L1 ACQUISITION OF JAPANESE ZERO PRONOUNS: THE EFFECT OF DISCOURSE FACTORS[*]

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1.   Introduction

In this paper, I focus on the properties of Japanese zero pronouns from a discourse perspective and investigate how young Japanese-speaking children acquire the properties that constrain the use of null objects; zero pronouns in object position.
    Japanese is one of the languages that allow zero pronouns both in subject and object positions. Unlike so-called 'pro-drop' languages such as Italian and Spanish, Japanese does not have verb agreement, and therefore zero pronouns cannot be identified from the verb forms. Instead, the identification of Japanese null arguments is done through discourse. The following example shows the use of Japanese null objects in discourse.

(1) *"harii pottaa"   no   eega* -ga   *ninki-da.*
     Harry Potter   of movie-Nom   popular-pres.
     'The movie "Harry Potter" is popular.'

     takusan   no   hito -ga Ø   *mita*   *soo da.*
     many   of   person-Nom   watched   hear-say
     'I heard that many people   watched (it)'

     tomodachi   mo Ø   *omoshirokatta   to   itte ita.*
     friends   too   interesting-past   Comp   say-pst.prg.
     'My friends also said that (it) was interesting.'

     watashi   mo   raishuu   Ø   *miru   tsumori da.*
     I   too   next week   watch   intend-to
     'I am going to watch (it) next week too.'

The zero pronouns in the passage above are all coreferred with the topic '*Harry Potter*.' Null objects seem to be identified with the most salient topic NP in the discourse.
    In the following sections, I investigate discourse factors which constrain Japanese null object distribution and examine the use of null objects in children's L1 grammar from a discourse perspective. Specifically, I argue that young Japanese-speaking children's null objects are not random 'omission' of arguments but the realization of zero pronouns in the direct object position and demonstrate

that Japanese zero pronouns are High Accessibility Markers with highly accessible, salient antecedents.

2. Background

2.1. Identification of Zero pronouns

Huang (1984) categorized languages like Chinese, Japanese and Korean as 'discourse-oriented' languages. In such languages, *pro*-drop is allowed more freely than languages with a rich agreement system such as Spanish and Italian, and null subjects and null objects can occur in both matrix and embedded clauses. According to Huang, the topic of a sentence is deleted when it is identified with the topic of the preceding sentence. This idea of 'Topic NP Deletion' originally comes from Tsao (1977). Tsao states that once a topic appears in discourse, it is deleted in the subsequent sentences, forming *topic chains*, which connect null topics to the original referents. In the above example (1), topic chains are indicated by lines. These lines connect each zero pronoun to the original referent, namely the topic '*the movie Harry Potter*.' In simple clauses where there is no overt antecedent for a null object, the referent of the null object must be identified outside the sentence. Thus, in Japanese, when zero pronouns are used, they are identified by an overt nominal antecedent in the discourse.

2.2. Null Objects in L1 Acquisition

Hirakawa (1993), Wang et al. (1992) and Guerriero et al. (2001, 2002) examined the production data by young children speaking a discourse-oriented language (Japanese or Chinese), and showed that the children produced null objects when they were as young as two years old. Specifically, Hirakawa (1993) conducted a longitudinal study with a young Japanese-speaking child and found that the child produced null objects before she had shown evidence of syntactic variables[1]. Hirakawa's study suggests that null object use by young Japanese-speaking children is not constrained by syntactic properties that they must acquire, and that some sort of discourse or pragmatic identification may be involved. Wang et al. (1992) and Guerriero et al. (2001, 2002) have shown that young children speaking a discourse-oriented language produce null objects when they are as young as two years old, and more importantly, that children produce null objects more frequently than adults. Guerriero et al. also found that differentiation between Old and New information affected the use of referential forms in Japanese L1 speakers.

The studies above suggest that young children's use of null objects is not predicted only by syntactic properties, but that discourse properties such as the Given / New contrast may better explain how null objects are used. Following a discourse approach toward the distribution of null objects in Japanese, I adopt Ariel's (1990) Accessibility Theory in order to examine young Japanese-speaking

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[1] Hirakawa tested the hypothesis of Jaeggli and Hyams (1987) that children speaking a discourse-oriented language should not produce null objects until they have developed syntactic variables in their grammar.

children's null object use and to explain how it is similar or dissimilar to that of adults.'

3. Null Objects and Discourse Analysis

3.1. Accessibility Theory

Ariel (1990) proposed the Accessibility Theory which demonstrates how referential expressions correlate with their NP antecedents. Accessibility is determined by the relationship of a particular antecedent with respect to a particular anaphor. According to Ariel, referential expressions are categorized into different degrees of Accessibility depending on how readily they are correlated with their antecedents. Accessibility corresponds to different statuses within memory and retrieval of memory, and therefore a highly activated entity in memory is more accessible than those that are less activated. Thus, a highly activated entity correlates with highly accessible antecedents in the discourse. The example in (2) shows the types of Accessibility Markers in English:

(2) Three Accessibility Marker types (English):
    High Accessibility Markers – pronouns, clitics, etc.
    Intermediate Accessibility Markers – demonstratives, demonstrative+NP, etc.
    Low Accessibility Markers – definite expressions, names, etc.

English pronouns are High Accessibility Markers and correlate with entities that are most accessible, that is, clear and easy to be identified in the context.
    As for antecedents, some potential antecedents are more accessible than others, and thus High Accessibility Markers correlate with highly accessible antecedents, and Low Accessibility Markers with least accessible antecedents. While Accessibility Markers differ in degrees of Accessibility depending on their linguistic forms, how accessible an antecedent is is affected by some discourse factors. In example (3), three discourse factors that affect the Accessibility of antecedents are shown:

(3) *Saliency:* the antecedent being a salient referent, whether it is a topic or a non-
        topic.
    Competition: the number of competitors for the role of antecedent.
    Distance: the distance between the antecedent and the anaphor.

The 'Saliency' factor indicates that some entity in discourse is more salient than others, such as a topic, which is most often pronominalized in English. The 'Competition' factor tells us that if the number of competitors is large, an antecedent becomes less accessible than when the number of competitors is small. The 'Distance' factor indicates that if the distance between an anaphor and the antecedent is large, the antecedent becomes less accessible than when the distance between them is small. These three factors usually co-exist in regular discourse and antecedents are affected by more than one factor.

3.2. Accessibility Markers in Japanese

3.2.1. Accessibility Marking Scale

I adopt Ariel's Accessibility Theory into Japanese and argue that Japanese zero pronouns are High Accessibility Markers that correlate with highly accessible antecedents, namely Discourse Topics. The Accessibility scale for Japanese referential systems is as follows:

(4)   Zero pronoun   >   Overt pronoun   >   Full Noun

Unlike English, Japanese overt pronouns are not High Accessibility Markers but Intermediate Accessibility Markers, which are lower in Accessibility than zero pronouns. The following example (5) illustrates that the topic of the sentence is best realized as a zero pronoun in the second clause.

(5)   *kyonen   hon[topic]-o   chuumon-sita ga, mada   Ø /?sore -o /??hon -o*[2]
      last year book   -Acc order-past   but yet   Ø / it -Acc/ book -Acc
      uketotteinai.
      receive-prg-not
      '(I) ordered a book last year but haven't received (it/?that/??book) yet.'

The zero pronoun is the most appropriate referential choice in the examples above, whereas the overt pronoun or the full noun is odd-sounding.

3.2.2. Discourse Factors for Zero Pronouns

I argue that the central factor for the use of zero pronouns (null objects in particular) is Saliency (whether or not it is a topic), and that Distance and Competition are secondary factors. That is, even though there are several competitors for one antecedent, if the discourse topic is salient in the discourse, zero pronouns should be used instead of other referential forms. In the same way, if the distance between the antecedent and the anaphor is not too large to make coreference, zero pronouns but not overt pronouns or definite expressions should be used to refer back to the topic.
      Example (6) contains one null object and two potential referents, namely, '*the books*' or '*the movie tickets*.' Semantically, both of them fit as the object of the verb '*to buy*.' Between these two referents, one is closer to the null object than the other (here, '*the tickets*' over '*the books*'). The factor Distance comes into play in this; the closest antecedent is higher in Accessibility. The zero pronoun should corefer to the antecedent which is higher in Accessibility, thus, '*tickets*' are chosen over '*books*.'

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[2] Although there is also another referential choice of 'demonstrative + noun,' this is not pointed out since the focus of this paper is not on lexical referents, nor is it to make a detailed scale for a variety of lexical expressions.

(6) *"harii pottaa" no   hon   -ga   ninki-da.*
Harry Potter   of   book   -Nom   popular-pres.
'The books "Harry Potter" are popular'

*eiga   no   **chiketto** mo   yoku   ure-teiru   soo da.*
movie   of   ticket   too   well   sell-prs.prg.   hear-say
'I heard that movie tickets are also selling well'

ashita   Ø   kaoo   to   omou.
tomorrow   buy-vol.[3]   Comp   think
'I think I will buy (it=ticket)[4] tomorrow'

The factor Distance is overridden when a referent is established as a null topic by a topic chain. In such cases a null object will have only one interpretation, that is, the topic is coreferred with the null object. In the next example (7), for instance, the NP '*The Lord of the Rings*' becomes the topic of the discourse and is realized as null in the second sentence, thus creating topic chains.

(7) ***"roodo obu za ringu***"   *-ga   ninki-da.*
Lord of the Rings   -Nom   popular-pres.
'"The Lord of the Rings" is popular'

Ø   "harii pottaa" to   onaji   kurai   ure-teiru   soo da.
Harry Potter   with   same   degree   sell-prs.prg.   hear-say
'I heard that (it) sells as much as "Harry Potter"'

ashita   Ø   kaoo   to   omou.
tomorrow   buy-vol.   Comp   think
'I think I will buy (it = "The Lord of the Rings") tomorrow'

The difference between (6) and (7) is the existence of a zero pronoun (in this case, a null subject) in the second sentence in (7). Although another NP, '*Harry Potter*', is introduced in the second sentence and is closer to the null object in the third sentence, the first NP '*The Lord of the Rings*' must be coreferred with the null object. Now that it is a discourse topic, '*The Lord of the Rings*' has become a salient referent among other possible referents. Then, by the Saliency factor, the discourse topic '*The Lord of the Rings*' is higher in accessibility than the new item '*Harry Potter*'. Thus, as long as the distance between the antecedent and the anaphor is not so large, Discourse Topics are always highly accessible antecedents.
    Now let us turn to overt pronouns. Overt pronouns are categorized as Intermediate Accessibility Markers, and then they should show different behaviors than zero pronouns in terms of accessing NPs in discourse. Intermediate Accessibility Markers should be used when an antecedent is not the most accessible entity or when the topic has been changed. The following example (8) is

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[3] 'vol' represents volitional forms, expressing a speaker's volition to do something.
[4] There is a discrepancy in corresponding referents for the English gloss, but since Japanese does not have singular/plural forms in nouns, this is not a problem.

very similar to (7), but the last zero pronoun is replaced by an overt pronoun, '*sore*' ('it/that'):

(8)   *"roodo obu za ringu"*   -ga   *ninki-da.*
       Lord of the Rings   -Nom   popular-pres.
       '"The Lord of the Rings" is popular.'

       Ø   *"harii pottaa" to   onaji   kurai   ure-teiru   soo da.*
             Harry Potter   with   same   degree   sell-prs.prg.   hear-say
       'I heard that (it) sells as much as "Harry Potter."'

       *ashita   **sore** -o   kaoo   to   omou.*
       tomorrow   it   -Acc   buy-vol.   Comp   think
       'I think I will buy it (=?"The Lord of the Rings/Harry Potter") tomorrow.'

Although the interpretation of the pronoun depends on the whole topic of the discourse, the use of an overt pronoun in this context is not only odd-sounding, but also makes the interpretation difficult. The pronoun can be interpreted as either the first NP '*The Lord of the Rings*' or the closest NP '*Harry Potter*,' and it is unclear which referent the speaker intends. The difference between (7) and (8) thus shows that zero pronouns and overt pronouns do not work in the same way in Japanese.

4.   Research Hypotheses

The hypotheses for this study are as follows: 1) Japanese zero pronouns are High Accessibility Markers and correlate with highly accessible antecedents, namely, discourse topics; 2) Young Japanese-speaking children are aware of the existence of zero pronouns and null topics. This means that empty argument positions in children's production are not random omission of arguments, but actually the realization of zero pronominals; 3) If children use zero pronouns as adults do, the occurrence of null objects should be correlated with discourse topics or other highly accessible antecedents. On the other hand, the occurrence of overt pronouns, unlike zero pronouns, should not be frequent when the same discourse topic is maintained.

An experiment was conducted in order to examine how young Japanese-speaking children identify the antecedent of null objects.

5.   Experiment

5.1.   Subjects

The subjects were ten Japanese-speaking children[5] who resided in Montreal or Ottawa at the time of testing. Their ages ranged from 2;5 to 4;0 with a mean age of 3;2. The children were divided into two groups; 4 children in a 2 year-old group

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[5] Four out of 10 children were bilingual (3 Japanese-English, 1 Japanese-Spanish). Since their mothers were all Japanese native speakers and the children's dominant language at the time of the experiment was Japanese, this had little influence on the results.

(age 2;5-3;0), and 6 children in a 3 year-old group (age 3;2-4;0). In addition, four adult Japanese native speakers served as controls.

5.2. Two Tasks

The tasks involved four different stuffed animals (a bear, a bunny, a cat, and a dog) and nine object items made of playdough (an apple, a ball, a banana, a cake, a flower, a hamburger, an ice cream cone, an orange, and a pizza).

5.2.1. Object Choice Task

An object choice task was developed to examine the interpretation of null objects by young Japanese-speaking children. The experimenter read test sentences and children were asked to pick out the item that a null object represented. In order to prevent children from getting distracted by various test materials (i.e. stuffed animals, etc.), all of the animals/items were covered with a large handkerchief at first. The handkerchief was removed right after each sentence was read. There were 5 sentence types, and each child had 2 trials for each type. There were also 5 distracters with lexical objects instead of null objects. The sentence types are illustrated in (9) in English.

(9)   i) Topic-identified:
       There is an apple. Please find Ø.

       ii) Not topic-identified:
       Kitty wants to eat Ø. Please bring(inanimate)[6] Ø.

       iii) Topic chain:
       Bunny bought an apple. Bunny put Ø near a cake. Please bring(inanimate) Ø.

       iv) Multiple referents:
       Kitty is sleeping. Doggy is playing. Please bring(animate) Ø.

       v) Overt pronoun:
       Bear bought a cake. Bear put Ø next to a banana. Please bring(inanimate) it.

   In type (i) sentences, there is only one referent for the null object in the preceding sentence, namely, 'an apple.' Then this should be coreferred with the null object in the second sentence. In type (ii) sentences, there is nothing in the first sentence that is coreferred with the null object in the second sentence. Because no syntactically overt referent is present, the referent of the null object is ambiguous in this type. Yet, prior to this type of sentences children were asked to pick out any item from the test materials. Then, even though the referent was not overtly mentioned, the children should corefer the item they had at hand (the contextually salient item) as the referent of the null object. Type (iii) sentences contain two null

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[6] Japanese has two different verbs for 'to bring.' One is *tsuretekuru* 'to bring human/animals,' and the other, *mottekuru* 'to bring inanimate things.'

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objects in separate sentences, and they are connected by topic chains. In addition, there are two potential referents in this type (in the above example, 'an apple' and 'a cake'). Because of the topic chain, the referent of the last null object should be the one introduced in the first sentence (long distance (LD) item). Type (iv) sentences also contain two potential referents for the null object. However, unlike type (iii) sentences, type (iv) do not contain any topic chains. Then, either item (LD or closest NP) can be the referent of the null object. Type (v) sentences are very similar to type (iii), except that lexical objects were used in place of null objects. Since overt pronouns are Intermediate Accessibility Markers in Japanese, the correlation of the Markers to the antecedent is not as clear as that of zero pronouns. Therefore, the referents of overt pronouns could be either the LD item or the closest NP.

5.2.2. Elicited Production Task

An elicited production task was developed to test the children's production of null objects. The experimenter acted out a short story using stuffed animals and objects items. Children were asked to describe what was going on. Their utterances were audio-recorded using a DAT digital tape recorder. There were two types of stories: One type contained only one inanimate item to encourage the children to use null objects. The other type of story contained several inanimate items so that it discouraged them to use null objects. Each child had one trial for each type.

(10)   a) Story containing one inanimate item:
Bear buys *an orange* at the store and puts it in a basket. As he walks, the orange drops out of the basket. Doggy comes by and picks up the orange, goes to see Bear, and returns the orange to him.

b) Story containing several inanimate items:
Kitty carries *an apple* in a basket. The apple drops out of the basket. She goes on and finds *an orange* on the way. She picks it up and puts it in the basket. She stops at the store and buys *a pizza* but she puts *a flower* in the basket.

6.   Results

6.1.   Object Choice Task

The referent choice for items for each test sentence in the children's and adults' performance was counted. Table 1 shows the comparison between type (i) and (ii) sentences. When there was a topic present in the discourse (type i), the topic was chosen as the referent of the null object. However, when there was no explicit topic mentioned in the discourse (type ii), both adults and children chose the contextually salient item most of the time.

Table 1: Percentage of choice of items for type i (topic-identified) and type ii (Not topic-identified)

Subject Group	Children 2yrs		Children 3yrs		Adults	
Sentence Type	i	ii	i	ii	i	ii
Item in sentence (target for type i)	100 (8)	0 (0)	100 (11)	10 (1)	100 (8)	12.5 (1)
Item they had	N/A	85.7 (6)	N/A	70 (7)	N/A	87.5 (7)
Other item	0 (0)	14.3 (1)	0 (0)	20 (2)	0 (0)	0 (0)
Total	100 (8)	100 (7)	100 (11)	100 (10)	100 (8)	100 (8)

Row scores are given in parentheses.

Table 2 compares the results of type (iii) and type (iv) sentences. In the third type of test sentences, 75% of responses by adults and older children (3 year-olds) were target items, which were the referents connected by topic chains. The adults chose the target item *and* the closest NP for the rest of the responses (25%), interpreting the referent of a null object as plural. The younger children (2 year-olds), on the other hand, chose the target items 37.5% of the time, less frequently than the adults and older children. Fifty percent of the time, the 2-year old children chose the closest lexical NP, and 12.5% of the time they chose other items as the referents of the null objects.

In type (iv) sentences, when there were two possible referents present in the test sentences, adults chose both (LD and closest NP) of the items as the referents of the null objects 50% of the time. Younger children again preferred the closest NPs as the referents of the null objects 57% of the time and long distance (LD) items 28.6% of the time. Older children, on the other hand, preferred LD referents to the closest NPs. They also chose both of the two possible referents 30% of the time.

Table 2: Percentage of choice of items for type iii (topic chain) and type iv (multiple referents)

Subject Group	Children 2yrs		Children 3yrs		Adults	
Sentence Type	iii	iv	iii	iv	iii	iv
LD item (target for type iii)	37.5 (3)	28.6 (2)	75 (9)	40 (4)	75 (6)	12.5 (1)
Closest NP	50 (4)	57.1 (4)	16.7 (2)	20 (2)	0 (0)	25 (2)
LD & closest NP	0 (0)	14.3 (1)	0 (0)	30 (3)	25 (2)	50 (4)
Other item	12.5 (1)	0 (0)	8.3 (1)	10 (1)	0 (0)	12.5 (1)
Total	100 (8)	100 (7)	100 (12)	100 (10)	100 (8)	100 (8)

Row scores are given in parentheses.

Table 3 compares the results of type (iii) and type (v) sentences. When overt pronouns were used in place of zero pronouns, the adults chose the first (LD) item 75% of the time as the referent of an overt pronoun. This pattern was just the same in type (iii) (topic chain) sentences, where zero pronouns were used instead of overt pronouns. The younger children chose LD items 50% of the time, and the closest NPs 50% of the time. Compared to the younger children, the older children's responses for long distance NPs increased up to 63.6%, and the choice of the closest NPs decreased (36.4%).

Table 3: Percentage of choice of items for type iii (topic chain) and v (overt pronoun)

| Subject Group	Children 2yrs		Children 3yrs		Adults	
Sentence Type	iii	v	iii	v	iii	v
LD item (Discourse Topic)	37.5 (3)	50 (4)	75 (9)	63.6 (7)	75 (6)	75 (6)
Closest NP	50 (4)	50 (4)	16.7 (2)	36.4 (4)	0 (0)	12.5 (1)
LD & closest NP	0 (0)	0 (0)	0 (0)	0 (0)	25 (2)	12.5 (1)
Other item	12.5 (1)	0 (0)	8.3 (1)	0 (0)	0 (0)	0 (0)
Total	100 (8)	100 (8)	100 (12)	100 (11)	100 (8)	100 (8)

6.2.   Elicited Production Task[7]

The data obtained from the elicited production task were transcribed in CHAT. The objects were later coded for referential form (whether the object was null, pronominal, or lexical) and status of their antecedents (the presence or absence of the referents in the previous discourse). When the antecedent of a null object appeared in previous discourse (in such cases, the antecedent tends to be the topic of the discourse), then it was coded as 'topic-identified' (*TI*). On the other hand, if the argument (null or overt) was not present in the previous discourse, it was coded as 'Not topic-identified' (*Not-TI*). Based on the context where null or overt objects were used (topic-identified or Not topic-identified), the results from adult and child data are summarized in Figure 1.

Both the adults and children produced null objects most often when the referents appeared previously in the discourse (topic-identified): children (86.4%), adults (52.4%). In contrast, when the referents had not been mentioned previously (Not topic-identified), the use of null objects decreases in both groups: children (31.8%), adults (0%). In the contexts where a referent hadn't been previously mentioned (Not-TI), the use of lexical arguments became more frequent in both adults (100%) and children (63.6%). However, the children still produced more null objects than adults in such contexts (Not-TI).

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[7] For this task, 2 out of the 3 children from the 2 year-old group produced no transitive verbs. Since there was not enough children in the younger group, the children's results were not divided by age group.

Figure 1: Object use by adults and children
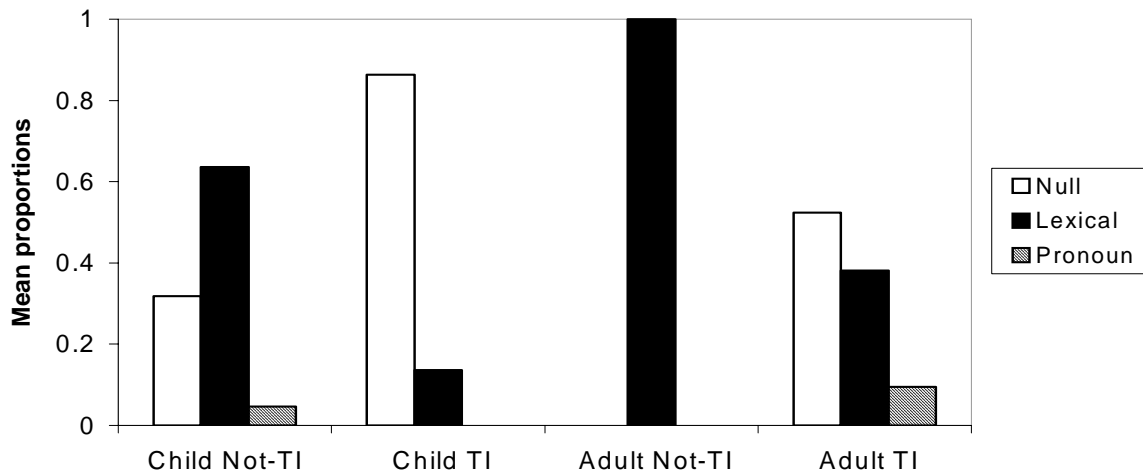
As for the use of overt pronouns, adults used overt pronouns when a referent had been introduced into the discourse (topic-identified). Only one child produced an overt pronoun in the elicited production task, in a Not topic-identified context. No children in this study used overt pronouns to refer back to the items/facts in the previous discourse.

7.   Discussion

The results of the two tasks generally show that both the children and adults correlated null objects with the items that had already appeared in the discourse. That is, children, like adults, are sensitive to the existence of zero pronouns in Japanese and use them productively as High Accessibility Markers. However, the results also show that the three age groups exhibited slightly different tendencies for the use of null objects. Namely, when there were several possible antecedents available, the younger children preferred to correlate null objects with the closest NPs as their referents while the other two groups correlated null objects with highly accessible antecedents (discourse topics), as predicted. This suggests that there are some differences between adults and younger children in the way that discourse factors contribute to the accessibility status of antecedents. It was discussed above that discourse topics are always highly accessible antecedents in the discourse as long as the distance between the antecedent and the anaphor is not too large to make a correlation between them. The results of these experiments lead us to conclude that children's use of Accessibility Markers might be based on different factors than adults,' that is, younger children use Distance as the primary factor when determining highly accessible antecedents, while adults use Saliency (if it is the discourse topic or not) as the main factor. The difference in their use of discourse factors may be due to the fact that younger children might not yet have developed stable short-term memories.

Another difference observed between the children and adults was that, in the elicited production task, the children used a considerably larger number of null objects irrespective of context, whether or not the referents appeared overtly in the previous discourse. Adults, on the other hand, never used null objects when the referents had not appeared in the discourse, showing that they employ rigid

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discourse constraints when they speak. A possible explanation for this might be a bias in the children and the physical context of the items in the testing. Since the elicited production task followed the object choice task, by the time the children were asked to describe 'stories,' they knew that the experimenter knew what a certain item was. Because of the assumption of mutual understanding and of the presence of an item in the immediate physical context, it could be the case that the children did not feel the need to name the item, even if it was newly introduced (='Not topic-identified') in a specific story.

Although the results of the object choice task did not yield a clear conclusion on the use of overt pronouns, the adults' results on the elicited production task may confirm the prediction that overt pronouns are Intermediate Accessibility Markers. Two adult subjects each produced an overt pronoun once in their story telling. It was used to refer to the discourse topic, when the topic followed another NP. Since there was an intervening nominal expression that made the topic less accessible, the Intermediate Accessibility Marker (the overt pronoun '*sore*') needed to be used. On the other hand, only one of the children used an overt pronoun, but it was used with a gesture, in reference to an item that had not been mentioned in the discourse. Children knew that overt pronouns (i.e. demonstratives) can be used to refer to objects in the physical context, but none of them used overt pronouns to refer back to the items/facts in the previous discourse. From the fact that the children never used overt pronouns except for one instance of deictic usage, it seems that the children in this study have not yet acquired the productive, anaphoric use of overt pronouns.

This study investigated how young Japanese-speaking children use null objects in discourse, based on Accessibility Theory. The results confirm that Japanese speakers use null objects as High Accessibility Markers, and also suggest that young children may employ different discourse constraints in determining the antecedents of null objects. More investigations of adult discourse in Japanese will help explain how the use of zero pronouns is affected by discourse progression.

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