

# What Children See Is Not What They Get\*

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## 1 Introduction

This study reinvestigates the acquisition of ellipsis in Japanese and pursues the nature of the ellipsis site in child grammar. In the literature on ellipsis, the following questions have been mainly studied (Aelbrecht 2015; Merchant 2019):

- (1) a. Structure Question:  
Is there syntactic structure that is unpronounced in the ellipsis site?

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## b. Identity Question:

What is the relationship between the missing element and its antecedent?

## c. Licensing Question:

What are the licensing conditions on missing materials?

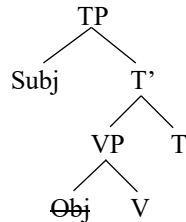
We focus on the structure question in this paper. Pursuing it in first language acquisition sheds light on whether children's syntax allows unpronounced structures or not. If the answer to the structure question in (1) is negative and a non-structural approach is taken (i.e. no deleted parts, no null elements), children's grammar may represent what we could call WYSIWYG, 'what you see is what you get'. In contrast, if the answer is positive and children take the structural approach, their grammar must permit unpronounced syntactic structures.

In this paper, we address this question by studying null-object sentences in Japanese like (2).

- (2) *Tama-wa mizu-o nameteiru. Pochi-mo \_\_\_\_\_ namateiru.*  
 Tama-TOP water-ACC is.licking Pochi-also \_\_\_\_\_ is.licking  
 lit. 'Tama is licking water. Pochi is also licking \_\_\_\_.'

The object in the second sentence in (2) is missing. Under the structural approach, the object is syntactically active and becomes unpronounced by deletion (i.e. ellipsis of arguments), as in (3).<sup>1</sup>

## (3) Structural approach

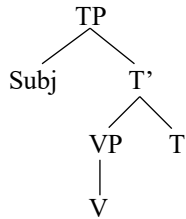


Thus, under this structure, (2) means that both Tama and Pochi are licking water. It has been argued that this structure is in fact possible in Japanese, and ellipsis applied here is known as argument ellipsis (Oku 1998; Saito 2007, among others; cf. Otani and Whitman 1991).

<sup>1</sup> Another kind of structural approach is to posit a phonologically null lexical element in the ellipsis site such as *pro* (Kuroda 1965; cf. Hoji 1998). We'll discuss this issue in Section 4.

In contrast, there is no position for the object in the structure under the WYSIWYG approach. Thus, the underlying structure of (2) should be the following:

(4) WYSIWYG approach



Note that this structure corresponds to a structure of intransitive verbs. In Japanese, most of transitive verbs can be intransitivised. For example, (2) is truth-conditionally true as long as Tama is licking water and Pochi's licking event is going on. Thus, both structures are permitted in Japanese.

The goal of this paper is to see whether child grammar can permit abstract and invisible structures as in (3) or not. However, note that the ellipsis interpretation of (2) derived under (3) is entailed by the intransitive interpretation derived under (4). In other words, 'Pochi is licking water' is true if 'Pochi is licking something' is also true. There are some ways to avoid this 'intransitive entailment'. One way is to use a quantifier (Takahashi 2008).

- (5) *Kuma-san-wa san-ko-no booru-o ket-ta yo.*  
 bear-Mr.-TOP three-CL-GEN ball-ACC kick-PAST PRT  
 'The bear kicked three balls.'
- Kitune-san-mo \_\_\_\_\_ ket-ta yo.*  
 fox-Mr.-also \_\_\_\_\_ kick-PAST PRT  
 lit. 'The fox also kicked \_\_\_\_.'  
 Intransitive (WYSIWYG): 'The fox's kicking event happened.'  
 Ellipsis (structural): 'The fox also kicked three balls.'
- (Otaki 2014: 157)

In (5), the intransitive reading does not entail the ellipsis reading. Suppose that the fox kicked two balls. In this situation, (5) is true under the intransitive reading but not under the ellipsis reading. Another way to avoid the intransitive entailment is to use another *zibun* under negation (Saito 2007).

- (6) *Sensei-wa subete-no ichinensei-ni zibun-no booru-o keraseta.*  
 teacher-TOP all-GEN first.grader-DAT self-GEN ball-ACC kick.made  
 'The teacher let all first-graders kick their own balls.'

*Demo, ninensei-ni-wa* \_\_\_\_\_ *kerasenakatta.*  
 but second.grader-DAT-TOP kick.make.did not  
 lit. ‘But he did not let the second-graders kick \_\_.’ (Saito 2007, 207)  
 Itransitive: ‘But he did not let the second-graders kick anything.’  
 Ellipsis: ‘But he did not let the second-graders kick their own ball.’

Again, the intransitive reading does not entail the ellipsis reading in (6). Therefore, ellipsis readings can tell us whether children allow abstract structures as in (3). If they can access ellipsis readings, their grammar must permit abstract structures. If they cannot, children’s grammar may represent WYSIWYG.

The organization of this paper is as follows: In Section 2, we review previous studies on the acquisition of ellipsis by Japanese children. Although some studies have already reported that Japanese children can access ellipsis interpretations, we point out an alternative explanation for their data: the parallelism strategy. Section 3 presents our experiment, which shows that Japanese children around age 5 permit an abstract syntactic structure. In Section 4, we compare one type of the structure approach to another and consider the further implications of our findings.

## 2 Previous Studies

Many studies have investigated the acquisition of ellipsis in Japanese (Fujiwara 2017; Fujiwara and Shimada 2019; Matsuo 2007; Otaki and Yusa 2009, 2012; Otaki 2014; Sugisaki 2007, 2009, 2012, 2013a, 2013b, 2018), and most of them have investigated whether Japanese children can access ellipsis readings in sentences containing null arguments. Table 1 summarizes the results of their studies.

Previous studies	Age	Ellipsis?
Sugisaki (2007)	3;1-5;4 / M 4;5	Yes
Matsuo (2007)	3;7-6;11 / M 5;4	Yes
Otaki & Yusa (2009)	4;4-5;11 / M 5;3	No
Otaki & Yusa (2012)	4;3-6;2 / M 5;2	Yes
Sugisaki (2009, 2013)	4;11-6;7 / M 5;10	Yes
Sugisaki (2018)	3;10-4;7 / M 4;4	Yes
Fujiwara & Shimada (2019)	5;3-5;11 / M 5;8	No

Table 1: Summary of child’s age and the results of previous studies

Although some studies have reported that Japanese children around age 4 to 5 can access ellipsis readings, we point out an alternative explanation for their

data: the parallelism strategy. To clarify this point, let's consider Otaki and Yusa's (2012) study.

- (7) a. *Kuma-san-wa san-ko-no booru-o ket-ta yo.*  
 bear-Mr.-TOP three-CL-GEN ball-ACC kick-PAST PRT  
 'The bear kicked three balls.'
- b. *Kitsune-san-mo \_\_\_\_\_ ket-ta yo.*  
 Fox-Mr.-also kick-PAST PRT  
 lit. 'The fox also kicked \_\_\_\_.'  
 Intransitive: 'The fox also kicked something.'  
 Ellipsis: 'The fox also kicked (a new set of) three balls.'

They tested sentences like (7b) with a Truth Value Judgment task (Crain and McKee 1985) to see if children can access the ellipsis reading, and found that the children accessed the ellipsis reading in (7) like adults. Notice that *-mo* 'also/too' is attached to the subject in (7b). It has been argued that this element principally imposes the maximal parallelism between the sentence with *-mo* and its preceding sentence (Funakoshi 2014). We suspect that the children in their experiment might have interpreted (7b) with this parallelism property and without using ellipsis. In fact, the same reading can be obtained with this property irrespective of ellipsis. The preferred interpretation of (8), following (7a), corresponds to the ellipsis reading 'the fox also kicked three balls.'

- (8) *Kitsune-san-mo.*  
 fox-Mr.-also  
 'The fox, too.'

This suggests that as soon as they interpret the parallelism property of *-mo* in (7b), children can correctly access the ellipsis reading even if they ignore the rest of the sentence. This is what we call the parallelism strategy. Since *-mo* is also contained in the target sentences of Matsuo's (2007) and Sugisaki's (2007, 2009, 2013) experiments, the parallelism strategy may have been at work in their experiments, too. Thus, to make sure that the parallelism strategy cannot be used, we have to avoid using *-mo* in target sentences. Also, it is better if we can ensure that children listen to the whole sentences.

On the other hand, Sugisaki (2018) tested sentences like (9), which do not contain *-mo*, with a Truth Value Judgment task.

- (9) *Anpanman-wa zyoozuni zibun-no wantyan-o tobikoeta*  
 Anpanman-TOP successfully self-GEN puppy.dog-ACC jumped.over  
 'Anpanman successfully jumped over his own dog.'

*kedo, Miffy-wa \_\_\_\_\_ hunzuketyatta yo.*  
 but Miffy-TOP stepped.on PRT  
 lit. ‘but Miffy stepped on \_\_\_\_.’ (Sugisaki 2018, 51)  
 Intransitive: ‘but Miffy stepped on something.’  
 Ellipsis: ‘but Miffy stepped on her own dog.’

Note, however, that this sentence does not exclude the intransitive entailment discussed in Section 1. (9) is truth-conditionally true as long as Miffy stepped on something. Thus, this sentence does not tell us whether children’s syntax is abstract or WYSIWYG.

Table 2 summarizes the possibilities of the parallelism strategy and the intransitive entailment in the previous studies.

Previous studies	Ellipsis?	Parallelism strategy	Intransitive entailment
Sugisaki (2007)	Yes	✓	✓
Matsuo (2007)	Yes	✓	✓
Otaki & Yusa (2009)	No	×	×
Otaki & Yusa (2012)	Yes	✓	×
Sugisaki (2009, 2013)	Yes	✓	×
Sugisaki (2018)	Yes	×	✓
Fujiwara & Shimada (2019)	No	×	×

Table 2: Summary of the possibilities of the parallelism strategy and the intransitive entailment in the previous studies

Note that none of the previous studies have succeeded in excluding both possibilities except Otaki and Yusa (2009) and Fujiwara and Shimada (2019), which have reported that children fail to access ellipsis readings. Hence, further investigation is necessary in order to see whether children’s syntax is abstract or WYSIWYG.

### 3 Experiment

In order to avoid the possibilities of the parallelism strategy and the intransitive entailment, we tested sentences with a topic-marked subject and quantificational object, as in (10).

- (10) a. *Usagi-wa mit-tsu-no ringo-o tabeta kana?*  
 rabbit-TOP 3-CL-GEN apple-ACC ate Q  
 ‘Did the rabbit eat three apples?’
- b. *Usagi-wa \_\_\_\_\_ tabeta yo.*  
 lit. ‘The rabbit ate \_\_\_\_.’  
 Intransitive: ‘The rabbit ate something.’  
 Ellipsis: ‘The rabbit ate three apples.’
- c. *Usagi-wa \_\_\_\_\_ tabenakatta yo.*  
 lit. ‘The rabbit didn’t eat \_\_\_\_.’  
 Intransitive: ‘The rabbit did not eat anything.’  
 Ellipsis: ‘The rabbit did not eat three apples.’

(10a) is an antecedent clause of (10b) and (10c), whose object is missing. Notice that the subject of (10b) and (10c) is not marked with *-mo* ‘also/too’ so that the parallelism strategy should not be at work here. Also, testing both affirmative and negative sentences enable us to make sure that children pay attention to the whole sentences. If children judge the sentences without listening to them until the end, their judgments of (10b) and (10c) would be the same. Hence, testing both affirmative and negative sentences enables us to exclude ‘hasty’ children from the analysis. Note also that the intransitive readings in (10b) and (10c) do not entail the ellipsis readings.

The method of this experiment was a Truth Value Judgment task with question-answer pairs. In this method, a puppet was asked a question like (10a) after a story, and participants were asked to judge whether the puppet’s answer such as (10b) and (10c) matched the story. A sample story for (10) is given in (11).

- (11) Story: A monkey eats three apples. A rabbit also tries to eat three apples, but he eats only two because he becomes full.

In this story, (10b) is false under the ellipsis reading and true under the intransitive reading. On the other hand, (10c) is true under the ellipsis reading and false under the intransitive reading. There were three items like (10b) and three items like (10c). The verbs we used were *taberu* ‘eat’, *kau* ‘buy’, and *hakobu* ‘carry’.

Thirteen adults and 23 children (age 4;11-6;4, Mean 5;7) participated. We excluded three children from the analysis because they gave the same answers to both (10b) and (10c) five times or more out of six, which suggested that they ignored the latter part of the sentences.

If children's grammar is WYSIWYG (i.e. the nonstructural approach), they should access the intransitive readings in (10b, c). In contrast, if their grammar permits unpronounced syntactic structures, their access to the ellipsis readings is expected. The result of the experiment is summarized in Table 3.

	Ellipsis	Intransitive	Children	Adults
Affirmative (10b)	Reject	Accept	88.3% rejection	100% rejection
Negative (10c)	Accept	Reject	90% acceptance	100% acceptance

Table 3: Result of our experiment

As in Table 3, the children mostly rejected (10b) and accepted (10c). The adults completely rejected (10b) and accepted (10c). Thus, the children accessed the ellipsis readings like adults. This suggests that children's grammar permits unpronounced syntactic structures; their grammar is not WYSIWYG.

#### 4 Discussion: Ellipsis vs *pro*

The result of our experiment shows that Japanese children permit an unpronounced syntactic object in their grammar. This section discusses its nature in more detail. It has been argued that Japanese has at least two ways to derive null arguments. One way is to apply deletion to a relevant item, which we have assumed throughout the paper. This is known as ellipsis (Otani and Whitman 1991; cf. Oku 1998).<sup>2</sup> The other way is to put a phonologically null lexical item in a relevant position throughout the syntactic computation. This is known as a null pronoun *pro* in Japanese (Kuroda 1965; cf. Hoji 1998). Note that positing *pro* is also a structural approach since it supposes an unpronounced syntactic structure in the ellipsis site. It has been widely assumed that both deletion and *pro* are allowed in Japanese grammar, and they provide different interpretations (Takahashi

<sup>2</sup> We do not discuss the LF-copy approach to ellipsis, which is another type of structural approach (Oku 1998; Saito 2007; Sakamoto 2017). It assumes that a missing element is not present in overt syntax, and it is copied onto a relevant position at LF from a linguistic antecedent. Our study cannot tell whether Japanese children apply deletion and/or LF-copy to ellipsis. We leave this issue for future research.



2008b). Under the deletion analysis, a missing element is interpreted in the same way as its overt counterpart in the antecedent clause, while the *pro* analysis supposes that a missing element is a definite pronoun (Kuroda 1965) or indefinite noun (Hoji 1998). It has been argued that an interpretation derived by deletion is different from one with *pro* (see Otaki 2014). This can be confirmed even in our target sentences by seeing their overt counterparts of the definite and indefinite *pro* analyses. In (12), an overt pronoun occupies the object position, while in (13), an indefinite overt noun appears as an object.

- (12) a. *Usagi-wa sore-ra-o tabeta yo.* (cf. 10b)  
 rabbit-TOP it-PL-ACC ate PRT  
 ‘The rabbit ate them.’  
 b. *Usagi-wa sore-ra-o tabenakatta yo.* (cf. 10c)  
 rabbit-TOP it-PL-ACC did.not.eat PRT  
 ‘The rabbit didn’t eat them.’
- (13) a. *Usagi-wa ringo-o tabeta yo.* (cf. 10b)  
 rabbit-TOP apple-ACC ate PRT  
 ‘The rabbit ate apples.’  
 b. *Usagi-wa ringo-o tabenakatta yo.* (cf. 10c)  
 rabbit-TOP apple-ACC did.not.eat PRT  
 ‘The rabbit didn’t eat apples.’

Both (12a) and (13a) are true in the situation we used in our experiment (i.e. 11), while both (12b) and (13b) are false in the same situation. Remember that these truth values are opposite to the truth values we get under the ellipsis readings in (10), and that the children accessed the ellipsis readings. This suggests that they derived abstract syntactic structures by syntactic operation *deletion* rather than postulating phonologically null lexical items such as *pro*. In other words, children favored the deletion approach over any other approaches that derive null-object sentences such as the non-structural approach and the (in)definite *pro* approaches.

The question that arises here is why children favor the deletion approach. Furthermore, why doesn’t Universal Grammar just let children use null lexical elements? We argue that this is because child grammar is constructed to be economical. There are many kinds of ellipsis across the languages. Japanese has a great variety of ellipsis phenomena such as argument ellipsis, V-stranding VP-ellipsis, sluicing, N’-ellipsis, fragment answer, and particle stranding ellipsis. Obviously, positing different types of null elements in each ellipsis case requires a lot of pragmatic inferences and is too costly. On the other hand, the deletion approach reuses syntax, LF-semantics, and probably PF-representation of a linguistic antecedent. In this sense, the deletion strategy is more economical than the *pro* strategy. Roeper (2019) also argues

that the grammar is easier to use than pragmatic inferences, and the acquisition path follows the principle below:

- (14) Minimization Goal:  
 Minimize *pragmatic inference* and maximize the information determined by grammar. (Roeper 2019, 278)

Hence, the acquisition of deletion is a desirable result: deletion is required to minimize pragmatic inferences. The attested preference for the ellipsis readings to other readings in our experiment is expected under the idea here.

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