike English *or*, is not Boolean disjunction and does not obey the de Morgan's laws. As Goro (2007) argues, however, this is not the case since the narrow scope reading becomes available when *ka* appears in a subordinate clause that is embedded under matrix negation. Thus, (8) can mean that I don’t think that John speaks Spanish and I don’t think that he speaks French.

- (8) Boku-wa [John-ga supeingo ka furansugo-o hanas-u to]omow-ana-i.
 I-top John-NOM Spanish or French-ACC speak-PRES C think-NEG-PRES
 ‘I don’t think that John speaks Spanish AND that he speaks French.’

This is unexpected if *ka* is not Boolean disjunction. As we will see in the next section, Goro (2007) attributes the interpretive property of *ka* in (7) to the PPI-like property of *ka* (i.e. that it must be outside of the scope of negation).

Interestingly, the interpretive property changes once the disjunctive object is null. (9b) lacks an overt object and the null object is most naturally interpreted as Spanish or French. The null object sentence in (9b), however, only has the narrow scope reading of disjunction. Thus, (9b) cannot truthfully be uttered when John speaks either Spanish or French.

- (9) Mary-wa supeingo ka furansugo-o hanas-u ga, John-wa Δ hanas-ana-i.
 Marr-TOP Spanish or French-ACC speak-PRES but John-TOP speak-NEG-PRES
 Lit. ‘Mary speaks Spanish or French, but John doesn’t speak.’
 √NEG < or, *or > NEG

One might argue that the unavailability of the wide scope reading of disjunction can be attributed to the contrastive requirement that is imposed by *ga* ‘but’. However, I reject this explanation because the wide scope reading of disjunction becomes available when the null object is replaced with a full overt noun phrase, as illustrated in (10).

¹ Szabolcsi (2002) reports that Hungarian, Russian, Servo-Croatian, Slovak, Polish, and Italian are similar to Japanese while Greek, Romanian, Bulgarian, and Korean are analogous to English in this respect.

- (10) Mary-wa supeingo ka furansugo-o hanas-u ga, John-wa supeingo
 Marr-TOP Spanish or French-ACC speak-PRES but John-TOP Spanish
 ka furansugo-o hanas-ana-i.
 or French-ACC speak-NEG-PRES
 ‘Mary speaks Spanish or French, but John doesn’t speak Spanish or French.’
 *NEG > or, $\sqrt{\text{or}}$ > NEG

This indicates that the contrastive requirement of *ga* ‘but’ is not strong enough to rule out the wide scope reading of disjunction. Thus, we cannot attribute the lack of the wide scope reading of disjunction in (9b) to the contrastive requirement that is imposed by *ga* ‘but’.²

2.2. Null Conjunctive NPs

Japanese contrasts with English in the interpretations of conjunction too. As shown in (11), English sentences containing conjunction *and* and negation are ambiguous.

- (11) John doesn’t speak Spanish and French.
 (i) John doesn’t speak Spanish AND he doesn’t speak French. (and > NEG)
 (ii) John doesn’t speak Spanish OR he doesn’t speak French. (NEG > and)

If *and*, like *or*, is a Boolean connective, the reading in (ii) follows from the de Morgan’s laws (i.e. $\neg(p \wedge q) = \neg p \vee \neg q$).

In contrast with English *and*, a conjunctive expression *NP-mo NP-mo* in Japanese is not ambiguous, as Goro (2007) observes: sentences like (12) only have the wide scope reading of conjunction.

² One complication that I put aside here is that the wide scope reading of *ka* seems to be available in null disjunctive object sentences if it is preceded by a negative sentence as an antecedent sentence, as Shinya Asano and Takeshi Oguro point out. This is shown in (i).

- (i) a. Mary-wa supeingo ka furansugo-o hanas-ana-i.
 Mary-TOP Spanish or French-ACC speak-NEG-PRES
 ‘Mary doesn’t speak Spanish or French.’
 b. John-mo Δ hanas-ana-i.
 John-also speak-NEG-PRES
 Lit. ‘John also doesn’t speak.’
 *NEG > or, $\sqrt{\text{or}}$ > NEG

I assume that this is due to the strong parallelism requirement induced by a focus particle *mo* ‘also’, which is attached to the subject in (ib). As shown in (ii), if the null object sentence does not contain *mo*, the wide scope reading of disjunction is not available regardless of whether the antecedent sentence is negative or not.

- (ii) a. Mary-wa supeingo ka furansugo-o hanas-u/hanas-ana-i no?
 Mary-TOP Spanish or French-ACC speak-PRES/speak-NEG-PRES Q
 ‘Does Mary (not) speak Spanish or French?’
 b. Kanojyo-wa Δ hanas-na-i.
 she-TOP speak-NEG-PRES
 Lit. ‘she doesn’t speak’
 $\sqrt{\text{NEG}}$ > or, *or > NEG

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- (12) John-wa supeingo-mo furansugo-mo hanas-ana-i.
 John-TOP Spanish-also French-also speak-NEG-PRES
 (i) *John doesn't speak Spanish AND he doesn't speak French.* (and > NEG)
 (ii) * *John doesn't speak Spanish OR he doesn't speak French.* (NEG > and)

...*mo* ... *mo* is Boolean conjunction since the narrow scope reading of conjunction becomes available once it is embedded under matrix negation, as shown in (13).

- (13) Mary-wa [John-ga supeingo-mo furansugo-mo hanas-u to]iw-anak-atta.
 Mary-TOP John-NOM Spanish-also French-also speak-PRES C say-NEG-PAST
 'Mary didn't say that John speaks Spanish OR that he speaks French.'

The interpretation of *NP-mo NP-mo*, like that of *ka* 'or', changes when it is null. It becomes ambiguous, as illustrated in (14).

- (14) Mary-wa supeingo-mo furansugo-mo hanas-u ga, John-wa Δ hanas-ana-i.
 Marr-TOP Spanish-also French-also speak-PRES but John-TOP speak-NEG-PRES
 Lit. 'Mary speaks Spanish and French, but John doesn't speak.'
 $\sqrt{and} > NEG$, $\sqrt{NEG} > and$

This should be attributed to the fact that the conjunctive object NP is null since only the wide scope reading of the conjunction is available when the overt conjunctive NP appears in the same environment, as (15) shows.

- (15) Mary-wa supeingo-mo furansugo-mo hanas-u ga, John-wa supeingo-mo
 Marr-TOP Spanish-also French-also speak-PRES but John-TOP Spanish-also
 furansugo-mo hanas-ana-i.
 French-also speak-NEG-PRES
 'Mary speaks Spanish and French, but John doesn't speak Spanish and French.'
 $\sqrt{and} > NEG$, *NEG > and

The following table summarizes the observations in this section:

Table 1: Overt and null disjunction and conjunction in Japanese

	Overt	Null
<i>ka</i>	$\sqrt{or} > NEG$ *NEG > or	*or > NEG $\sqrt{NEG} > or$
... <i>mo</i> ... <i>mo</i>	$\sqrt{and} > NEG$ *NEG > and	$\sqrt{and} > NEG$ $\sqrt{NEG} > and$

3. Discussion

In this section, I will discuss the four possible analyses of Japanese null objects (5) that I mentioned in (5) in the introduction, repeated here as (16).

- (16) a. only *pro* (the *pro* analysis)
 b. *pro* + Argument Ellipsis (the *pro* + AE analysis)
 c. *pro* + V-stranding VP-ellipsis (the *pro* + VPE analysis)
 d. *pro* + Argument Ellipsis + V-stranding VP-ellipsis (the *pro* + AE + VPE analysis)

I argue that (16c) provides the most satisfactory way to account for the observed facts about null disjunction and conjunction, concluding that Japanese has *pro* and V-stranding VP-ellipsis but not Argument Ellipsis to derive null object sentences.

3.1. Goro's (2007) Analysis

Before discussing the interpretive properties of null disjunction and conjunction in Japanese, let us consider how we can account for those of overt disjunction and conjunction. I adopt Goro's (2007) analysis. He provides a syntactic account for the lack of the narrow scope reading of disjunction and conjunction with respect to local negation in Japanese. Following Szabolcsi (2002), he assumes that *ka* and ... *mo* ... *mo* are positive polarity items (PPIs). In particular, he proposes that they have a weak uninterpretable feature [F] that must be checked in the specifier position of a designated functional projection (*fP*), located above NegP. Given these assumptions, sentences involving negation and *ka* or ...*mo*...*mo* have the following (partial) structure at LF because *ka* and ...*mo*...*mo* must move to Spec, *fP* at LF to check [F].

- (17) ... [_{*fP*} *ka*_[F]/...*mo*...*mo*_[F] *f* [_{NegP} Neg [_{VP} V *t*]]] (order irrelevant)

It follows from this analysis that *ka* and ...*mo*...*mo* obligatorily take wide scope over local negation. Thus, we can account for the lack of the narrow scope reading of disjunction and conjunction: *ka* and ...*mo*...*mo* cannot take scope under local negation since they have to move to Spec, *fP* to check [F].³

3.2. The *pro* Analysis

Now, let us turn back to null disjunction and conjunction and consider each hypothesis about null objects in (16) to see if it can account for the interpretive properties of null disjunction and conjunction. Let us first consider the *pro* analysis, according to which Japanese only has *pro* to de-

³ Actually, the status of ...*mo*...*mo* as a PPI is not uncontroversial. For example, ...*mo*...*mo* can take scope under local negation when a contrastive topic marker *wa* is attached to it, as shown in (i).

(i) John-wa [supeingo-mo furansugo-mo]-wa hanas-ana-i.
John-TOP Spanish-also French-also-CONTR.TOP speak-NEG-PRES
 'John doesn't speak Spanish OR he doesn't speak French.'

However, the exact status of ...*mo*...*mo* is not crucial for the main argument of this paper. The crucial assumption is that the obligatory wide scope property of *ka* and ...*mo*...*mo* is attributed to feature-driven syntactic movement.

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rive null object sentences. This analysis can account for the availability of the narrow scope reading of null disjunction and that of the wide scope reading of null conjunction. As Hoji (2003) discuss, *pro* in Japanese can be plural-denoting. This is confirmed by the fact that *pro* allows for split antecedents as shown in (18).

- (18) Toyota₁-ga Nissan₂-ni [zeimusyo-ga *pro*₁₊₂ sirabeteiru to]tuge-ta.
Toyota-NOM Nissan-DAT tax.office-NOM is.investigating C informed
'Toyota₁ informed Nissan₂ that the tax office was investigating them₁₊₂.' (Hoji 2003:385)

Given that only plural-denoting pronouns like *karera* 'they' or *sorera* 'these' allow for split antecedents (see Hoji 2003), (18) indicates that *pro* can be plural-denoting. If this is correct, the null disjunction sentence in (9) and the null conjunction sentence in (14) can have the same meaning as (19) and (20) do. In (19) and (20), the null objects are replaced with overt plural-denoting pronouns.

- (19) Mary-wa supeingo ka furansugo-o hanas-u ga, John-wa sorera-o hanas-ana-i.
Marr-TOP Spanish or French-ACC speak-PRES but John-TOP they-ACC speak-NEG-PRES
'Mary speaks Spanish or French, but John doesn't speak these.'
- (20) Mary-wa supeingo-mo furansugo-mo hanas-u ga, John-wa sorera-o hanas-ana-i.
Marr-TOP Spanish-also French-also speak-PRES but John-TOP they-ACC speak-NEG-PRES
'Mary speaks Spanish and French, but John doesn't speak these.'

The meaning of the second conjunct in (19) and (20) is truth-conditionally equivalent to the narrow scope reading of disjunction and the wide scope reading of conjunction. Therefore, the *pro* analysis can account for the availability of these readings in null object sentences.

What about the lack of the wide scope reading of disjunction and the availability of the narrow scope reading of conjunction? Both these readings convey either-one-of-them-like meaning. There is no way to express such a meaning with a pronoun, whether it is plural-denoting or singular-denoting. Thus, the *pro* analysis can account for the lack of wide scope reading of disjunction but not for the availability of the narrow scope reading of conjunction. Therefore, the *pro* analysis is inadequate since the availability of the narrow scope reading of conjunction remains a mystery under this analysis.

3.3. The *pro* + AE Analysis and The *pro* + AE + VPE Analysis

Let us next consider the *pro* + AE analysis and the *pro* + AE + VPE analysis. These analyses can account for the availability of the narrow scope reading of null disjunction and that of the wide scope reading of null conjunction on a par with the *pro* analysis since the plural-denoting *pro* is available also in these analyses.

Furthermore, these analyses can also account for the availability of the narrow scope reading of conjunction if we adopt and modify Goro's (2007) syntactic analysis of ...*mo*...*mo*.

Suppose, contrary to Goro’s original assumption, that the relevant feature of *...mo...mo* is strong rather than weak. Then, we can reduce the availability of narrow scope reading of conjunction under ellipsis to a case of repair by ellipsis. Strong features must be eliminated until the derivation reaches PF and they can be eliminated either (i) if they are checked by overtly moving to the specifier of a designated functional projection or (ii) if elements with strong features are elided at PF (Chomsky 1995, see also Lasnik 1999). Given these assumptions, there are three ways to eliminate the [F] feature of *...mo...mo*: (i) *NP-mo NP-mo* overtly moves to Spec, *fP*, as illustrated in (21a), (ii) *NP-mo NP-mo* stays within VP and is deleted by Argument Ellipsis, as shown in (21b), or (iii) *NP-mo NP-mo* stays within VP and is deleted by V-stranding VP-ellipsis, as illustrated in (21c).⁴

- (21) a. ... [_{fP} *NP-mo NP-mo*<sub>[F]] *f* [_{NegP} Neg [_{VP} V *t*]]]
 b. ... [_{fP} *f* [_{NegP} Neg [_{VP} V ~~*NP-mo NP-mo*~~<sub>[F]]]]]
 c. ... [_{fP} *f* [_{NegP} V-Neg [_{VP} ~~*t_V NP-mo NP-mo*~~_{[F]]]]] (order irrelevant)}</sub></sub>

In this manner, *...mo...mo* can take scope under local negation when it is elided by either Argument Ellipsis or V-stranding VP-ellipsis. Thus, we can account for the availability of the narrow scope reading of conjunction under ellipsis since the [F] feature can be eliminated even if they do not move to Spec, *fP*.^{5,6}

The *pro* + AE analysis and the *pro* + AE + VPE analysis, however, are not satisfactory since they cannot account for the lack of the wide scope reading of disjunction. If Argument Ellipsis is available, there is no reason to prohibit it from applying to the overtly moved *NP ka NP*, as illustrated in (22).

- (22) ... [_{fP} ~~*NP ka NP*~~_{[F]] *f* [_{NegP} Neg [_{VP} V *t*]]]}

Thus, it remains a mystery why the wide scope reading of disjunction under ellipsis is unavailable under these two analyses.

3.4. The *pro* + VPE Analysis

The availability of the narrow scope reading of disjunction and that of wide scope reading of conjunction can be accounted for under the *pro* + VPE analysis since the plural-denoting *pro* can

⁴ In (21c), V moves only up to Neg. However, as far as the materials discussed in this paper are concerned, the question of the final landing site of V-movement in Japanese is not an issue.

⁵ The availability of narrow scope reading of disjunction under ellipsis can also be accounted for in the same manner if we (naturally) extend the strong feature analysis to *ka* although this is redundant because the plural-denoting *pro* can yield the narrow scope reading of disjunction.

⁶ Note that it seems to be a general property of PPIs under ellipsis that they lose their polarity sensitivity. *Nanika* ‘something’ is a PPI. However, as shown in (i), it can take scope under local negation in ellipsis.

(i) John-wa nanika-o kat-ta ga, Mary-wa Δ kaw-anak-atta.
 John-TOP something-ACC buy-PAST but Mary-TOP buy-NEG-PAST
 ‘John bought something, but Mary didn’t buy anything.’

yield these readings. This analysis can also account for the availability of narrow scope reading of conjunction because as shown in (21c) above, VP-ellipsis can eliminate [F] of ...*mo...mo* even if *NP-mo NP-mo* does not move to Spec, *fP*.

Furthermore, the lack of wide scope reading of disjunction can be easily accounted for under the *pro* + VPE analysis. As illustrated in (23), V-stranding VP-ellipsis cannot derive a null object sentence if *NP ka NP* moves to Spec, *fP*: the elided VP does not contain *NP ka NP*.

(23) ... [_{fP} *NP ka NP*_[F] [_{NegP} V-Neg [_{VP} ~~*v*~~ ~~*t*~~]]]

Under the *pro* + VPE analysis, V-stranding VP-ellipsis is the sole elliptical option to derive null object sentences. Therefore, the lack of wide scope reading of disjunction under ellipsis is accounted for.

As we have seen, among the four possible analyses about null objects in Japanese, the *pro* + VPE analysis provides the most satisfactory way to account for the interpretive properties of null disjunction and conjunction. Thus, I conclude that Japanese has *pro* and V-stranding VP-ellipsis but not Argument Ellipsis to derive null object sentences.

4. Conclusion

In this paper, I discussed a few peculiar interpretive properties of *ka* and ...*mo...mo* under ellipsis and its implications for the analysis of null objects in Japanese. I concluded that Japanese has *pro* and V-stranding VP-ellipsis but not Argument Ellipsis to derive null object sentences.

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