1. Introduction

This paper attempts to study whether Japanese-speaking preschool children know V-stranding VP-Ellipsis. There are some studies on acquisition of ellipsis in Japanese. Sugisaki (2007) studied whether children can use ellipsis to interpret null-object sentences like (1). The null-object sentence (1b), which follows (1a), has two interpretations as its translations show; sloppy and strict interpretations.

(1) a. Pandasan-ga zibun-no sanrinsya-o aratte-ru yo.
   Panda-NOM self-GEN tricycle-ACC wash-PRES PRT
   ‘The panda is washing his tricycle.’

   b. Butasan-mo _______ e _______ aratte-ru yo.
      Pig-also   wash-PRES PRT
      Sloppy: ‘The pig is also washing his (= pig’s) tricycle.’
      Strict: ‘The pig is also washing his (= panda’s) tricycle.’

The sloppy interpretation in (1b) provides evidence of applying ellipsis to the null-object position as in (2).

(2) Butasan-mo zibun-no sanrinsya-o aratte-ru yo.
    Pig-also self-GEN tricycle-ACC wash-PRES PRT
    ‘The pig is also washing his own tricycle.’

On the other hand, it is argued that the strict interpretation may not come from ellipsis because it can be derived by assuming a null pronoun pro in the empty position. Notice that an overt pronoun forces the strict interpretation as shown in (3). Thus, the sloppy interpretation in (1b) cannot be derived by pro, which is generally supposed to be a null counterpart of an overt pronoun.

* Yoshiki Fujiwara, University of Connecticut, sonyoshiki@gmail.com. I would like to thank William Snyder, Diane Lillo-Martin, Tetsuya Sano, members of Tokyo Psycholinguistic Laboratory and the audience at BUCLD 41 for helpful comments and suggestions. I would also like to thank Maria Yamaguchi for her help in conducting the experiment. I am also grateful to the children and the staffs at their day-care center for offering me the opportunity to conduct the experiment. Of course, all shortcomings are my own.

Butasan-mo sore-o aratte-ru yo.

pig-also it-ACC wash-PRES PRT

‘The pig is also washing it (= the panda’s tricycle).’

Sugisaki experimentally showed that Japanese children aged from 3 to 5 can access the sloppy reading in (1b), which suggests that children around this age have knowledge of ellipsis.

Otaki and Yusa (2012) also show children’s successful acquisition of ellipsis. They observed that Japanese children at age 4-6 could access a quantificational reading in sentences like (4).

(4) a. Panda-wa [san-ko-no booru]-o ket-ta yo.

Panda-TOP three-CL-GEN ball-ACC kick-PAST PRT

‘The panda kicked three balls.’

b. Butasan-mo _______ e _______ ket-ta yo.

Pig-also kick-PAST PRT

Quantificational reading: ‘The pig also kicked three balls.’

Non-quantificational reading: ‘The pig also kicked them (=the balls the panda kicked).’

The quantificational reading is unexpected if the null object is pro since it cannot obtain with an overt pronoun as shown in (5).

(5) Butasan-mo sorera-o ket-ta yo.

Pig-also them-ACC kick-PAST PRT

‘The pig also kicked them (=the balls the panda kicked).’

On the other hand, it can be easily accounted for under an ellipsis analysis as illustrated in (6).

(6) Butasan-mo [san ko no booru]-o ket-ta yo.

Pig-also three-CL-GEN ball-ACC kick-PAST PRT

‘The pig also kicked three balls.’

Their observations suggest children can interpret null-object sentences using ellipsis. However, what kind of ellipsis can children apply? There are two ellipsis analyses in Japanese for null-object sentences. The first is V-stranding VP-ellipsis (Otani and Whitman 1991; Funakoshi 2014), where VP is elided after V-movement. The other is Argument Ellipsis (Oku 1998; Saito 2007), where NP is elided.

(7) a. V-stranding VP-Ellipsis:

Subj [V-Obj] V-I

b. Argument Ellipsis:

Subj [NP-Obj] V I
According to Sugisaki (to appear), Japanese-speaking children around age 4 already know Argument Ellipsis at least. This study focuses on acquisition of V-stranding VP-ellipsis and demonstrates that 5-year-old children have knowledge of it, using null-adjunct sentences as a probe.

This paper is organized as follows. In Section 2, I show that null-adjunct sentences are suitable to test whether children know V-stranding VP-ellipsis. In Section 3, I review a previous study. Section 4 shows the results of my experiment, which suggest that children around age 5 have acquired V-stranding VP-ellipsis. Section 5 discusses acquisition of V-movement, which is a prerequisite for V-stranding VP-ellipsis.

2. Evidence of V-stranding VP-ellipsis

Funakoshi (2014, 2016) provides evidence that Japanese has V-stranding VP-ellipsis. He observes that a null-adjunct reading is unacceptable when only an adjunct is null, while it becomes possible when a clause-mate object is also null. (8a) and (8b) illustrate this point.

(8) Bill-wa teineini kuruma-o arat-ta kedo,  
Bill-TOP carefully car-ACC wash-PAST but
‘Bill washed the car carefully, but…’

John-TOP _______ car-ACC wash-NEG-PAST
*Null-adjunct reading: ‘John didn’t wash the car carefully.’
No-elided-adjunct reading: ‘John didn’t wash the car at all.’

b. John-wa _______ e _______ araw-anak-atta.
John-TOP _______ wash-NEG-PAST
Null-adjunct reading: ‘John didn’t wash the car carefully.’
No-elided-adjunct reading: ‘John didn’t wash the car at all.’

In (8a), only the adjunct phrase teineini ‘carefully’ is deleted from the preceding sentence. In such a sentence, an adjunct cannot be included in the interpretation. The only interpretation for (8a) is what I call the no-elided-adjunct reading, that is, John did not wash the car at all. The unacceptability of the null-adjunct reading in (8a) suggests that adjunct ellipsis is prohibited in Japanese unlike argument ellipsis. In (8b), the adjunct as well as the object is elided. This sentence can be interpreted as John did wash the car but not in a careful way, which is what I call the null-adjunct reading. It includes the adjunct carefully in its meaning. Funakoshi argues that the null-adjunct reading in (8b) is derived through V-stranding VP-ellipsis as shown in the derivation in (9).

---

1 See also Sugisaki (2009) and Otaki (2014) for acquisition of argument ellipsis in Japanese.
In (9), the VP is elided after the verb has moved out of it. Note that argument ellipsis cannot derive the null adjunct reading in (8b) as illustrated in (10). The derivation in (10) has two steps; ellipsis of the object and the adjunct. However, as we saw in (8a), ellipsis of adjuncts is not allowed in Japanese.

\[\begin{align*}
(9) & \quad \text{a. Subj [VP Adj Obj t\textsubscript{v}] V (by V-movement)}
\end{align*}\]
\[\begin{align*}
& \quad \text{b. Subj [VP Adj Obj t\textsubscript{v}] V (by ellipsis of VP)}
\end{align*}\]

In (10), the VP is elided after the verb has moved out of it. Note that argument ellipsis cannot derive the null adjunct reading in (8b) as illustrated in (10). The derivation in (10) has two steps; ellipsis of the object and the adjunct. However, as we saw in (8a), ellipsis of adjuncts is not allowed in Japanese.

\[\begin{align*}
(10) & \quad \text{a. Subj Adj Obj V (by argument ellipsis)}
\end{align*}\]
\[\begin{align*}
& \quad \text{b. *Subj Adj Obj V (*adjunct ellipsis; cf. (8a))}
\end{align*}\]

Thus, the null-adjunct reading in (8b) provides evidence that Japanese has V-stranding VP-ellipsis.

In order to test whether Japanese children know V-stranding VP-ellipsis, I conducted an experiment with sentences like (8b). Before going to the experiment section, I first review Sugisaki (2013), which shows that four- and five-year-old children disallow ellipsis of adjuncts in Japanese.

3. The ban on Adjunct Ellipsis in child Japanese

In order to determine whether preschool children are sensitive to the unavailability of adjunct ellipsis in Japanese, Sugisaki (2013) conducted an experiment with the Truth Value Judgment Task (Crain and Thornton 1998). Fourteen Japanese-speaking children from 3;9 to 5;8 (mean age 5;1) participated. He tested two sentences with adjuncts such as (11a) and two sentences without adjuncts like (11b).

\[\begin{align*}
(11) & \quad \text{Kaerusan-wa ringo-o isoide tabe-ta kedo,}
\end{align*}\]
\[\begin{align*}
& \quad \text{Frog-TOP apple-ACC quickly eat-PAST but}
\end{align*}\]
\[\begin{align*}
& \quad \text{‘The frog ate an apple quickly, but…’}
\end{align*}\]
\[\begin{align*}
& \quad \text{a. Risusan-wa ringo-o isoide tabe-nakat-ta yo.}
\end{align*}\]
\[\begin{align*}
& \quad \text{Squirrel-TOP apple-ACC quickly eat-NEG-PAST PRT}
\end{align*}\]
\[\begin{align*}
& \quad \text{‘The squirrel did not eat an apple quickly.’}
\end{align*}\]
\[\begin{align*}
& \quad \text{b. Risusan-wa ringo-o _______ tabe-nakat-ta yo.}
\end{align*}\]
\[\begin{align*}
& \quad \text{Squirrel-TOP apple-ACC eat-NEG-PAST PRT}
\end{align*}\]
\[\begin{align*}
& \quad \text{*Null-adjunct reading: ‘The squirrel did not eat an apple quickly.’}
\end{align*}\]
\[\begin{align*}
& \quad \text{No-elided-adjunct reading: ‘The squirrel did not eat an apple at all.’}
\end{align*}\]

In (11b), the null-adjunct reading is not allowed although the preceding sentence in (11) contains the adverb \textit{quickly}. The sentence in (11b) just means that the squirrel did not eat an apple and cannot mean that the squirrel did not eat an apple quickly. He tested (11) in the situation where the frog eats an apple quickly and the squirrel eats an apple slowly. In such a situation, (11a) is true, while (11b) is false because the squirrel does eat an apple. If children were not sensitive to the
ban on adjunct ellipsis, they should accept (11b) in the situation where the null-adjunct interpretation becomes true.

The result is as follows. Children correctly rejected (11b) at the rate of 85.7% (24/28), while they accepted (11a) 92.9% of the time (26/28). This suggests that Japanese preschool children around age 4 and 5 already know that adjunct ellipsis is not allowed in Japanese.

In light of this background, the present experiment investigates whether children can access the null-adjunct reading when both adjunct and object are null.

4. Experiment
4.1. Participants and experimental design

In order to see whether Japanese preschool children have knowledge of V-stranding VP-ellipsis, I conducted an experiment with TVJT, using null-adjunct readings as a probe. Twelve Japanese-speaking children (age 5;1 - 6;4/ mean 5;8) participated. The experiment consisted of 2 practice items, 1 filler, and 4 test sentences like (12) and (13). In the second conjunct sentence in (12) and (13), an object as well as an adjunct is null. The potential suffix -e is attached to the verb to make a null-adjunct reading sound natural. The adjunct is preceded by the object in (12) and (13), following the test sentences used in Sugisaki’s (2013) experiment (cf. 11).

(12) Raion-wa kureyon-o motodoorini sima-e-ta kedo,
Lion-TOP crayon-ACC same.as.before put.away-can-PAST but
‘Lion was able to put away crayons the same as before, but...’
K a e r u - w a e s i m a - e - n a k a t - t a .
Frog-TOP put.away-can-NEG-PAST
Null-adjunct reading: ‘Frog could not put away crayons the same as before.’
No-elided-adjunct reading: ‘Frog could not put away crayons at all.’

(13) Raion-wa kureyon-o motodoorini sima-e-ta si,
Lion-TOP crayon-ACC same.as.before put.away-can-PAST and
‘Lion was able to put away crayons the same as before, and...’
K a e r u - m o e s i m a - e - t a .
Frog-also put.away-can-PAST
Null-adjunct reading: ‘Frog was also able to put away crayons the same as before.’
No-elided-adjunct reading: ‘Frog was also able to put away crayons.’

A sample story for (12) and (13) is presented in the following:

(14) A lion and a frog draw pictures with their crayons. A teacher-cat tells them to put their crayons in the box the same as before. The lion puts his crayons in the box very neatly, but the frog cannot. The frog is about to leave without putting crayons in the box. The teacher tells him to finish putting his crayons in the box, even if it's messy. The frog puts his crayons in the box messily.
In this story, the null-adjunct reading in (12) is true, while the no-elided-adjunct reading is not. On the other hand, the null-adjunct reading in (13) is false, whereas the no-elided-adjunct reading is true. If children know V-stranding VP-ellipsis, then they should be able to access the null-adjunct reading. On the other hand, if they do not, they should assign the test sentences a no-elided adjunct interpretation.

4.2. Results and discussion

The results are summarized in Table 1. There were two sentences like (12) and two sentences like (13) for each child. The acceptance rates for (12) were 87.5%, while the rejection rates for (13) were 83.3%. These results indicate that Japanese preschool children around age 5 can access the null-adjunct reading when both object and adjunct are null.

Table 1: Results

<table>
<thead>
<tr>
<th></th>
<th>Sentence (12)</th>
<th>Sentence (13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Null-adjunct reading</td>
<td>Acceptance</td>
<td>Rejection</td>
</tr>
<tr>
<td>No-elided-adjunct</td>
<td>Rejection</td>
<td>Acceptance</td>
</tr>
<tr>
<td>Results</td>
<td>87.5% acceptance (21/24)</td>
<td>83.3% rejection (20/24)</td>
</tr>
</tbody>
</table>

This finding suggests that 5-year-old children have already acquired V-stranding VP-ellipsis in Japanese.

---

2 The contrast is significant by Wilcoxon Signed-Rank Test (n=11, W=53, two-tailed \( p=.0198 \)).
One may wonder why children rejected (13) even though it becomes true under the no-elided-adjunct interpretation. I speculate that this is due to the parallelism requirement imposed by the particle -mo ‘also’ attached to the subject (Funakoshi 2014, 2016). This particle seems to impose the maximal parallelism between the antecedent sentence and the ellipsis sentence. Therefore, the null-adjunct reading was strongly preferred in (13).

However, note that this does not nullify the effect of the V-stranding VP-ellipsis in children’s responses to (13). The parallelism requirement of -mo is not so strong that undeletable items such as adjuncts are included in the interpretation. Thus, in a situation like (14), even if -mo is attached to a subject, it is hard to reject a sentence like (15) that is missing the adjunct. This is because ellipsis of adjuncts is prohibited in Japanese.

(15) Raion-wa kureyon-o motodorini sima-e-ta si, Lion-TOP crayon-ACC same.as.before put.away-can-PAST and ‘Lion was able to put away crayons the same as before, and…’
K a e r u - m o k u r e y o n - o             s i m a - e - t a . Frog-also crayon-ACC put.away-can-PAST
‘Frog was also able to put away crayons.’

Thus, it seems that children’s rejections of (13) under the null-adjunct interpretation actually resulted from their knowledge of ellipsis, that is, V-stranding VP-ellipsis. However, in order to establish this argument, it is necessary to demonstrate that Japanese children, in fact, reject sentences like (15) in situations like (14). I would like to leave this for a future study.

5. Acquisition of V-movement

The results of the experiment indicate that Japanese children around age 5 already have knowledge of V-stranding VP-ellipsis, as illustrated below.

(16) a. Subj [\text{VP} \text{Obj} \text{V}] I
b. Subj [\text{VP} \text{Obj} t\text{V}] V-I
c. Subj [\text{VP} \text{Obj} t\text{V}] V-I

The derivation in (16) has a VP that is elided after the verb has moved to Infl. Thus, the acquisition of V-stranding VP-ellipsis further suggests that Japanese preschool children have successfully acquired V-movement. However, here, a question arises. How do Japanese children come to know V-movement, even though it does not change word order in an SOV language like Japanese?

According to Bobaljik and Thráinsson (1998), the availability of V-movement follows from the availability of the Split IP Parameter (Thráinsson 1996). Their proposal is that a split IP language has V-movement to check V’s formal features with Infl, while an unsplit IP language does not because features of V and Infl can be checked in a local relation; the head-complement relation.
Structures (17) and (18) illustrate the checking configuration between V and Infl in split and unsplit IP languages, respectively.

\[(17) \text{ Split IP language} \]
\[\text{IP} \]
\[\text{Infl} \rightarrow \text{FP}
\text{checking} \]
\[\text{F} \rightarrow \text{VP} \]
\[\text{V} \]

\[(18) \text{ Unsplit IP language} \]
\[\text{IP} \]
\[\text{Infl} \rightarrow \text{checking} \rightarrow \text{VP} \]
\[\text{V} \]

The results of the experiment suggest that children around age 5 already know about string-vacuous V-movement in Japanese, which predicts that they should have successfully set the Split IP Parameter. According to these authors, the split IP languages are characterized by two types of empirical data: they allow (i) multiple specifier positions in the IP complex and (ii) multiple inflectional affixes in the verb system. This is expected since the split IP provides additional positions for specifiers and for inflectional morphemes expressed in heads, given that inflectional morphemes correspond to inflectional heads in the syntax. Japanese seems to have both properties. First, Japanese allows multiple subjects as in (19) (Kuno 1973).

\[(19) \text{ Bunmeikoku-ga dansei-ga heikinzyumyoo-ga mizika-i.} \]
\text{Civilized.countries-NOM male-NOM average.life.span-NOM short-PRES}
\text{‘It is civilized countries that men, their average lifespan is short in.’}

Second, Japanese inflected verbs can express multiple morphemes as in (20). In (20), a polite-marker \text{-masi} and a past tense marker \text{-ta} are attached to the verb.

\[(20) \text{ John-ga ki-masi-ta.} \]
\text{John-NOM come-POL-PAS T}
\text{‘John came.’}

Therefore, the split IP Parameter makes it possible to acquire string-vacuous V-movement in an SOV language like Japanese. Under the Split IP Parameter approach to the V-movement, it is predicted that children who know V-movement should also know about multiple specifiers or multiple inflections in the verb system. In fact, Sugisaki (2003) observed that Japanese children around age 4 already know multiple nominative constructions like (21).
Although it is expected that Japanese children around this age know multiple inflections on the verb system as well, I would like to leave this for a future study.

In conclusion, this study investigated whether Japanese-speaking children know V-stranding VP-ellipsis, using null-adjunct interpretations as a probe. The results of the current experiment showed that Japanese children around age 5 indeed know V-stranding VP-ellipsis, which further suggests that Japanese preschool children have successfully acquired V-movement even though it does not change word order. According to Bobaljik and Thráinsson (1998), such string-vacuous V-movement is still learnable since acquisition of V-movement can be followed by acquisition of a split IP configuration. Children’s task in order to learn V-movement in Japanese is to notice that Japanese has multiple specifiers or multiple inflectional morphemes in the verb system. Thus, the Split IP Parameter approach gives children more detectable evidence to learn V-movement in Japanese.

References


