

# THREE TYPES OF THE “OVERGENERATED NO” IN THE ACQUISITION OF JAPANESE NOUN PHRASES\*

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## 1. Introduction

It is very well known that Japanese-speaking children around ages one to four overgenerate *no* between the sentential modifier and the head NP, as shown in (1).

- (1) a. howasi ookii \*no howasi (= ohasi) (2;1)  
chopstick big NO chopstick  
'chopsticks, the big ones, chopsticks' (Nagano 1960)
- b. maarui \*no unti (2;0)  
round NO poop  
'a round poop' (Yokoyama 1990)
- c. Yuta-ga asyon-deru \*no yatyu wa kore, kore (Yuta 2;3)  
Yuta-Nom playing-is NO thing Top this this  
'The thing that Yuta (I) is playing with is this (train).'

In (1a) and (1b), children insert *no* between the adjective (e.g., *ookii* (big) and *marui* (round)) and the head nominal (e.g., *howasi* (chopsticks) and *unti* (poop)) at around two years of age. Later, at two to four years of age, as in (1c), Japanese-speaking children insert *no* between the sentential modifier *Yuta ga asyon-deru* (Yuta is playing) and the head nominal *yatyu* (thing).

In adult Japanese, there are mainly three types of *no*.

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- (2) a. [Yamada] no hon (Genitive Case marker)  
           Gen book  
       ‘Yamada’s book’
- b. akai no (Pronoun)  
    red (+present) one  
    ‘the red one’
- c. Emi-ga hazimete robusutaa-o tabe-ta no wa Bosuton de  
    -Nom for the first time lobster-Acc ate Comp Top Boston in  
    da (Complementizer)  
    Copula  
    ‘It is in Boston that Emi ate a lobster for the first time.’

(2a) is the genitive Case marker, which roughly corresponds to *'s* or *of* in English. (2b) is a pronoun, which roughly corresponds to *one* in English. A complementizer in (2c) is the head of the presuppositional phrase in the cleft sentence, which corresponds to *that* in English.

In the history of Japanese acquisition, three contradictory analyses, the Pronoun Hypothesis, the Genitive Case Hypothesis, and the Complementizer Hypothesis, have been proposed regarding the syntactic status of the overgenerated *no*. Accordingly, the age children overgenerate *no* is contradictory: Some say it happens when children are one year old (e.g., Nagano 1960), but some say it lasts until four years old (e.g., Murasugi 1991).

In this paper, mainly based on our longitudinal study with a Japanese-speaking child, Yuta, and the corpus analysis of CHILDES (Sumihare and Jun), we argue that the mysteriously long overgeneration phenomenon of *no*, in fact, stems from three distinct sources, as proposed by Murasugi, Nakatani and Fuji (2009). We argue that the mysterious “overgeneration of *no*” is not a single phenomenon in Japanese acquisition, and show that three contradictory hypotheses (i.e., Pronoun, Genitive Case, and Complementizer) proposed in the past acquisition researches are basically all correct. First, a pronoun *no* is used due to the limit in production at the two-word stage. Second, the genitive Case marker *no* is inserted because of the miscategorization of adjectives as nominals. Third, a complementizer *no* is overgenerated due to the parameterization in the structure of relative clauses. The overgeneration of *no*, which looks like a single phenomenon, is reanalyzed as a trihedral phenomenon, and each face represents one of the crucial developmental stages in language acquisition.

## 2. The Complementizer Hypothesis: Relative Clause Parameter (Murasugi 1991)

Murasugi (1991), based on her longitudinal and experimental study with Japanese-speaking children at two to four years of age, proposes that the overgenerated *no* is a

complementizer. According to her analysis, a structure of a sentential modifier is parameterized; either CP or TP depending on the languages. Murasugi argues that sentential modifiers in adult Japanese (and Korean) are TPs, unlike CP relatives in English. However, Japanese-speaking children initially hypothesize that Japanese relative clauses are CPs, and overgenerate a complementizer between the sentential modifier and the head nominal.

Children’s first complex NPs are found after two years of age, and they are usually a fixed expression without overgeneration (Murasugi and Hashimoto 2004). Our subject Yuta’s first complex NPs were also fixed expressions. The relevant examples are shown in (3).

- (3) a. Tottan-ga katte kure-ta purezento da yo (2;0)  
 father-Nom buy gave present Copula Int  
 ‘(This is) the present that my father bought (for me).’
- b. Kore, Yuki-tyan-ga kure-ta purezento na no (2;0)  
 this, -Nom gave present Copula Int  
 ‘This is the present that Yuki-tyan gave (to me).’

In (3), the verbs were limited to *katte kureru* (buy and give) and *kureru* (give) only. The head NP was also limited to the NP, *purezento* (present).

Later, some children overgenerate *no* on sentential modifiers. Yuta started to overgenerate *no* productively not only in complex NPs as in (4a) and (4b), but also after adjectives as in (4c), after 2;2.

- (4) a. Kare-teru \*no hana da yo (2;2)  
 wither-is NO flower Copula Int  
 ‘(I have) a withered flower.’
- b. Yuta-ga asyon-deru \*no yatyu wa kore, kore (2;3)  
 -Nom playing-is NO thing Top this this  
 ‘The thing that Yuta (I) is playing with is this (train).’
- c. Kore nagai \*no yatyu da ne (2;3)  
 this long NO one Copula Int  
 ‘This is a long one.’

In (4a), Yuta inserted *no* between the modifier *kare-teru* (is withered) and the head nominal *hana* (flower). Similarly, in (4b), Yuta (playing with a train in front of the box with the picture of the train, and comparing the toy and the picture of it), overgenerated *no* between the sentential modifier *Yuta-ga asyon-deru* and the head NP, *yatyu*. In (4c), he overgenerated *no* after the adjective *nagai* (long).

Murasugi (1991) reports that children at around two to four years of age overgenerate a complementizer *no* between the head NP and all types of sentential modifiers, as exemplified in (5).

- (5) a. *tigau* \**no* *outi* (3;0)  
       differ NO house  
       ‘the different house’
- b. *Emi-tyan-ga kai-ta* \**no* *sinderera* (2;11-4;2)  
           -Nom drew NO Cinderella’  
       ‘the Cinderella that Emi drew’
- c. *ookii* \**no* *tako* (2;11-4;2)  
       big NO octopus  
       ‘a big octopus’ (Murasugi 1991)

In (5a), *no* is inserted between the inflected verb, *tigau* (differ) and the head nominal, *outi* (house), and in (5b), it is inserted between the sentential modifier and the head nominal. In (5c), *no* is overgenerated after the adjective, *ookii* (big), as well.

Crucially, however, she reports that those children, who overgenerated *no*, sometimes undergenerated the genitive Case marker on PPs, as in (6), although they can correctly insert it between two NPs, as in (7).

- (6) *Tokyo* made [ $\phi$ ] *basu* (3;2)  
       to \*(Gen) bus  
       ‘the bus to Tokyo’ (Murasugi 1991)
- (7) a. *Emi-no hon* (Emi 2;9)  
       -Gen book  
       ‘Emi’s book’
- b. *megane-no ozityan* (Miki 2;4)  
       glasses-Gen man  
       ‘the man with eye glasses’ (Murasugi 1991)

Thus, the overgeneration takes place when the genitive Case marking is not fully acquired.

One piece of direct empirical evidence for the Complementizer Hypothesis was found in Toyama dialect in Japanese as in (8a) and Korean as in (8b).

- (8) a. Anpanman tui-toru \*ga koppu (Ken 2;11)  
 (a character) attaching-is GA cup  
 ‘the cup which is pictured with “Anpanman”’ (Murasugi 1991)
- b. Accessi otopai tha-nun \*kes soli ya (2-3 years old)  
 uncle motorcycle riding-is KES sound is  
 ‘*Lit.* (This) is the sound that a man is riding a motorcycle.’ (Kim 1987)

The overgenerated item is a complementizer, for instance, *ga* in Toyama dialect, and *kes* in Korean, but not the genitive Case marker (*no* in Toyama dialect nor *uy* in Korean).

Thus, not only Japanese-speaking children but also Korean-speaking children initially hypothesize that their relative clauses are CPs, and overgenerate a complementizer between the sentential modifier and the head nominal.

Murasugi and Hashimoto (2004), however, argue that the Complementizer Hypothesis alone cannot fully explain the overgeneration phenomenon of *no*. In fact, the overgeneration of *no* is observed with very young children, even at around the age of one, when they start producing two-word utterances. Crucially, then, not only T or C related items, but also, even the genitive Case marker is not produced. Murasugi and Hashimoto point out that it is very unlikely that the same type of overgeneration lasts for four years, and conclude that there are two types of overgeneration of *no*: A pronoun and a complementizer.

### 3. The Pronoun Hypothesis in Addition to the Complementizer Analysis (Nagano 1960, Murasugi and Hashimoto 2004, 2006)

The Pronoun Hypothesis was in fact originally proposed by Nagano (1960) fifty years ago. His argument is very simple and clear: The overgenerated *no* cannot be the genitive Case marker, because the overgeneration takes place when there is no genitive Case marker found in the child production, but only pronoun *no* is produced. Examples in (9) are cited from Nagano (1960).

- (9) a. howasi ookii \*no howasi (= ohasi) (2;1)  
 chopstick big one chopstick  
 ‘chopsticks, the big ones, chopsticks’
- b. Amuna (= Harumi) tittyai \*no Amuna (2;1)  
 small one  
 ‘Harumi, the small one, Harumi’ (Nagano 1960)

In (9a) and (9b), *no* looks like to be erroneously inserted between the adjective (e.g., *ookii* (big) and *tiisai* (small)) and the NP (e.g., *howasi*, which is *ohasi* (chopsticks) and *Amuna*, which is *Harumi*) at 2;1. The overgeneration in question appears just after the pronoun *no*

starts to be correctly produced at 2;1, as in (10), but before the genitive Case marking is fully acquired, as in (11).

- (10) a. ookii no (2;1)  
           big one  
           ‘the big one (= bus)’

- b. tittyai no (2;1)  
       small one  
       ‘the small one (= leaf)’

(Nagano 1960)

- (11) ke... mama [φ] ke, mama [φ] ke, mama (2;0)  
       hair Mommy \*(Gen) hair Mommy \*(Gen) hair Mommy  
       ‘hair...Mommy’s hair, Mommy’s hair, Mommy’

(Nagano 1960)

In (11), the child omitted the genitive Case marker *no*, although it should be inserted between *mama* (Mommy) and *ke* (hair) in the adult grammar. It is only one month later, at 2;2, that the genitive Case marker appears in the natural production, as shown in (12).

- (12) Papa-no buton (= zubon) (2;2)  
       Daddy-Gen pants  
       ‘Daddy’s pants’

(Nagano 1960)

The parallel developmental stage was observed by Murasugi and Hashimoto’s (2004) longitudinal study with Akkun, and our longitudinal study with Yuta. Both subjects started overgenerating *no* before the genitive Case marker was inserted between NPs.

- (13) a. Akai no at-ta (2;3)  
       red one there-was  
       ‘(I) found the red one’

- b. Akkun no. Akkun [φ] ohuton (2;3-2;5)  
       one. bed

‘(This is) Akkun’s. Akkun(’s) bed.’ (Murasugi and Hashimoto 2004)

Furthermore, both Akkun and Yuta put a brief pause between the NP headed by the pronoun *no* and the referential NP. (14) shows Akkun’s data taken from Murasugi and Hashimoto (2004).

- (14) a. Akkun tiityai no konkonkon (2;4)  
           small-is one hammer

‘Akkun’s (/My) small hammer’

- b. [Akkun //pause// [tiityai no] //pause// konkonkon]

They argue that the utterance consists of two parts (i.e., *tiityai no* (small one) and *konkonkon* (hammer)), and this is very different from the overgeneration of a complementizer.

Similarly, the subject we examined in the present study, Yuta, started overgenerating *no* at around 1;10, when he just started combining two words in the utterances. An example is given in (15).

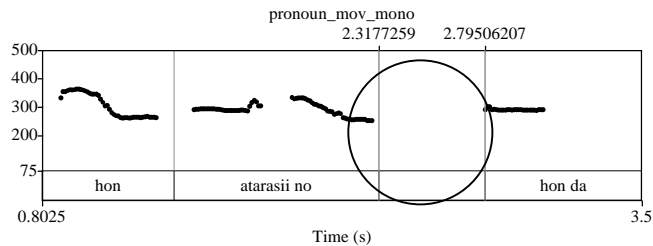
- (15) a. Hon, atarasii no, hon da (1;10)  
           book new one book Copula

‘a book, a new one, (this is) a book’

- b. [hon //pause// [atarasii no] //pause// hon da]

The analysis of Praat<sup>1</sup> clearly shows that there is a pause between *no* and the reference NP, thereby confirming Murasugi and Hashimoto’s (2004) observation.

Figure 1: A Pause Found between *No* and the Referential NP

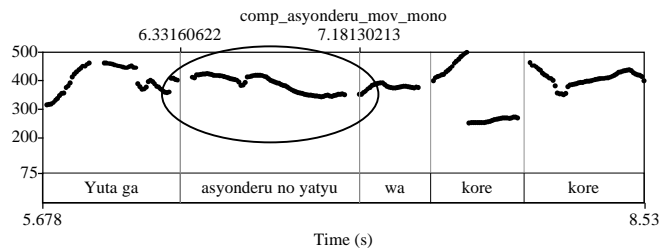


In Figure 1, the pitch contour shows that there is a pause of 0.48 seconds between *no* and the referential NP, *hon* (a book). Thus, this result indicates that the utterance consists of two parts.

In contrast, as for the overgeneration of a complementizer given in (4b) found after two years of age, there is no pause between *no* and the head NP.

<sup>1</sup> Praat is a program for doing phonetic analyses and sound manipulations (Boersma and Weenink 2009).

Figure 2: No Pause Found between *No* and the Head NP with the Overgeneration of a Complementizer



The Praat analysis in Figure 2 indicates that there is no separation of any kind, and *asyonderu* (*ashon-deru*) *no yatyu* is produced as a unit.

Hence, Murasugi and Hashimoto (2004, 2006) argue that Nagano's (1960) Pronoun Hypothesis is supported, and the overgenerated *no* at the age of one and early age of two is a pronoun. They analyze that this *no* is, in fact, not an error, but reflects the production strategy of very young children to combine two elements. When children cannot create the modification structure, they produce an NP headed by the pronoun *no* (one) first, to provide a frame for an NP, and the modifier, or the head nominal is realized as the second independent NP. Children use this strategy since the genitive Case marker is not yet acquired at the beginning of the two-word stage. Murasugi (2009) further proposes that this stage reflects the earliest morphological realization of the operation of merger, and that the onset of the merger starts with the phrases headed by the smaller category (*no* (one) as N') with less semantic content. This hypothesis holds as there is a pause between the pronoun *no* and the second NP.

The argument given so far shows that there are at least two sources for the apparently same "overgeneration" phenomenon. The one observed in ages one and two is a pronoun, and the other observed in ages two through four is a complementizer.

However, another empirical problem arises. *No* is overgenerated when children have already acquired the genitive Case marker, have no problem in combining two elements, and produce no relative clauses. The mysterious *no* associated with those characteristics is exemplified in (16).

- (16) a. atarasii \*no kami (Yuta 1;11)  
 new NO paper  
 'a new paper'
- b. siroi \*no gohan (Yuta 2;0)  
 white NO rice  
 'white rice'



- c. Tiisai \*no buubuu tootta yo (Sumihare 1;11)  
 small NO car passed Int  
 ‘A small car passed.’

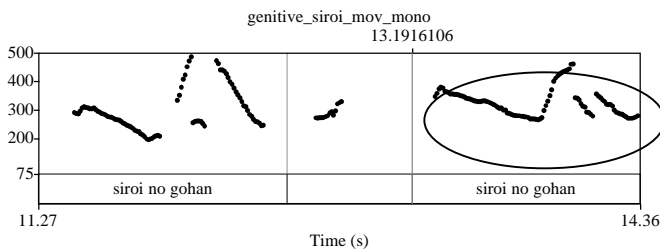
Crucially, the overgeneration is found after the two-word stage, at around the age of two, with limited adjectives such as color, size, shape, and state.

At this mysterious stage, the genitive Case marker between two NPs is productively and correctly used. For example, as in (17), Yuta started to produce the genitive Case marker between NPs at 1;11, and Sumihare started at 2;0.

- (17) a. Ko otoosan-no hanasi da yo (Yuta 1;11)  
 this father-Gen story Copula Int  
 ‘This is a story of father.’
- b. Ringo-no ozityan-ga... (Sumihare 2;0)  
 apple-Gen man-Nom  
 ‘The man (who sells) apples is...’

Praat analysis reveals that unlike the case of a pronoun, there is no pause found between *no* and the NP following it. In Figure 3, no separation has been made between *siroi no* (white one) and *gohan* (rice), and they are produced as a unit.

Figure 3: No Pause Found between *No* and the Head NP with the Mysterious Overgeneration of *No*



The facts shown above cannot be explained by the Complementizer Hypothesis either. This mysterious *no* is produced by children who have not acquired complex NPs yet, and the cleft sentences are hardly observed. Moreover, as noted above, the overgeneration is found only with the present-tensed adjectives of color, size, and state.

In the next section, we argue that children, at around the age of two, have difficulties in acquiring “the category of adjectives,” and some adjectives are treated as nominals, and some, as verbs. Those “nominal-like adjectives” never inflect with tense, and children, who already know the genitive Case marker insertion between the nominal projections, correctly insert the genitive Case marker between the “nominal-like adjectives” and the head nominal. This would be the mysterious stage of overgeneration of *no* found before a relative clause is

acquired. (See Murasugi (2009) for details.)

#### 4. The Genitive Case Marker Hypothesis

The Genitive Case Marker Hypothesis has been proposed by many researchers in the past fifty years (Iwabuchi and Muraishi 1968, Harada 1980, 1984, Clancy 1985, Yokoyama 1990, Ito 1998, among others). Among those, Yokoyama's (1990) generalization is quite important. He argues that the erroneous *no* is a genitive Case marker, and it is overgenerated only with the adjectives referring to color, size, and shape (e.g., *akai* (red), *ookii* (big), *maarui* (round)), but never with other adjectives (e.g., *abunai* (dangerous), *yasasii* (kind)), as shown in (18).

- (18) a. *ookii \*no sakana* (1;8)  
           big NO fish  
           ‘a big fish’
- b. *maarui \*no unti* (2;0)  
           round NO poop  
           ‘a round poop’

Yokoyama's apparently curious generalization is further confirmed by Murasugi and Hashimoto (2004). They find that the adjectives of color, size, and shape do not inflect with tense, but appear only in present-tense forms.

This generalization is further supported by our longitudinal study with Yuta and also by our corpus analysis of Sumihare. The overgeneration occurs only with the adjectives which refer to color, size, shape, and state, but it never occurs with such adjectives as *itai* (is painful), *omoi* (is heavy), or *kowai* (is scary), which only appear in the predicative form with tense (i.e., present and past) but never in the prenominal form. As these adjectives never appear in the prenominal form, there is naturally no chance that the overgeneration should take place. Rather, these adjectives are not associated with the overgenerated *no*, and behave like verbs, as in (19).

- (19) a. *Oisii, kore. Oisii, kore* (Yuta 1;10)  
           delicious this delicious this  
           ‘This is delicious.’
- b. *Koko babatii yo ne* (Sumihare 2;0)  
           here dirty Int Int  
           ‘(It is) dirty here.’

- c. Okaatyan pompo itai no (Sumihare 2;0)  
 Mommy onomatopoeia ache Q  
 ‘Mommy, is (your) stomach aching?’

In (19), the adjectives, *oisii* (delicious), *babatii* (dirty), *itai* (painful), are used as predicates, conjugating with tense as shown in Table 1 and Table 2.

Table 1 shows that the past-tense forms of nominal-like adjectives are produced relatively late, but those of verb-like adjectives are produced relatively early in the case of Yuta.

Table 1: The Age of the First Appearance of the Present-/Past-tense Forms of Adjectives by Yuta

Nominal-like Adjectives (of Touch and Sight)			Verb-like Adjectives		
Adjectives	Present-tense	Past-tense	Adjectives	Present-tense	Past-tense
ookii ‘big’	ooki- <b>i</b> (1;8)	ookik- <b>atta</b> (2;0)	<i>itai</i> ‘painful’	<i>ita-<b>i</b></i> (1;11)	<i>itak-<b>atta</b></i> (1;11)
<i>tiisai</i> ‘small’	<i>tiisa-<b>i</b></i> (1;11)	<i>tiisaik-<b>atta</b></i> (2;1)	<i>oisii</i> ‘delicious’	<i>oisi-<b>i</b></i> (1;10)	<i>omok-<b>atta</b></i> (1;10)
<i>kuroi</i> ‘black’	<i>kuro-<b>i</b></i> (2;0)	<i>kurok-<b>atta</b></i> (2;4)	kowai ‘scary’	<i>kowa-<b>i</b></i> (1;10)	<i>kowak-<b>atta</b></i> (2;2)

The contrast between nominal-like adjectives and verb-like adjectives is clearer in the case of Sumihare, as shown in Table 2.

Table 2: The Age of the First Appearance of the Present-/Past-tense Forms of Adjectives by Sumihare (CHILDES)

Nominal-like Adjectives (of Touch and Sight)			Verb-like Adjectives		
Adjectives	Present-tense	Past-tense	Adjectives	Present-tense	Past-tense
ookii ‘big’	ooki- <b>i</b> (1;11)	ookik- <b>atta</b> (2;9)	<i>itai</i> ‘painful’	<i>ita-<b>i</b></i> (1;8)	<i>itak-<b>atta</b></i> (2;0)
<i>akai</i> ‘red’	<i>aka-<b>i</b></i> (1;11)	<i>akak-<b>atta</b></i> (4;0)	<i>omoi</i> ‘heavy’	<i>omo-<b>i</b></i> (1;8)	<i>omok-<b>atta</b></i> (2;2)
<i>siroi</i> ‘white’	<i>siro-<b>i</b></i> (2;2)	<i>sirok-<b>atta</b></i> (3;6)	<i>kusai</i> ‘smelly’	<i>kusa-<b>i</b></i> (2;2)	<i>kusak-<b>atta</b></i> (2;3)

Sumihare produced only the present forms for nominal-like adjectives, but never the inflected forms, when he inserted *no* between the adjectives of touch and sight (e.g., color, size, shape, and state) and the head nominals. On the other hand, the verb-like adjectives (e.g., *itai* (painful), *omoi* (heavy), *kusai* (smelly)), which are not erroneously genitive Case marked, inflected with tense much earlier.

There are several pieces of evidence to show that the adjectives referring to the sense of touch and sight are used as nominals. For example, as shown in (20), these adjectives are used as referential noun phrases.

- (20) a. \**Kiirōi to \*akai to (Sumihare 2;9)*  
 yellow and red and  
 ‘(They’re) a yellow (crayon) and a red (crayon).’  
 (Adult form: *kiirōi/akai-no* (yellow/red one), *kiirō/aka* (yellow/red))
- b. \**Tiisai koo-te ya (Sumihare 2;7)*  
 small buy-Request Int  
 ‘Please buy a small (dog).’  
 (Adult form: *tiisai-no* (small one))

In (20a), Sumihare erroneously used the adjectives *kiirōi* (yellow) and *akai* (red) to refer to the concrete objects, a yellow crayon and a red crayon. Similarly in (20b), he used the adjective *tiisai* (small) to refer to a small dog.

These nominal-like adjectives appear in the argument position being Case marked as well.

- (21) \**Tittyai-ga atte \*maarui-ga atte... konna \*ookii-ga atte... (Yuta 2;2)*  
 small-Nom be round-Nom be such big-Nom be  
 ‘There is (a) small (circle), (a) round (one), and such (a) big (one)...’  
 (Adult form: *Tittyai/maarui/ookii no* (small/round/big one))

Yuta uttered as in (21), while he was repeatedly drawing circles. The adjectives, *tiisai* (small), *marui* (round) and *ookii* (big), appear in the subject position associated with the nominative Case marker *ga*.

The most valid generalization to be drawn from the description so far is that the adjectives referring to the sense of touch and sight are miscategorized as nominals (Murasugi 2009). Hence, those children who already know the system of genitive Case marking between two NPs, “correctly” assign the genitive *no* to the “nominals” which are, in fact, adjectives in adult grammar.

Then, why do children miscategorize certain adjectives? We conjecture that adjectives referring to color, size and shape share the properties of concrete nominals in that they are consistent, absolute, and evidential, compared with other types of adjectives such as emotion and evaluation (cf. Berman 1988, Mintz and Gleitman 2002). And as argued by de Villiers and de Villiers (1978), a certain set of adjectives of size and shape go together as colors in child language.

Furthermore, acquiring adjectives is difficult because it is “a fluid category” (Gassar and Smith 1998, Berman 1988, Polinsky 2005, among others). As shown in (22), the position where the adjective *big* appears in adult English can be occupied with the verb *dropped* or the noun *a dog*. Thus, the syntactic cue is ambiguous for children.

- (22) a. It’s [big]  
b. It [dropped]  
c. It’s [a dog]

The syntactic cue is ambiguous in Japanese, too. Both adjectives and nominals can be followed by the polite sentence-ending marker *desu*, as in (23), while both adjectives and verbs inflect with tense, as in (24).

- (23) a. akai                    desu    (Adjective)  
      is-red (Adj) Polite  
      ‘(It) is red.’  
b. aka                                desu    (Nominal)  
      a red color (Nominal) Polite  
      ‘(It) is a red color.’
- (24) a. ooki-i            ookik-atta    (Adjectives)  
      big-Pres        big-Past  
b. aka-i            akak-atta    (Adjectives)  
      red-Pres        red-Past  
c. tabe-ru        tabe-ta    (Verbs)  
      eat-Pres        eat-Past  
d. nom-(r)u       non-da    (Verbs)  
      drink-Pres     drink-Past

In this sense, the Japanese adjective is also “a fluid category,” and this could make adjectives difficult to be acquired.

Then, when and how do children “intake” the full system of adjectives in the target language? Kanda (2012), based on the corpus analysis of Taro in CHILDES, reports that there is an interesting stage where a Japanese-speaking child “optionally” inserts genitive *no* inside the NPs.

- (25) a. kuro    kyuukyuusya    (2;10)  
      black    ambulance  
      ‘the ambulance that is black’

- b. Kuroi ozubon? (3;1)  
 black pants  
 ‘The black pants?’
- c. Kuroi \*no ozubon? (3;1)  
 black NO pants  
 ‘The black pants?’

A nominal form *kuro*, an adjective form *kuroi* without being associated with genitive *no*, and an adjective form *kuroi* “erroneously” associated with genitive *no*, are all found at around the same age, as shown in (25a), (25b), and (25c), respectively. The noun phrase in (25a) is only possible as a compound noun, and the noun phrase in (25c) is ill-formed. The examples in (25b) and (25c) are in fact found in a dialogue between Taro and his mother.

- (26) MOTHER: Kuroi ozubon doko?  
 black pants where  
 ‘Where are the black pants?’
- TARO: Kuroi \*no ozubon? (= 25c)  
 black NO pants  
 ‘The black pants?’
- MOTHER: Un.  
 yes  
 ‘Yes.’
- TARO: Kuroi ozubon? (= 25b)  
 black pants  
 ‘The black pants?’

The example given above is intriguing in three ways. First, the child does not merely imitate the caretaker’s utterance. Second, the child corrects himself without any direct negative evidence. Third, the child is in the transition period, not only with respect to the categorization of the color adjective, but also with respect to the tense conjugation. Kanda (2012) argues that Taro, at around the time when the overgenerated *no* is disappearing, produces the past-tensed form of the adjective in question in a “quasi-adult” way.

- (27) kuro [pause] \*kuroi-katta (3;2)  
 black black-Past  
 ‘(It was) black.’

Taro produced the utterance given in (27) when he found a black spot on his brother’s leg. Here, the past-tense marker ‘-*katta*’ is attached to ‘*kuroi*’, not exactly in the adult way. In fact, in adult Japanese, the form should be *kurok-atta*, or *kuro-datta*, rather than *kuroi-katta*. Thus, just at the time when the color adjective ‘*kuroi* (black)’ was “fluid” with respect to the form and the marking of genitive Case marker, so was the tense conjugation.

Interestingly, Kanda (2012) points out that Taro’s adjectives such as ‘*yoi* (good)’, which expresses positive degree of quality of thing or person for itself, conjugate just like the verb ‘*wakaru* (understand)’. Taro starts attaching the past-tense affix ‘-*atta*’ on the stem of some types of adjectives at around 2;11 as in (28a), just like the verb given in (28b).

(28) a. *yok-atta* (2;11)  
good-Past

‘(It) was good.’

b. *wak-atta* (2;11)  
understood

‘(I) understood (that).’

The fact that the conjugation system of verb-like adjectives is acquired earlier than that of noun-like adjectives is, in fact, parallel with the data of Yuta and Sumihare. The paradigm observed in the transitional period from “child adjectives” from “adult adjectives” such as those shown above would provide clues to the analysis of the category of adjectives.

Note here that even if we assume that children’s miscategorization of certain adjectives causes the genitive Case marker insertion, the Complementizer Hypothesis should be still maintained. For example, remember the overgeneration phenomena in Toyama dialect in Japanese and Korean. As in (8a) and (8b), repeated below, the overgenerated item is a complementizer, but not the genitive Case marker.

(8) a. *Anpanman tui-toru \*ga koppu* (Ken 2;11)  
(a character) attaching-is GA cup

‘the cup which is pictured with “Anpanman”’ (Murasugi 1991)

b. *Acessi otopai tha-nun \*kes soli ya* (2-3 years old)  
uncle motorcycle riding-is KES sound is

‘*Lit.* (This) is the sound that a man is riding a motorcycle.’ (Kim 1987)

Thus, the Complementizer Hypothesis we discussed in Section 2, should be maintained, and there are three distinct stages of the “overgeneration” of *no*.

The hypothesis that there are three stages in the “overgeneration” of *no* is further supported by our corpus analysis of Jun. First, Jun, at 2;2, produced a pronoun but not the

genitive Case marker. He produced (29a) and (29b), where there was a brief pause between *no* and the head nominals, *basu* (bus) and *okaasan* (mother). This is exactly the Pronoun stage as is discussed in Section 3.

- (29) a. Ookii no [pause] basyu (= basu) wa? (2;4)  
 big N' (one) bus Top  
 '(Where) is the big bus?'
- b. ookii no [pause] okaasan (2;5)  
 big N' (one) mother  
 'the big one, mother'

Then, at around 2;5, when the genitive Case markers were productively used as in (30), he inserted *no* between adjectives referring to color, size and shape and the head nominals, without making any pauses, as in (31).

- (30) Kokko-no outi ya (2;5)  
 chicken-Gen house Int  
 '(This is) a chicken's house.'
- (31) a. Hore, ookii \*no torakku atta zo hore (2;6)  
 hey big NO truck was Int hey  
 'Hey, there is a big truck.'
- b. tiisai \*no akatyan (2;6)  
 small NO baby  
 'a small baby'
- c. kuroi \*no zidoosya (2;6)  
 black NO car  
 'a black car'

Just like Yuta and Sumihare, the overgeneration occurs only with the adjectives of touch and sight, and those adjectives are sometimes used as nominals as well.

- (32) a. \*Ookii-ga otiru (2;7)  
 big-Nom fall  
 'The big (toy car) is falling.'  
 (Adult form: ookii-kuruma-ga / ookii-no-ga)



- b. FAT: Kore-wa nan desu ka  
 this-Top what Cop Q  
 ‘What is this?’ (Showing CHI a new toy)

CHI: Atarasii \*no \*akai (2;8)  
 new NO red  
 ‘(It’s) new red.’  
 (Adult form: atarasii akai-no)

In (32a), the adjective *ookii* (big) appears in the subject position associated with the nominative Case marker *ga*. In (32b), he used the adjective *akai* (red) to refer to the concrete object, a red toy. Hence, those adjectives are treated as nominals, and the overgenerated *no* in (31) is the genitive Case marker, being “correctly” inserted between two NPs.

Finally, as in (33), he started overgenerating *no* with relative clauses at around 2;8.

- (33) a. koware-ten \*no yatu zidoosya (2;8)  
 is-broken NO thing car  
 ‘(This is) a broken car.’
- b. Omosiroi \*no yakiimo ya kore (2;10)  
 funny NO baked sweet potato Int this  
 ‘This is a funny baked sweet potato.’

In (33a), *no* is overgenerated between the modifier *koware-ten* (= *teru*) (is broken) and the head nominal *yatu* (thing). (33b) shows that the overgeneration occurs with any kind of adjectives at this stage. Thus, this is the Complementizer stage, where Jun hypothesizes that Japanese relative clauses are CPs (Murasugi 1991).

Overgeneration of *no* at a later stage of language acquisition can be due to two different reasons, even when they apparently look very similar. Children’s miscategorization of certain adjectives causes the genitive Case marker insertion as shown in (32). In addition, the Complementizer Hypothesis should be still maintained to explain the overgeneration of *no* given in (33). The categorization of adjectives and the parameter-setting of the structure of complex NPs are the separate issues.

If this analysis is on the right track, then we predict that the children’s erroneous *no*’s in such examples as (32) and (33) do not necessarily “disappear” simultaneously. Murasugi (1991), in fact, observes that Emi, a Japanese-speaking child, kept inserting *no* between such color adjectives as *kuroi* (black), or the exact color term we discussed in this paper, and the head nominal. That is, the child kept producing “*kuroi \*no kuku* (the black shoes),” even after the child stopped overgenerating *no* on the relative clauses. Murasugi (1991) stipulates in her dissertation that the name of the black shoes, which were worn only at a very special

occasion, remained in the child lexicon as the name associated with overgenerated *no*. But the stipulation might have been wrong. The problem left unsolved by Murasugi (1991) and the mysterious overgeneration phenomenon may be naturally explained by the proposal that the categorization of adjectives and the parameter-setting of the structure of complex NPs are the separate issues.

## 5. Conclusion

In this paper, mainly based on the longitudinal studies with Yuta, and the corpus analysis of Sumihare and Jun (CHILDES), we argued that there are three stages of Japanese-speaking children's overgeneration of *no*, in line with Murasugi, Nakatani and Fuji (2009). The overgeneration of *no*, which apparently looks like a single phenomenon includes three parts: *No* as (i) a pronoun (N') at the late age of one, (ii) the genitive Case marker at around the age of two, and (iii) a complementizer (C) at around the age of two through four. The only case that we can truly name as overgeneration is the third stage, or the overgeneration of C. In the other two, *no* is actually used "correctly".

The sixty-year-debate in the field of Japanese acquisition has never ended because of the belief that the overgeneration takes place for a single reason. However, in this paper, we argued that the overgeneration of *no* is a trihedral phenomenon, and the hypotheses proposed were basically all correct. The overgeneration of *no* is due to three independent reasons, i.e., the immature merge operation, the miscategorization of adjectives, and the setting of the relative clause parameter. The analysis of children's errors informs us of the important phases in the stages of grammar acquisition, and provides a key to understanding the nature of language.

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