

- (2) a. Taroo-ga/*-no (hon-o) katta b. kami-ga/*-no nagai
 -Nom/-Gen (book-Acc) bought hair-Nom/-Gen long
 'Taro bought a book.' 'The hair is long.'

Some of the Japanese-speaking children also overgenerate complementizer *no* (in Tokyo Dialect) on the prenominal sentential modifiers, once they start producing complex NPs.

- (3) toomorokosi tabeteru *no buta-san (2-4 years old)
 corn is-eating *NO pig 'the pig that is eating a corn' (Murasugi 1991)

The discussion of this paper is of two fold. Section 2 deals with the overgeneration of *no* as in (3), one of the hottest issues in Japanese acquisition. We provide an overview of the contradictory proposals for the syntactic status of the overgenerated *no* (e.g., Pronoun Hypothesis, Genitive Case Hypothesis; and Complementizer Hypothesis) proposed in the past five decades, and argue that the mysteriously-long overgeneration phenomenon of *no* observed in pre-school children (one to four years of age), in fact, stems from three distinct sources, i.e., the onset of the merge operation, the miscategorization of the adjectives, and the parameter setting for the structure of complex NPs.

Then, Section 3 deals with the issues on the immature Tense system widely observed in the early grammar acquisition across languages. We argue that the underspecification of tense features is concretized in very young Japanese-speaking children's errors of tense and Case.

Very young children produce "non-finite forms" in matrix contexts. However, there is cross-linguistic variation with respect to the form, and we will show that the [-bare stem] language-speaking children (e.g., Japanese-, Korean- and Turkish-speaking children) aged one to two, produce quite different forms of Root Infinitives from those found in Dutch and German.

The underspecification of tense features also causes the Japanese-speaking children to produce Case-marking errors. We argue that this type of syntactic error is much related to the acquisition of the structure of complex NPs. By arguing that the retreatment from the overgeneration of complementizer in (3) triggers the children's retreatment from the erroneous genitive Case marking, we aim to clarify the nature of the developmental path, or the series of intermediate states that children proceed in order to attain the finite state of Japanese.

2 The Overgeneration of "no" as a Trihedral Phenomenon

2.1 Three Approaches to the Issues on Overgeneration of "no"

In adult Japanese, a pronoun (roughly corresponding to *one* in English), the genitive Case marker (roughly corresponding to *'s* or *of* in English), and a complementizer (i.e., *that* in the head of the presuppositional phrase in the cleft sentences (e.g., *It is in Boston that Satti met Ken for the first time.*) and the relative pronoun in English) are realized as *no*, and it is very well known that Japanese-speaking children between the ages of one and four years overgenerate *no* as in (4).

- (4) a. howasi ookii *no howasi (=boosi) (late 1 year old) (Nagano 1960)
 chopsticks big *NO chopsticks 'chopsticks, the big ones, chopsticks'

- b. aoi *no buubuu (early 2 years old)
 blue *NO car 'the blue car'
 c. toomorokosi tabeteru *no buta-san (2-4 years old)
 corn is-eating *NO pig 'the pig eating an ear of corn' (Murasugi 1991)

In the history of Japanese acquisition, three hypotheses have been proposed regarding the syntactic status of the overgenerated "no": (i) "no" as a pronoun (Nagano 1960, Murasugi and Hashimoto 2003), (ii) "no" as the genitive Case marker (Iwabuchi and Muraishi 1968, Clancy 1985, Yokoyama 1990, among others), and (iii) "no" as a complementizer (Murasugi 1991).

The present section argues that three hypotheses proposed in the past five decades are, in fact, basically all correct. First, the pronoun *no* is "overgenerated" as in (4a), when children around age one start merging elements with a smaller pronominal element (N') before merging two major syntactic categories. Second, the genitive Case *no* is inserted between "adjectives" and the head nominal as in (4b), as some type of the adjectives are bootstrapped as nominal elements in child grammar. Third, those children between the ages of two and four who pick up the CP value rather than TP value for the structure of complex NPs, overgenerate complementizer *no* at the onset of production of complex NPs, as shown in (4c). Thus, the overgeneration of *no*, which looks like a single phenomenon, is composed of three independent modules. Thus, the overgeneration phenomenon found frequently in the natural production of children is recaptured as a trihedral phenomenon.

2.2 Overgeneration of Complementizer "no" and Relative Clause Parameter

Japanese is a language where discourse plays an important role to license the gap not only in sentences but also in relative clauses. The prenominal sentential modifier is not followed by the overt complementizer. The complementizer *no* is obligatory as the head of the presuppositional phrase in the cleft sentence as in (5b), but it is never allowed in the relative clauses.

- (5) a. Ken-ga robusutaa-o hazimete tabeta (*no) mise
 -Nom lobster-Acc for the first time ate restaurant
 'the restaurant that Ken ate lobster for the first time'
 b. Ken-ga robusutaa-o hazimete tabeta-no-wa bosuton de da
 -Nom lobster-Acc for the first time ate-Comp-Top Boston in Copula
 'It is in Boston that Ken ate lobster for the first time.'

This fact sharply contrasts with languages such as English, where the complementizer *that* is employed for both constructions. Saito (1985) argues that a relative clause in Japanese, unlike an English one, has an IP/TP structure, rather than a CP structure. According to him, Japanese relative clauses lack a C to host a complementizer; and they are not operator-oriented. The Aboutness Condition (Kuno 1973) licenses the relative clause, when the "relativized" element is an argument base-generated as *pro* in the relative clause. Thus, Japanese does not have the counterpart of the complementizer *that* in the English complex NPs, for example, *a cake that Diane baked*.

Saito's (1985) analysis is supported by the analysis of Japanese-speaking children's errors. Tokyo-dialect speaking children around two to four years of age overgenerate "no" (or *ga* in

Then, why do the very young children employ the pronoun *no* as the “head” nominal at the onset of two-word stage? Why do children use the “light” nominal as the head (e.g., *ookii no* (a big one)) to create the syntactic frame at the stage (i) before the merger of the two major syntactic elements starts to be produced and (ii) when there is no genitive Case marker? Why do the children sometimes repeat the referential NP (e.g., *boosi* (a hat)) after the NP headed by the pronoun *no*, making a brief pause between them (e.g., [*ookii no*], //pause// *boosi* (big one, hat))?

I conjecture that this stage would reflect one of the earliest morphological realizations of the merger, an operation considered to be a part of Universal Grammar in the Minimalist Program. When children cannot create the modification structure with two major syntactic categories, they produce phrases headed by a pronoun *no* first, and rephrase the head nominal pronouncing a full NP as the second independent NP. The onset of the merger operation starts with the phrases headed by the smaller category with less semantic content, i.e., the pronoun *no* (which corresponds to *one* in English, both being categorized as a N' in the X'-theory), followed by the adult-like merger of two major syntactic categories at the two-word stage. This hypothesis seems to hold as there is a pause between the pronoun *no* and the second NP.

The argument so far indicates that there are at least two sources for the apparently single phenomenon: The one is a pronoun as the onset of the merger operation, and the other is a complementizer as the onset of the complex NPs.

2.4 Genitive Case “*no*” Marked on the Adjectives Miscategorized as Nouns

However, another empirical problem arises. Those children around age two, who have already acquired the genitive Case marker insertion between NPs and have no problem in combining two elements, still “overgenerate” *no*. Crucially, those children are not in the stage where they can produce the cleft sentences and the complex NPs either. Given the discussion in 2.2 and 2.3, the “overgenerated” *no* found then cannot be a pronoun nor a complementizer.

Murasugi, Nakatani and Fuji (2009b) argue that there is another stage, where the genitive Case marker *no* is erroneously marked inside NPs. The three types of *no*, i.e., pronoun, genitive Case, and complementizer, emerge in that order, as exemplified in (13a) through (13c).

- (13) a. *hon, atarasii no, hon da* (Yuta 1;10) b. *siroi *no gohan* (Yuta 2;0)
 book new N'(one) book Copula white Gen rice
 ‘a book, a new one, (this is) a book’ ‘the white rice’
 c. *Nenne siteta *no ko?* (Yuta 2;2)
 sleeping do-was Comp child ‘(Do you mean) the prairie dog that was sleeping?’

At this mysterious stage, genitive Case marker is correctly inserted between two NPs.

- (14) a. *Ko (=kore) 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...’

Unlike the case of a pronoun, PRAAT analysis indicates that there is no pause found between “*no*” and the NP following it. Semantically, the “overgeneration” is found after the two-word stage, at around two, with limited adjectives such as color, size, shape, and state.

- (15) a. *atarasii *no kami* (Yuta 1;11) b. *siroi *no gohan* (Yuta 2;0)
 new Gen paper ‘a new paper’ white Gen rice ‘white rice’
 c. *Tiisai *no buubuu tootta yo* (Sumihare 1;11)
 small Gen car passed Int ‘A small car passed.’

Yokoyama (1990) argues that the erroneous “*no*” is a genitive Case marker, as the genitive “*no*”-insertion, generating “NP +*(*no* ‘genitive’) +NP” array as in (16), is acquired earlier than the overgeneration of *no*. He makes an interesting observation here: Genitive *no* is overgenerated only with adjectives referring to color, size, and shape (e.g., *akai* (red), *ookii* (big), *maarui* (round)) as in (17), but never with other adjectives (e.g., *abumai* (dangerous), *yasasii* (kind)).

- (16) a. *usagi *(no) ie* b. *heya*(no) kataduke*
 hare Gen house room Gen cleaning-up
 ‘the hare’s house’ ‘the cleaning up of the room’
 (17) *maarui *no unti* (2;0)
 round Gen poop ‘a round poop’ (Yokoyama 1990)

Yokoyama’s apparently curious generalization is further confirmed by the observational studies and corpus analysis (Murasugi and Hashimoto 2004, 2006, Murasugi, Nakatani and Fuji 2009b). Only the adjectives referring to the sense of touch and sight (e.g., color, size, shape, state, temperature) are associated with “*no*” in the early-2-year-old children who have acquired the obligatory genitive Case marker insertion rule between two NPs, as exemplified in (18).

- (18) a. *Kore maarui *no yatu* (Yuta 2;2) b. *Akai*no batyu kita* (Sumihare 2;1)
 this round Gen thing red Gen bus came
 ‘This is a round thing.’ ‘A red bus came.’

Then, how could the curious descriptive generalization be theoretically explained? Suppose that the adjectives referring to the senses of touch and sight (e.g., color, size, shape, state, temperature) are miscategorized as nominals. Then, those children who already know the system of genitive Case marking, “correctly” assign the genitive *no* to the “nominals” (which are, in fact, adjectives in the adult grammar), as shown in (15), (17), and (18).

The miscategorization in early grammar acquisition has been widely reported in the previous literature. First, the syntactic distributional properties of adjectives place them to be halfway between nouns (Gassar and Smith 1998) and verbs (Polinsky 2005) (e.g., *It’s [big]*, *It [dropped]*, *It’s [a dog]*). Adult Japanese is not an exception: Japanese adjectives can be followed by a polite sentence-ending marker, “*desu*” (e.g., *akai desu* (is-red ‘Adjective +polite’)), just like nominals (e.g., *aka desu* (is a red color ‘Nominal +polite’)); while adjectives inflect with tense (e.g., *ookii-i* (is-big) vs. *ookik-atta* (was-big)), just like verbs (e.g., *tabe-ru* (eat) vs. *tabe-ta* (ate)). Hence, there’s always the possibility that children syntactically bootstrap adjectives as nouns or verbs.

Semantically, it is well attested that young children, typically under age 2;6, show a noun bias, and the adjective is difficult to acquire because it is “a fluid category” (Gassar and Smith 1998, Berman 1988, Polinsky 2005, among others). It has been also pointed out that the dimensional adjectives referring to the perceptible properties of individual objects are acquired late (Carey 1982, Sandhofer and Smith 2001, among others) and children tend to bootstrap the adjectives of color, size and shape as the object categories, i.e., nouns. Japanese is not an exception: Japanese-speaking children who insert the genitive Case marker between “adjectives” and the head nominal can be considered to be in the stage where they semantically bootstrap the adjectives of color, size and shape as nouns, and correctly insert genitive *no* between the category with a nominal feature (according to their grammar, although these are in fact adjectives in adult Japanese) and the head NP.

This hypothesis is further confirmed by the fact that the children overgenerating *no* only on those adjectives referring to color, shape, and size (e.g., *tittyai*, *maarui*, *ookii* (small, round, big)), erroneously use them as argument associated with nominative Case marker *ga* (e.g., **tittyai/maarui/ookii-ga* (small/ round/big-Nominative)) as shown in (19a), and also erroneously use them (e.g., **kiiroi* (yellow), **akai* (red)) to refer to the concrete objects, as shown in (19b).

- (19) a. **Tittyai-ga atte *maarui-ga atte ...konna *ookii-ga atte...* (Yuta 2;2)
 is-small-Nom be is-round-Nom be such is-big-Nom be
 ‘There is (a) small (circle), (a) round (one), and such (a) big (one)...’
 (The child is drawing a picture.) (Adult form: *Tittyai/maarui/ookii-no (one)*)
 b. **Kiirōi to *akai to* (Sumihare 2;9)
 is-yellow and is-red and ‘(They are) a yellow (crayon) and a red (crayon).’
 (Adult form: *kiirōi/akai-no* (yellow/red one), or *kiirō/aka* (yellow/red))

Furthermore, as indicated in Table 1, those children overgenerating *no* produce only the present forms for those adjectives, but never the inflected forms. In contrast, the other types of adjectives (e.g., *itai* (painful), *omoi* (heavy), *kusai* (smelly)), which are not erroneously genitive Case marked, inflect with tense, appear only in the predicate position, behaving like verbs.

Table 1: The Age of the First Appearance of the Present- /Past- Tense Forms of Adjectives by Sumihare (=S (CHILDES)) and Yuta (Y) (Murasugi, Nakatani and Fuji 2009b)

Nominal-like Adjectives (of Touch and Sight)			Verb-like Adjectives		
Adjectives	Present-tense	Past-tense	Adjectives	Present-tense	Past-tense
S <i>ookii</i> ‘big’	<i>ooki-i</i> (1;11)	<i>ookik-atta</i> (2;9)	<i>itai</i> ‘painful’	<i>ita-i</i> (1;8)	<i>itak-atta</i> (2;0)
S <i>akai</i> ‘red’	<i>aka-i</i> (1;11)	<i>akak-atta</i> (4;0)	<i>omoi</i> ‘heavy’	<i>omo-i</i> (1;8)	<i>omok-atta</i> (2;2)
S <i>siroi</i> ‘white’	<i>siroi-i</i> (2;2)	<i>sirok-atta</i> (3;6)	<i>kusai</i> ‘smelly’	<i>kusa-i</i> (2;2)	<i>kusak-atta</i> (2;3)
Y <i>ookii</i> ‘big’	<i>ooki-i</i> (1;8)	<i>ookik-atta</i> (2;0)	<i>itai</i> ‘painful’	<i>ita-i</i> (1;11)	<i>itak-atta</i> (1;11)
Y <i>tiisai</i> ‘small’	<i>tiisa-i</i> (1;11)	<i>tiisaik-atta</i> (2;1)	<i>Oisii</i> ‘delicious’	<i>oisi-i</i> (1;10)	<i>omok-atta</i> (1;10)

Thus, the mysterious phenomenon found in addition to the pronoun-*no*-type phenomenon and the complementizer-*no*-type phenomenon is explained: It is the stage where the genitive Case marker is inserted in the adult way between the miscategorized adjectives and the head nominal. The Japanese syntax in such that the genitive Case marker is inserted even between adjunct nominals (e.g., *ame no hi* (rain-Gen day, meaning ‘a rainy day’)), and the miscategorization of

adjectives as nouns in early grammar of Japanese is concretized as the overgeneration of genitive *no*.

The Genitive Case Hypothesis discussed above does not falsify the other two hypotheses, crucially, the third stage of the overgeneration of *no* as C. Once Tense comes to be fully morphologically realized, the overgeneration of *no* as C starts to appear with the tensed prenominal sentential modifiers in NPs as well as with adjectives. Recall here also that in Toyama dialect and Korean, the overgenerated item found then is not a genitive Case marker (*no* nor *uy*), but it is rather a complementizer (*ga* and *kes* respectively).

The overgeneration of “*no*”, which apparently looks like a single phenomenon, thus, includes three parts (Trihedron), i.e., “*no*” as (i) pronoun (N’) at around age one and two, (ii) genitive Case marker at around age two, and (iii) complementizer (C) between the ages of two and four. The 50-year debate in the field of Japanese acquisition is, thus, reanalyzed as trihedral phenomenon, each of whose planes represents the important developmental stage in grammar acquisition across languages.

3 The Underspecification of Features in Tense

3.1 Root Infinitives and Root Infinitive Analogues

To fully attain the adult syntax of complex NPs, the realization of the features that Tense is associated with is one of the properties children need to acquire. However, there is plenty of cross-linguistic evidence to show that the features in T are underspecified in the early grammar acquisition (Rizzi 1993/1994, Wexler 1994, Schütze and Wexler 1996, Hyams 2005, among others). A lot of researchers have offered interesting insight into the phenomenon of Root Infinitives (RIs) in early child language, e.g., the optional projection of Tense/Agreement (Wexler 1998), underspecification of Number P (Hoekstra, Hyams and Becker 1997) or AspectP (Gavruseva 2003), and so on.

RIs are the non-finite forms in matrix contexts that children produce. Alongside the inflected forms, children speaking European languages around the age of two produce non-finite verb forms in matrix clauses as exemplified in (20).

- (20) a. Eve sit floor (1;7) (Child English)
 b. Peter bal pakken (2;1) (Child Dutch)
 Peter ball get-INF ‘Peter (wants to) get the ball.’ (Blom and Wijnen 2000)
 c. Dormir petit bébé (1;11) (Child French)
 sleep-INF little baby ‘A little baby sleeps.’ (Guasti 2004)

The phenomenon is also termed Optional Infinitives, and it is well known that there are some salient properties.¹ One of them is Modal Reference Effect (Hoekstra and Hyams 1998, among

¹ Some of the RI properties are listed in (i).

(i) a. RIs are optional: RIs occur side by side with fully inflected verbs. b. RIs are tenseless verbs in root contexts.
 c. RIs occur predominantly with null subjects. d. RIs generally do not occur in wh-questions.
 e. RIs occur in modal contexts (Modal Reference Effects (MRE)).
 f. RIs are restricted to event-denoting predicates (Eventivity Constraint).
 g. RIs are very rare in pro-drop languages. (Adopted from Deen 2002, Hyams 2005, Salustri and Hyams 2003)

others). It is observed that the verbs that occur in this construction are typically the event-denoting verbs, and RIs receive modal interpretations, as shown in (21).

- (21) a. Niekje buiten spelen.
Niekje outside play-INF 'Niek (=speaker) wants to play outside.'
b. Papa ook boot maken
Papa also boat make-INF
'Papa must also build a boat.' or 'I want Papa to build a boat, too.'
(Hoekstra and Hyams 1998)

Then, do Japanese-speaking children go through the Root Infinitive stage?

Murasugi, Fuji and Hashimoto (2007) and Hyams (2008) argue that there is cross-linguistic variation with respect to the non-finite forms, and children learning the [-bare stem] languages, whose verbal stem obligatorily requires the morpheme to be attached, do not go through the RI stage, but instead, they go through the stage of the Root Infinitives Analogues. It has been observed that children speaking languages whose verbs cannot stand by the independent stem acquire the verb inflections at a very early stage. According to this hypothesis, English, for example, takes a value [+bare stem], as verbs can surface as bare stems. On the other hand, in such languages as Japanese, the parameter takes the opposite value, [-bare stem], because verbs cannot surface as bare stems. Children acquiring Japanese will learn the verb conjugations earlier than English speaking children because, given the Japanese setting of the parameter, there is no option of omitting the verb conjugations.

Murasugi, Nakatani and Fuji (2009a) further argue that those children acquiring [-bare stem] languages go through a Root Infinitive Analogues or a Surrogate Infinitive stage. Those children pick up the "surrogate forms of non-finite verbs," or the verbs, which look like morphologically finite, but are in fact, infinite (e.g., Cinque 2004), attaching some morpheme to the verb stem. The surrogate form picked up by children varies across languages, and most of the linguistic varieties are grouped together under the stem parameter.

For instance, Italian- and Kuwaiti Arabic-speaking children employ imperative form as a surrogate form as in (22a).

- (22) a. dammi! (1;10) (Italian: Imperative)
give-to mecl 'give it to me.' (Salustri and Hyams 2003)
b.* Eh xalis (1;11-2;5) (Adult form: xalis-at (finish-3f)) (Arabic: Imperatives)
yes, finished 'Yes, it is finished.' (Aljenaie 2000)

According to Salustri and Hyams (2003, 2006), Italian-speaking children start producing imperatives with appropriate morphology before age two; the rate of imperatives is considerably higher for children than for adults. This is also the case in Kuwaiti Arabic (Aljenaie 2000). Aljenaie reports that children at one to two years of age typically produce verbs lacking the marking of present and past tense, but they never leave the form uninflected as it does not constitute a well-formed word, and choose another infix. (22b), which looks like the omission of 3rd feminine suffix, is, in fact, homophonous with the masculine imperative form in the adult Kuwaiti Arabic.

As for Spanish and Catalan, Grinstead (1994), Torrens (1995), Pratt and Grinstead (2007), report that children overuse the 3rd person singular verb form to refer to a non-3rd person subject.

- (23) a.* Es yo (2;0) (Spanish: 3rd Sg) (Adult form: Soy yo)
Copula-3Sg I-Nom 'Is I.' (Grinstead 1994)
b.* beu aigua (1;11) (Catalan: 3rd Sg) (Adult form: bec aigua (drink-1sg water))
drink-3Sg water 'S/he drinks water' (Torrens 1995)

Turkish and Korean are languages in which both inflection and word formation are mainly realized by means of suffixation, and the very young children attach some (default) morpheme to a verb stem.

- (24) a. Ka:k-ti (1;5) (Turkish: Verb + -di (Past tense marker))
get-up-Past (Adult form: kalktim (get up-Past-1Sg) (Aksu-Koç and Ketrez 2003)
b.* mek-e emma (2 yrs) (Korean: Stem + Mood particle -e(/a))
eat-Decl mommy 'Let's eat, Mommy.' (Kim and Phillips 1998)
(Adult form: mek-ca (eat-Propositive))

According to Aksu-Koç and Ketrez (2003), the inflectional morphology in Turkish emerges quite early, and the definite past (-di) appears the earliest. The child production in (24a) shows that the 1st person singular suffix is omitted, but the definite past suffix is attached to the verb at around 1;5. As for child Korean, as in (24b), Kim and Phillips (1998) report that Verb + -e form (where a mood marker -e is attached to the verb stem) is used in the full range of environment at the very early stage of verb acquisition. Children around the age of two use Verb + -e form even where it is not allowed in adult Korean when Tense-related items are not produced. Hence, in Korean, the mood marker -e would function as a default sentence-ending marker.

Greek is a typical language that lacks infinitives. It has perfective and imperfective stems and the verbs are marked for person and number agreement. Varlokosta, Vainikka, and Rohrbacher (1998) and Hyams (2005) report that, as shown in (25a), Greek-speaking children produce the bare perfective verb form without the tense or modal particle, which is an RIA. Similarly, as shown in (25b), Romanian-speaking children produce the past participle form which should be used as part of compound tense with the auxiliary *a avea* (to have), omitting auxiliaries.

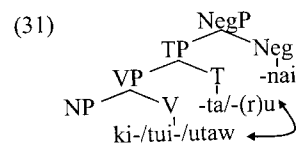
- (25) a.* Pio vavási [ðiavási] (1;10) (Greek: Bare perfective)
Spiros read-Perf,3Sg 'Spiros is going to/ want to read.' (Stephany 1995)
(Adult form: tha/na ðiavási (future read-Perf-3Sg))
b.* Acolo pus tanti Jeni coajă (1;11) (Romanian: Past participle)
there put-Part aunt Jeni shell 'Aunt Jeni has put the/a shell there.' (Nicoleta 2006)
cf. A plecat ieri la prânz
Have-3SG leave-past part. yesterday at noon 'He left yesterday at noon'.

Pye (2001) reports that early two-year-old K'iche' Maya-speaking children also add some morpheme to the verb stem, while they omit tense and agreement morpheme.

- (26) * φ ? ik (AI Tyaan 2;1) (K'iche' Maya: Bare verb + Term)
k - φ /wa? -ik (Adult form)
Asp-3A /shine-Antipassive-Term 'It eats.' (Pye 2001)

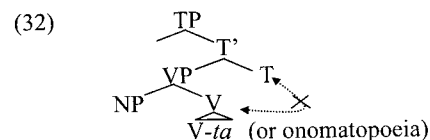
In these examples, the negative marker *-nai* is not merged with the preverbal form *ki-te-i* or *tui-te-i*. Rather, *-nai* follows the full past-tensed verb *ki-ta* (came) in (30a) and *tui-ta* (stick-past)

in (30b). In (30c), *-nai* even attaches to the full present-tensed verb *utaw-(r)u*.² This would suggest that the structure of (30) in child Japanese would be something like (31), which is different from the ones in adult grammar (29a, b) in that NegP is located outside of TP.



The productive errors Sumihare made for negation with different types of verbs would indicate that only one merger of a verb and inflection is available at around 1;11-2;0. Here, the negative morpheme *-nai* would be base-generated as an unanalyzed form, i.e., Neg (*-na*) and T (*-i*) are not separated in the child grammar.

Murasugi and Fuji (2008), providing further support for the unavailability of two head merge inside the verbal projection at around 1;11-2;0 in the morphology of aspectual or mood forms, argue that only one-step merger of a verb and T(I) is available at the post RIA (Post-Non-Finite Verb) stage, at around 1;11. When children start producing the “verbal” elements, the verb and the inflection are not merged as independent syntactic categories. The whole *V-ta* form in Japanese RIA stage would be base-generated as an unanalyzed rote form as illustrated in (32).



As for the reason regarding why Japanese-type languages have RIAs instead of RIs, the explanation given above applies as well. Cinque (2004) and Kawai (2006), for adult syntax, propose that there are non-finite “surrogate” verbs that look like finite verbs, and the surrogate forms of non-finite verbs are derived by an operation to make the verbal stems the well-formed morphological words in adult grammar of Salentino/ Serbo-Croatian, and Japanese, respectively. In fact, there is some evidence to show that the past-tense form (*-ta* form) that children pick up as RIA seems to be most unmarked among the possible surrogate forms in Japanese.³

Two conjuncts unspecified regarding Tense, for example, are conjoined by the verbal conjunct with *-ta* forms in (33a, b), and *-ta* forms can be used for future as in (34a), and with irrealis meaning as well as shown in (34b).

² There are a few correct negative sentences like (ia-b). The unanalyzed negative forms are stored as chunk (rote) in the child lexicon. The past tense form *na-k-atta* comes to be productively produced with various verbs after 2;2.

(i) a. Mie-nai ne (1;11) b. Nakanaka ko-nai ne (2;1) (Sumihare, CHILDES)
see-Neg Int '(We) cannot see (that).' not nearly come-Neg Int '(The train) does not come, does it?'

³ Although the non-finite verb forms of Japanese children are found only in matrix clauses, it has been well known that the non-finite verb forms are found in the embedded clauses in Adult Japanese. It has been argued that the past verbal inflection *-ta* lacks a tense interpretation (but it is rather aspectual) in such relative clauses as “*yude-ta tamago*” (boil-past egg, meaning the boiled egg (property reading)) in Adult Japanese (Terasura 1984, Abe 1993, Kinsui 1994, Ogiwara 2004, Miyagawa 2009, among others).

- (33) a. Tabe-ta ri non-da ri su-ru/si-ta
eat- drink- do-Pres/do-Past ‘We eat/ate, and we drink/drank.’
b. It-ta ri ki-ta ri de taihen da/dat-ta
go- come- for troublesome is /was ‘It’s troublesome to go back and forth.’
- (34) a. Asu-wa nani-o watasi-wa suru-no-dat-ta-ka na?
tomorrow-Top what-Acc I-Top do-Nomi-Cop-Past-C mood
‘What am I going to do tomorrow?’
Sooda! Asu-wa paatii-dat-ta!
Aha! Tomorrow-Top party-Cop-Past ‘Aha! Tomorrow is a party!’
b. Mosimo watasi-ga ie-o tate-ru/-ta nara tiisana ie-o
If I-Nom house-Acc build then small house-Acc
tate-ru/-ta (deshoo)
build-pres/-past (would) ‘If I built a house, I would build a tiny one.’

Furthermore, like infinitives in Italian (Rizzi 1993/1994), in Japanese, *V-ta* forms and onomatopoeia can be used as non-finite surrogate forms with the meaning of strong imperatives as in (35).

- (35) a. Partire immediatamente!
Go immediately (Rizzi 1993/1994)
b. Sassato Kaet-ta! Kaet-ta!
Immediately go back-Past go back-Past ‘Go back immediately.’
c. Shi! Shi! ‘Go away! Go away!’

The parallelism between infinitives in Italian and the past tense *-ta* form in Japanese indicates that whether or not the target language has an infinitive form and the form children choose as Root Infinitive Analogues are independent issues. Despite the fact that Italian has infinitives in adult grammar, children use imperative/perfective forms as the RIAs, as Italian is, like Japanese.

The unmarked surrogate forms in Cinque’s term are probably the unmarked non-finite forms in adult grammar, and they are so-called Root Infinitive Analogues. The [-bare stem] language-speaking children, even at the age one, know that verbal stems cannot be present without tense/aspect morphemes in their languages, and the unmarked sentence-ending morpheme(/s) is(/are) chosen as the surrogate forms, i.e., the Root Infinitive Analogues.

3.2 Erroneous Genitive Subjects in Sentences

Children’s erroneous subjects such as (36) are widely observed across languages, and various analyses have been proposed for them.⁴

- (36) a.* Her fell off (2;3) (Chiat 1981 in Radford 1999) (English)
b.* Look what my got (2;3) (Vainikka 1994) (English)

⁴ For example, see the analysis found in the pronoun paradigm hypothesis (Rispoli 1994, 1995), Agent/Control Analysis (Budwig 1989), Topic Analysis (Syea 2009), Nominal Analysis (Pensalfini 1995), and Agreement/Tense Omission Model (ATOM) (Schütze and Wexler 1996), and Radford (1999).

- c.* *Moi* sais (Pierce 1992) (French)
me know 'I know.'

After the RIA stage, when the sentence with tensed verbs comes to be produced with nominative subjects (e.g., *Boosi-ga ton-da* (a hat-Nom flew '(The) hat flew away.' (2;1)), Japanese-speaking children around two go through the stage where they optionally mark the subject with genitive Case as shown in (37) and dative Case (e.g., *Papa-ni it-ta* (Father-Dative went 'Daddy went away.' (2;3)).⁵

- (37) a. *A-tyan-no* tukat-teru no (2;1) (Adult form: *Ee-tyan-ga*)
-Gen use-Progressive Particle 'A-tyan is using (it).' (Suzuki 2007)
b. *Moko-no* warat-tyatta (2;3) (Adult form: *Moko-ga*)
-Gen laugh-Perfective 'Moko has laughed.' (Moko corpus)
c. *hizya-no* akaku-nat-teyu (1;11) (Adult form: *hiza-ga*)
knee-Gen red-become-Perfective 'My knees have become red.' (Moko corpus)

Then, why do children make genitive Case errors? As we briefly discussed in (2), nominative/genitive conversion is only allowed in the NPs, but never in the matrix clauses. Sawada, Murasugi and Fuji (2009) and Sawada (2010) argue that child clauses containing erroneous genitive subjects, curiously, share the same properties with nominative/genitive conversion in adult NPs. They show three pieces of evidence for their claim.

First, the erroneous genitive subjects children produce obey the Transitivity Restriction, and the subject marked with genitive Case does not appear with accusative object. That is, no examples on genitive Case errors appear with overt object NPs in the basic position, and even when the context requires the object NPs, children topicalize or right-dislocate them. Some examples are shown in (38).

- (38) a. *Kore*, *A-tyan-no* tukut-ta no (A, 2;3) (Adult form: *A-tyan-ga*)
this -Gen make-Past Particle 'This one, A-tyan made (it).'
- b. *A-tyan-no* but-tyatta *titi* (A, 2;4) (Adult form: *A-tyan-ga*)
-Gen hit-Perfect father 'A-tyan hit my father.' (Suzuki 2001: 44, 52)

The object *kore* in (38) is in the topic position, and *titi* in (38b) is right-dislocated. Hence, children know that the subject marked with genitive Case cannot be present with accusative object, and they avoid violating the Transitivity Restriction.

Second, the type of predicates that appear with the genitive Case errors are consistent with the property found in nominative/genitive conversion in adult grammar that Miyagawa (2009) describes. That is, the ratio of erroneous genitive subjects with aspectual forms, unaccusative verbs and adjectives are distinctively higher than those of erroneous dative subjects. The

⁵ As for the erroneous dative subjects, Watanabe (2008) descriptively generalizes that they co-occur with transitive and unergative verbs, but not with unaccusative verbs (which assign Nominative Case -ga to the subject inside VP). Murasugi and Watanabe (2008) (=MW) propose that (i) the value of Impersonal Parameter (Ura 1996) is unset and the nominative Case-feature on T is weak initially like some South Asian languages, and hence, (ii) a subject, without moving to TP-spec, gets the default Case -ni inside VP. MW proposes that the non-nominative subjects in Child Japanese and the Root Infinitives widely observed in languages are due to common properties, i.e., the underspecification of Tense. The age span that genitive and dative Case errors are produced is roughly the same, but the errors are not randomly produced, and they are almost in a complementary distribution.

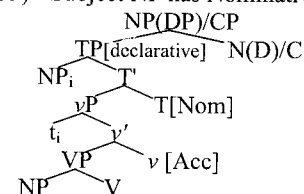
erroneous genitive subjects appear with the predicates containing unaccusative verbs, adjectives, and the verbs associated with aspectual expressions such as verb-*te(i)ru* (progressive/perfective) and verb-*tyatta* (perfective), unlike the case of datives.

Third, Sawada's (2010) corpus analysis indicates that 96% of the genitive Case errors appear with the verbs or adjectives whose prenominal and non-prenominal forms are homophonous, which also provides a key to solve the problem regarding how children retreat from the error.

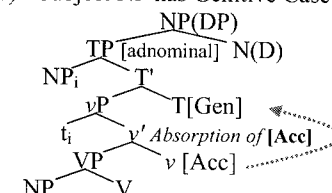
Thus, children's genitive Case errors in non-NP-contexts are parallel to adult genitive subjects in NPs. Then, why do genitive subjects in adult relative clauses and the erroneous genitive subjects in child root clauses share the syntactic properties, and how do children retreat from the error and attain the adult grammar?

Saito (2004), by adopting Hiraiwa's (2001) proposal that genitive subjects are licensed by the adnominal verbal inflection, proposes that a Declarative T checks nominative and an Adnominal T checks genitive for adult Japanese. An Adnominal T absorbs the accusative Case features and θ -role on *v*, and the genitive-accusative pattern is excluded. As for nominative subjects, Saito (2004) explains that a Declarative T checks nominative -ga on the subject NP.

- (39) Subject NP has Nominative Case -ga



- (40) Subject NP has Genitive Case -no

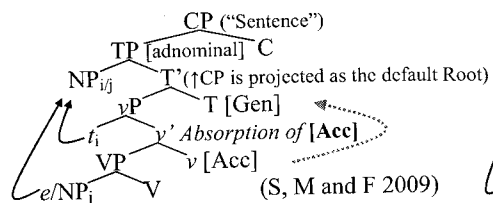


As in (39), nominative subjects, which appear with non-prenominal forms, are allowed in simple sentences and NPs. Here, the Declarative T is compatible with C and N (D), and it checks nominative Case. In contrast, as in (40), genitive subjects are possible only in NPs with prenominal forms. Here, the Adnominal T is compatible with only N (D) but not C, and it checks genitive.

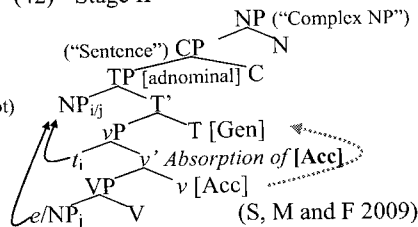
S, M and F (2009) explain the children's erroneous genitive subjects and how children attain the adult grammar with three stages: Children know the structure inside TP, but not the external relation of T to N when they erroneously Case mark the subject with genitive. Furthermore, employing Murasugi (1991) which argues that Japanese- and Korean-speaking children initially hypothesize that the prenominal sentential modifier in their language is CP (unlike their target grammar), rather than TP, S, M and F (2009) argue that it is only after children learn that the sentential modifiers in adult Japanese have TP structure that the genitive Case errors are expected to disappear.

At Stage I, where the erroneous genitive subject in non-NP contexts is produced, children mistakenly assume that Adnominal T is compatible with C, since default root clause is CP (Rizzi 1994). The structure children hypothesize at Stage I can be something like (41).

(41) Stage I



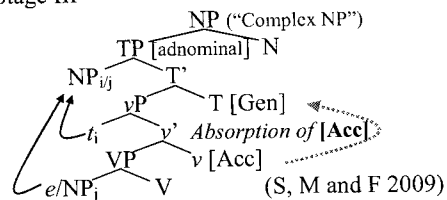
(42) Stage II



In contrast, as in (42), at Stage II where children producing genitive Case errors, children start producing CP sentential modifier, and overgenerating the complementizer *no*. Such children “mistakenly” set the value of the Relative Clause Parameter to CP, and allow the CP layer to be above TP. Children still hypothesize that TP headed by Adnominal T can be compatible with C.

When children find out that the structure of relative clauses is TP in adult Japanese, i.e., the Relative Clause Parameter is set, they enter into Stage III, where children acquire the adult way of the Case assignment system. Erroneous genitive subjects in sentences and overgeneration of the complementizer *no* in complex NPs are no longer observed. S, M and F (2009), thus, argue that the trigger of retreatment from genitive Case errors is setting the value of the Relative Clause Parameter (from CP) to TP. Hence, the structure in child grammar at Stage III is the same as those in adult grammar as shown in (43).

(43) Stage III



At this point, children have acquired that Adnominal T can be compatible only with N, but never with C.

This hypothesis is further supported by the corpus analysis of Jun (0;6-3;8, Ishii 2004 (CHILDES)) (S, M and F 2009). Jun produced erroneous genitive Subjects from 2;2 to 2;9. Jun made errors like (44) before the first production of relative clauses. Then, he frequently produced erroneous CP relative clauses such as (45) from 2;8 to 2;10. It was only around 2;10 when his (adult-like) TP relative clauses increased as in (46).

- (44) Koori-*no ippai ar-u yan (Jun, 2;8) (Adult form: Koori-ga)
ice-Gen lots of exist-Pres Particle ‘There is lots of ice.’ (S, M and F 2009)

- (45) Nimotu noseten *no torakku ya kore (Jun, 2;9)
load carrying Comp truck Particle this
‘This is the truck that is carrying a load.’ (S, M and F 2009)

- (46) Kore na Jun-ga geemu su-ru toko (Jun, 2;10)
this Particle -Nom game do-Pres place
‘This is the place where Jun plays the game.’ (S, M and F 2009)

The data shown above is consistent with the analysis discussed above on genitive Case errors. Jun reset the value of relative clauses at around the age of 2;10, when his genitive Case errors disappeared, and when he started to produce the TP relative clauses.

To summarize, children at around age two who are acquiring Japanese, erroneously assign genitive Case *no* to subject NPs when they optionally produce correct nominative subject. Since the clauses containing genitive subjects share the property with nominative/genitive conversion in adult Japanese, such children seem to know that genitive subject is checked by Adnominal T. However, they probably wrongly assume that Adnominal T can be compatible with C, since default root clause is CP (Rizzi 1994), and it is only after children acquire the structure of relative clauses in adult Japanese that they retreat from the genitive Case errors. Thus, the genitive Case errors found at around two years of age can be considered to result from the underspecification of some features in Tense, just like Root Infinitives in such European languages as English, German, and French, as discussed by Murasugi and Watanabe (2008).

4 Conclusion

This paper described five types of errors that Japanese-speaking children typically produce before they acquire the structure of complex NPs, and attempted to provide theoretical explanations for them. Children at around age one start merging elements, initially with a smaller syntactic category, i.e., a pronoun *no*, and also start producing the first verb forms, or Root Infinitives/ Root Infinitive Analogues. The verb form Japanese-speaking children consistently use at a very early stage is the surrogate form (infinitive form), *ta*-form. Children, even at one year old, know whether or not the stem of the verbs in their mother tongue can stand alone, and children speaking languages whose stem cannot stand alone attach the default morpheme on the stem as the Root Infinitive Analogues. Later, at around the age of two, children acquire the syntactic categories, and the features and the actual phonetic realization of the categories. Then, they sometimes map the visible/sensible properties categorized as adjectives in adult Japanese, and miscategorize them as nouns, thereby over-marking the “adjectives (nouns in child grammar)” with genitive Case marker *no*. The erroneous genitive Subjects are also produced due to the underspecification of Tense, just like European Root Infinitives. It is only after children acquire the structure of relative clauses that they retreat from the genitive Case errors.

The theoretical explanations given here would be rewritten with the different terminologies in the development of linguistic theory. However, the description and the generalization we drew here would hopefully remain. Whatever linguistic theory we may construct, the intermediate stages are composed of a series of grammatical states, and they would reflect the possible linguistic variations available in human language. The syntactic errors children make would reflect the properties of the language faculty endowed in all human beings.

Selected References

- Cinque, Guglielmo. 2004. "Restructuring" and functional structure. Vol.3. In *Structures and beyond: The cartography of syntactic structures*. Adriana Belletti (ed.) New York: Oxford University Press. 132-191.
- Gasser, Michael and Linda Smith. 1998. Learning noun and adjective meanings: A connectionist account. *Language and Cognitive Processes Special Issue: Language Acquisition and Connectionism* 13: 269-306.
- Hoekstra, Teun and Nina Hyams. 1998. Aspects of root infinitives. *Lingua* 106: 91-112.
- Hyams, Nina. 2008. The acquisition of inflection: A parameter-setting approach. *Language Acquisition* 15: 192-209.
- Miyagawa, Shigeru. 2009. Genitive subjects in Altaic and the specification of phase. Ms. (available on line at: <http://web.mit.edu/miyagawa/www/Miyagawa%20Lingua%20ms%20June29-09.pdf>).
- Murasugi, Keiko. 1991. *Noun phrases in Japanese and English: A study in syntax, learnability and acquisition*. Ph.D. dissertation, University of Connecticut.
- Murasugi, Keiko, Chisato Fuji, and Tomoko Hashimoto. 2007. What acquired later in an agglutinative language. Paper presented at the GLOW in Asia VI, Chinese University of Hong Kong, December 27th.
- Murasugi, Keiko and Tomoko Hashimoto. 2004. Two different types of overgeneration of 'no' in Japanese noun phrases. In *Proceedings of the 4th Asian GLOW in Seoul*. Hang-Jin Yoon (ed.) Seoul: Hankook. 327-349.
- Murasugi, Keiko, Tomomi Nakatani, and Chisato Fuji. 2009a. The roots of root infinitive analogues: The surrogate verb forms common in adult and child grammars. Paper presented at BUCLD 34, Boston University, November 7th.
- Murasugi, Keiko, Tomomi Nakatani, and Chisato Fuji. 2009b. A trihedral approach to the overgeneration of 'no' in the acquisition of Japanese noun phrases. Paper presented at the 19th Japanese and Korean Linguistics Conference, University of Hawaii at Mano'a. November 12th.
- Murasugi, Keiko and Eriko Watanabe. 2008. Case errors in child Japanese and the implications for the syntactic theory. Paper presented at the 3rd GALANA, University of Connecticut, September 6th.
- Nagano, Satoshi. 1960. Yooji no gengo hattatsu - Tokuni joshi 'no' no shutokukatei nituite [Language development: A case study of Japanese 'no']. *Kansai Daigaku Kokubun Gakkai: Shimada Kyooju Koki Kinen Kokubungaku Ronsyu*, 405-418.
- Nakatani, Tomomi and Keiko Murasugi. 2009. Gengo kakutoku ni okeru syusetu huteisi gensyo: Zyudanteki kansatuteki kenkyu [Root Infinitive Analogues as Non-Finite Surrogate Forms: A Longitudinal Study of a Japanese-Speaking Child]. *Academia* 86: 1-36. Nanzan University.
- Phillips, Colin. 1995. Syntax at age two: Cross-linguistic differences. *MITWPL* 26: 325-382.
- Rizzi, Luigi. 1993/1994. Some notes on linguistic theory and language development: The case of root infinitives. *Language Acquisition* 3: 371-393.
- Saito, Mamoru. 2004. Genitive subjects in Japanese: Implications for the theory of null objects. In *Non-nominative subjects*. Peri Bhaskararao and Karumuri Venkata Subbarao (eds.) Amsterdam: John Benjamins. 103-118.

- Sawada, Naoko, Keiko Murasugi, and Chisato Fuji. 2009. A theoretical account for the 'erroneous' genitive subjects in child Japanese and the specification of tense. Paper presented at BUCLD 34, Boston University, November 7th.
- Schütze, Carlson and Kenneth Wexler. 1996. Subject case licensing and English root infinitives. *BUCLD* 20: 670-681.
- Suzuki, Takeru. 2001. "No" no syuutoku ni kansuru yobikennkyuu [The preliminary study on the acquisition of Japanese "no"]. *English Studies* 32: 37-63. Tokyo Gakugei University.
- Wexler, Kenneth. 1994. Optional infinitives, head movement, and economy of derivation. In *Verb movement*. Nobert Hornstein and David Lightfoot (eds.) Cambridge: Cambridge University Press. 305-350.
- Yokoyama, Masayuki. 1990. Yooii no rentai syuusyoku hatsuwa ni okeru zyosi "no" no goyoo [Errors of particle "no" in young Japanese children's adjective-noun constructions]. *Hattatsu Shinrigaku Kenkyu* 1: 2-9.

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