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Preface

The project of compiling a series of comprehensive handbooks covering major fields of Japanese linguistics started in 2011, when Masayoshi Shibatani received a commission to edit such volumes as series editor from De Gruyter Mouton. As the planning progressed, with the volume titles selected and the volume editors assigned, the enormity of the task demanded the addition of a series co-editor. Taro Kageyama, Director-General of the National Institute for Japanese Language and Linguistics (NINJAL), was invited to join the project as a series co-editor. His participation in the project opened the way to make it a joint venture between NINJAL and De Gruyter Mouton. We are pleased to present the *Handbooks of Japanese Language and Linguistics (HJLL)* as the first materialization of the agreement of academic cooperation concluded between NINJAL and De Gruyter Mouton.

The HJLL Series is composed of twelve volumes, primarily focusing on Japanese but including volumes on the Ryukyuan and Ainu languages, which are also spoken in Japan, as well as some chapters on Japanese Sign Language in the applied linguistics volume.

- Volume 1: *Handbook of Japanese Historical Linguistics*
- Volume 2: *Handbook of Japanese Phonetics and Phonology*
- Volume 3: *Handbook of Japanese Lexicon and Word Formation*
- Volume 4: *Handbook of Japanese Syntax*
- Volume 5: *Handbook of Japanese Semantics and Pragmatics*
- Volume 6: *Handbook of Japanese Contrastive Linguistics*
- Volume 7: *Handbook of Japanese Dialects*
- Volume 8: *Handbook of Japanese Sociolinguistics*
- Volume 9: *Handbook of Japanese Psycholinguistics*
- Volume 10: *Handbook of Japanese Applied Linguistics*
- Volume 11: *Handbook of the Ryukyuan Languages*
- Volume 12: *Handbook of the Ainu Language*

Surpassing all currently available reference works on Japanese in both scope and depth, the *HJLL* series provides a comprehensive survey of nearly the entire field of Japanese linguistics. Each volume includes a balanced selection of articles contributed by established linguists from Japan as well as from outside Japan and is critically edited by volume editors who are leading researchers in their individual fields. Each article reviews milestone achievements in the field, provides an overview of the state of the art, and points to future directions of research. The twelve titles are thus expected individually and collectively to contribute not only to the enhancement of studies on Japanese on the global level but also to the opening up of new perspectives for general linguistic research from both empirical and theoretical standpoints.

The *HJLL* project has been made possible by the active and substantial participation of numerous people including the volume editors and authors of individual

- van der Lely, Heather K. J., Melanie Jones, and Chloe R. Marshall. 2011. Who did Buzz see someone? Grammatical judgement of *wh*-questions in typically developing children and children with Grammatical-SLI. *Lingua* 121. 408–422.
- Vainikka, Anne. 1993/94. Case in the development of English syntax. *Language Acquisition* 3. 257–325.
- Wexler, Kenneth, Jeannette Schaeffer and Gerard Bol. 2004. Verbal syntax and morphology in typically developing Dutch children and children with SLI: How developmental data can play important role in morphological theory. *Syntax* 7. 148–198.

Keiko Murasugi

4 Root infinitive analogues in Child Japanese

1 Introduction

Root Infinitives (RIs) are non-finite (infinitival) verb forms used in matrix (root) clauses, i.e., a context where they cannot appear in adult grammar, by children around two years of age. Root Infinitives are attested in very young children's speech across a wide variety of languages. Although the use of non-finite verbs in root contexts by very young children is a universal phenomenon, there are morphological variations associated with the different verbal systems in the children's target languages. RIs can be infinitives, bare verbs, participles, or certain (surrogate) "finite" forms.

In some languages with relatively rich morphology such as Dutch (Haegeman 1995; Blom and Wijnen 2000) and French (Krämer 1993; Rasetti 2003), among others, children may optionally use the infinitival forms of inflection on the verb, rather than finite ones.¹

- (1) #*Peter bal pakken.* (2;1) (Dutch)

Peter ball get-INF
'Peter (wants to) get the ball.'
(Blom and Wijnen 2000)

- (2) #*Dormir petit bébé.* (1;11) (French)

sleep-INF little baby
'A little baby sleeps.'
(Guasti 2004)

On the other hand, in languages which are relatively poor in inflectional morphology like English, non-finite verbs appear in the finite (root) contexts as bare verbs. In adult English, infinitive forms are generally the bare stems, and English-speaking children produce the bare stems within the age range of 20–36 months as shown in (3).

¹ Abbreviations used in the glosses are as follows: ACC = Accusative Case, ASP = Aspect morpheme, DAT = Dative Case, INF = Infinitive, MIM = Mimetic word, MOOD = Mood marker, NEG = Negation, NOM = Nominative Case, PRS = Present, PST = Past, REQ = Request, SFP = Sentence final particle.

- (3) a. #*Eve sit floor.* (1;7) (English)
(Brown 1973)
- b. #*That truck fall down.* (2;0) (English)
(Sano and Hyams 1994)

Just like in English, very young children speaking Swahili also omit functional elements such as tense and subject agreement (Deen 2002).² An equivalent non-finite stage has also been identified for children acquiring languages that do not have an infinitive construction. In Modern Greek, for example, a bare subjunctive/perfective is reported to be the Root Infinitive analogue (RI analogue) (Varlokosta, Vainikka and Rohrbacher 1996; Hyams 2002).

There are also many languages whose RI analogue is the “full” form. Kim and Phillips (1998) suggest that the RI analogue for Korean is the verb stem with the mood marker *-e*. Bar-Shalom and Snyder (2001) report that children speaking Russian produce two forms of RIs: infinitives in a root clause and imperative forms. Salustri and Hyams (2003) also observe that the proportion of imperatives is significantly higher than that of RIs. According to Salustri and Hyams (2003, 2006), Italian-speaking children begin using imperatives before age two, and the verbs have appropriate morphology.

- (4) *dammi!* (1;10)
give-to me_{cl}
'Give it to me.'
(Salustri and Hyams 2003)

Similarly, Lillo-Martin and Quadros (2009) and Chien (2008) propose that imperative forms are RI analogues in sign languages (American Sign Language (ASL)/Brazilian Sign Language (LSB)) and Chinese, respectively. Grinstead (1998), Bel

² Deen (2002) typologically classifies child languages into three types: languages that allow “true” RIs such as German and French, languages that have no RI phenomenon such as Italian and Japanese, and languages like Swahili whose very early non-finite verb forms appear with bare verbs. In this paper, we assume that not only the children speaking Italian, Japanese, Spanish, Catalan, but also children speaking such pro-drop languages as Chinese, ASL, and Turkish, for example, go through the RI analogue stage. (See Murasugi, Fuji and Hashimoto 2010; Murasugi, Nakatani and Fuji 2012; among others.)

Table 1: Typology of Root Infinitives (Deen 2002)

True RI Languages		Non-RI Languages		Bare Verb Languages	
Dutch	French	Catalan	Italian	English	Inuktitut
German	Icelandic	Japanese	Spanish	Quechua	Sesotho
Russian	Swedish		Siswati	Swahili	

(2001), and Montrul (2003) find that imperatives are quite frequent in the early stage and decrease over time in Spanish and Catalan.

Dutch has been considered to be a typical RI language, but Wijnen, Kempen, and Gillis (2001) report that verbal forms resembling imperatives are found, in addition to the Infinitive forms, at the early two-word stage. If that is the case, then Dutch-speaking children produce the imperative forms as well as the infinitive forms as their first verbs.

- (5) “... Starting with the early two-word stage, forms resembling imperatives were discarded from the analyses, as it is unclear whether they are finite or non-finite.”
(Wijnen, Kempen and Gillis 2001)

The findings independently obtained from Russian, Italian, and Dutch described above should not be labeled coincidental. The very early non-finite verbs do not necessarily appear in a single form per language, and the “(apparently) fully conjugated” forms seem to be chosen as the RI analogue in more than just a few languages.

It is well known that there are some salient morpho-syntactic and semantic properties of RIs, as listed in (6).

- (6) a. RIs are tenseless verbs in root contexts.
- b. At the RI stage, no T-related/C-related items are found.
- c. RIs are produced to describe events in real time, that is, as an on-going activity in past, present, or future that the child is involved in (Aspect Effects).
- d. RIs occur in modal contexts (the Modal Reference Effects (MREs)).
- e. RIs are restricted to event-denoting predicates (the Eventivity Constraint).
- f. Head Merger is not available during the RI analogue stage.

For RIs, two peculiar types of contextual interpretation have been identified. One type refers to so-called extensional contexts, whereby RI analogues are produced to describe events in real time, that is, as an on-going activity in past, present, or future that the child is involved in. The other type of interpretation refers to so-called intentional contexts, whereby RI analogues are produced as a result of children’s intention, desire, or volition, in various irrealis modal contexts. This is termed the Modal Reference Effects (MREs) (Hoekstra and Hyams 1998).

The MREs, described in (6d), mean that RIs typically have a modal or irrealis meaning, expressing volition or request (Hoekstra and Hyams 1998; among others). Observe the example in (7) from Dutch.

(7) #*Vrachtwagen emmer doen.* (2;4) (Dutch)

truck bucket do-INF

Context: Matthijs (speaker) wants the investigator to put the truck in the bucket.
(Blom and Wijnen 2000)

Besides the MREs, it has been also widely observed that RIs are largely restricted to eventive predicates as shown in (6), whereas finite verbs can either be eventive or stative. Early eventive verbs tend to receive a modal meaning with overwhelming frequency, and this is termed the Eventivity Constraint (Hoekstra and Hyams 1998). As is clear from the English case given in (3), the head merger between V and T (ense) is not fully available either during the stage of RI analogues (Phillips 1995, 1996; Murasugi and Fuji 2009).

It has been also pointed out that RIs do not occur in interrogative sentences with *wh* nor with T-related elements such as *be*-copula and auxiliaries. According to Haegeman (1995), *wh*-questions are rarely produced by children at two to three years of age.

(8) #*Wie staat daar?* (2;6) (Dutch)

who stands there?

'Who stands there?'

(Haegeman 1995)

When *wh*-questions are produced by young children, the main verbs used in the *wh*-questions are finite, as shown in (8) and Table 1. This is termed Crisma's effect.

Table 1: Finiteness in declaratives and questions:
Dutch (Haegeman 1995, modified in Phillips 1995, 1996)

Hein 2;4-3;1	+finite	-finite	%-finite
All clauses	3768	721	16%
<i>wh</i> -questions	88	2	2%

Total = 4579, $\chi^2 = 12.71$, $p < 0.001$

Infinitive verbs are cross-linguistically common in child language, and the phenomenon is widespread. RIs have some salient morpho-syntactic and semantic properties. The stage ends fairly consistently by age of three or so. Obviously, the phenomenon exhibits some deficiency in the functional structure of children who use RIs, but what exactly does it mean that the RIs are not marked for tense or agreement?

2 Problems

The Root Infinitive (RI) phenomenon has occupied a central place in the generative studies of language acquisition (Rizzi 1993/1994; Wexler 1994; Hoekstra and Hyams 1998; among others). Nevertheless, there are several mysterious aspects of RIs that

have not received adequate descriptions and explanations. For instance, RIs have been considered to be optional phenomena, because children speaking English, for example, use both non-finite and finite verbs at the stage of RIs. However, it is not crystal clear what "optionality" exactly means.

Second, the cross-linguistic distribution of RIs is gradient (Guasti 2002): in the acquisition of non-pro-drop languages, e.g., English, Dutch, and German, children have quite a long period of RI use, sometimes extending over three years. In contrast, in such pro-drop languages as Japanese, Korean, Italian, Catalan, and Spanish, there is a very short RI analogue stage.

Furthermore, in such pro-drop languages as Japanese and Korean, the RI analogue stage starts very early and ends before age two. Grinstead (2000), for example, finds that Spanish and Catalan-speaking children at a very early stage lack contrastive use of tense and number morphology, but this stage ends around 1;10. This raises a question: How is the property of "pro-drop" related to the property of RIs?

Third, there have been several proposals claiming that an RI analogue stage could be found even in pro-drop languages. Sano (1995, 1999), for example, has conducted a detailed longitudinal study of three Japanese-speaking children, Toshi (2;3-2;8), Ken (2;8-2;10) and Masanori (2;4), to see if non-finite forms are produced in main clauses. The verb forms he examined are exemplified in (9): the preverbal (*Renyōkei*) form, *-i*, in (9a), the Irrealis (*Mizenkei*) form, *-a*, in (9b), and the Conjunctive form, *-te*, in (9c).

(9) a. *Taroo ga kore ni hair-i-ta-i (koto).*

NOM this to enter-(Preverbal)-want-PRS (fact)

'Taro wants to enter into this.'

b. *Taroo ga kore ni hair-a-na-i (koto).*

NOM this to enter-(Irrealis)-NEG-PRS (fact)

'Taro does not enter into this.'

c. *Taroo ga kore ni hait-te, Ziroo ga are ni hair-u.*

NOM this to enter-(Conjunctive) NOM that to enter-PRS

'(While) Taro enters into this, Jiro enters into that.'

As shown in Table 2, the Preverbal *-i*, the Irrealis *-a*, and the Conjunctive *-te* were not produced as a main verb by these children, though these forms were produced in non-root contexts, i.e., under finite auxiliary predicates.

Table 2: Inflection of main verbs in affirmative declarative root clause (Sano 1999)

	Non-past-(<i>tu</i>)	Past- <i>ta</i>	Preverbal	Irrealis	Conjunctive
Toshi (2;3-2;8)	288	84	0	0	1 (0.2%)
Ken (2;8-2;10)	111	175	0	1 (0.3%)	0
Masanori (2;4)	138	50	0	0	0

Based on data analysis, Sano (1995, 1999) concludes that children at two years of age, who would be in the RI stage in some other languages, do not produce non-finite verbal forms, and hence, there is no RI stage in child Japanese.

Kato et al. (2003) support Sano's conclusion. Pointing out that bare verb stems without tense morphemes are not allowed in adult Japanese, they predict that an RI would have either the present- or the past-tense form. They analyze the corpus of two Japanese-speaking children, Ryo (2;0–3;0) and Tai (2;0–2;9), and find that neither of these forms is overused. Their results are given in Table 3 and Table 4.

Table 3: Number of past- or present-tense verbal form in Ryo's corpus (Kato et al. 2003)

	Past-tense verb forms	Present-tense verb forms
Correct form	476	761
Erroneous form	7	4
Unclear	2	5
Total	485	770

Table 4: Number of past- or present-tense verbal form in Tai's corpus (Kato et al. 2003)

	Past-tense verb forms	Present-tense verb forms
Correct form	787	1667
Erroneous form	3	15
Unclear	0	14
Total	790	1696

As shown above, few erroneous verbal forms are found. Both of the two-year-old children produced present- and past-tense forms in appropriate contexts. Hence, Kato et al. (2003) conclude that an RI stage is not found in child Japanese.

In this chapter, we address two questions: (i) What is RI (analogue) stage? And (ii) what does it mean that verbs are not marked for tense agreement at an early stage of grammar acquisition? We argue that Japanese-speaking children do go through the RI analogue stage, and it is the stage where Tense Phrase is either truncated or Tense/Complementizer elements are jointly, not separately, projected in one node as a T-C head. Non-finite verbs in finite (root) contexts are common in the linguistic production of very young child across languages, but the early verbal forms in child languages reflect the core morphological properties of the adult grammar.³ We will argue that (i) there is a Very Early Non-Finite Verb Stage in Japanese, (ii) the forms in question are the past-tense form *V-ta* and bare onomatopoeia/mimetics,

³ This analysis does not contradict the descriptive findings reported in Sano (1995) and Kato et al. (2003). Rather, our studies are consistent with their results: Erroneous non-finite verb forms are produced not by two-year-olds, but by much younger children.

(iii) the stage occurs much earlier than Root infinitives in European languages, i.e., even at one year of age, and (iv) the form is initially (around 1;6–1;7) used 100% of the time in the full range of environments.⁴

3 Root infinitive analogues in Japanese

3.1 Verb forms in adult Japanese and Stem Parameter (Hyams 1986, 2008)

Before we go into RI analogues in child Japanese, let us briefly explain the Japanese verbal conjugation system. In adult Japanese, the bare stems of the verbs cannot appear without tense or aspect morphemes, as shown in (10).

- (10) a. **tabe* 'to eat'
 b. *tabe-ta* 'ate' (past/ perfect)
 c. *tabe-ru* 'eat' (present/ future)
 d. *tabe-te (i)ru* 'is eating/ have eaten' (present progressive/result state)
 e. *tabe-te (i)ta* 'was eating/ had eaten' (past progressive/perfect)
 f. *tabe-tyatta* 'have eaten' (perfective)
 g. *tabe-te* 'please eat' (request)

As in (10), the verb stem, *tabe* 'to eat,' itself is not allowed in Japanese. Some morpheme must attach to the verb stem as shown in (10a). The stem is followed by the past tense morpheme *-ta* in (10b), and the present tense morpheme *-ru* in (10c). In (10d), the aspect morpheme *-te i-*, which has either progressive or perfect interpretation, is attached to the verb stem, and it is followed by the present tense morpheme *-ru* to refer to a present progressive event or a result state. In (10e), the past tense morpheme *-ta* attaches to the aspect form, and the form has an either a past progressive or a past perfect interpretation. In (10f), the verb stem is followed by the perfective morpheme *-tyatta*, and in (10g), by the request morpheme *-te*.

⁴ See Murasugi and Fuji (2008) for the supporting evidence for Phillips' (1995) insight that the merge of the verb and inflection is not available at the RI Stage. See also Sawada, Murasugi and Fuji (2009) and Sawada and Murasugi (2011) for the report that Japanese-speaking children produce so-called 'the erroneous genitive subjects' (like *Emi-tyan-no* (Emi's) in *Emi-tyan no yattikiru* (Emi will do it)) at around the age of two just like English-speaking children do (like *my* in *My want one*). We conjecture that this stage is the stage of Optional Infinitives (or a typical RI stage in European languages) where TP is projected, but the features in Tense are underspecified (rather than fully specified). In other words, such forms as *V-ta* form and bare onomatopoeia/mimetics are used as RI analogues when the Tense Phrase is either truncated or Tense/Complementizer elements are jointly, not separately, projected in one node as a T-C head (at around the age of one); while erroneous genitive (and dative) subjects (Murasugi and Watanabe 2009) are optionally used when the features in T are underspecified (at around the age of two) in Japanese.

In fact, whether or not the verb stem can stand by itself without bound morphemes seems to show variation across languages. The *pro*-drop languages, such as Italian or Japanese, seem to share the property that the stem cannot stand by itself. According to Hyams (1986, 2008), languages are parameterized (the Stem Parameter) with respect to whether or not their verbal stem constitutes a well-formed word. For example, as shown in Table 5, in English, a verbal stem, *speak*, is a well-formed word and can stand on its own as a stem. However, in Italian, as shown in Table 6, a verbal stem, *parl-* ‘to speak,’ is ill-formed. Without any agreement morphemes, the stem of the verb cannot appear in Italian.

Table 5: Italian *parl-* (to speak)

	Singular	Plural
1p	-o	-iamo
2p	-i	-ate
3p	-a	-anno

Table 6: English *speak*

	Singular	Plural
1p	-	-
2p	-	-
3p	-s	-

(Hyams 1986)

According to Hyams (1986, 2008), inflectional morphology in a language like Italian represents a “core” property of the language, and it is closely related to the setting of a particular parameter. On the other hand, in English, the Stem Parameter specifies that verbs are uninflected and so the acquisition of the 3rd person, past tense, and progressive morphemes represents a departure from the core grammar of English. This proposal is confirmed by the fact that English-speaking children acquire those morphemes late (Brown 1973, among others), whereas Italian-speaking children acquire verbal inflection relatively very early (Hyams 1986).

Assuming the Stem Parameter, Murasugi, Fuji and Hashimoto (2007) propose that children acquiring [-bare stem] languages produce RI analogues, since the bare stem itself is not a well-formed word in those languages. Japanese-speaking children attach a past tense morpheme *ta* to the verb stem for volition and irrealis meaning as well as for past/perfect events, and the typical properties of RIs listed in (6) are also observed with the verb + *ta* form, and hence, the *V-ta* form is a RI analogue in Japanese.

3.2 V-ta forms as root infinitive analogues (RIAs)⁵

In this section, based on the analysis of the longitudinal and observational data of Yuta and corpus analysis of the longitudinal data from Sumihare (Noji 1973–1977, also available in the CHILDES), we show that Japanese-speaking children choose the past tense *V-ta* form as RI analogues, which show some parallel properties with RIs. Importantly, *V-ta* form is initially used 100% of the time with various meanings.

Sumihare and Yuta used *V-ta* form for volition and request as in (11) and (12). This indicates that the RI analogues in Japanese have the Modal Reference Effects just like other languages. First, let’s observe Sumihare’s data in (11).

- (11) a. #*Atti i-ta* (1;6) (adult : volition/ request *ik-u/ik-e*)
there go-PST
‘(I) go there / (You) go there.’
- b. #*Atti Atti i-ta* (1;6) (adult : volition/request *ik-u/ik-e*)
there there go-PST
‘(I) go there / (You) go there.’
- c. #*Sii si-ta* (1;7) (adult : volition *si-tai*)
pee do-PST
‘(I) want to pee.’
- d. #*Sii si-ta-naa* (1;7) (adult : volition *si-tai*)
pee do-PST-Mood
‘(I) want to pee.’
- e. #*Baba pai-ta* (1;8) (adult: request *si-te*)
muddy discard-PST
‘Please throw (it) away.’
(Murasugi, Fuji and Hashimoto 2007; Murasugi and Fuji 2008, 2009)

In (11a), Sumihare intended to mean ‘I want to go there,’ or ‘You go there.’ According to Sumihare’s father (Noji 1973–1977), he went out with Sumihare, with Sumihare on his back. The father tried to go back home, but Sumihare pointed to a different direction and angrily uttered *atti i-ta* ‘there go-PST.’ (11b) is a similar example. It is described that Sumihare produced like this when he wanted to go somewhere. In (11c) and (11d), when he wanted to pee, Sumihare uttered *sii si-ta*, using an onomatopoeic expression, *sii*, which means ‘to pee.’ In adult grammar, the form should be *si-tai* ‘want to do,’ but Sumihare used the past-tense *ta*-form. In 0, *ta* is attached to

⁵ See Murasugi, Fuji, and Hashimoto (2007), Murasugi and Fuji (2008, 2009), Murasugi (2009a, b), Nakatani and Murasugi (2009), Murasugi, Nakatani and Fuji (2009), and Murasugi and Nakatani (to appear) for details.

another onomatopoeic expression, *pai*, which means throw away. The situation was that Sumihare had a potato in his hands, and asked his mother to remove mud from the potato. In this context, the request *V + te* form should be used, but *V-ta* form is used instead.

The exactly parallel phenomenon was found with another Japanese-speaking child, Yuta, as shown in (12) (Nakatani and Murasugi 2009).

- (12) a. #*Ai-ta*. *Ai-ta* (1;7) (adult: volition/request *ake-ru/ake-te*)
open-PST open-PST
'(I) want to open (the cabinet) / (You) open (the cabinet).'
- b. #*Hai-ta*. *Hai-ta* (1;7) (adult: volition/request *hak-u/hak-ase-te*)
put on PST put on-PST
'(I) want to wear (the shoes) / (You) put (the shoes) on (me)
- c. #*Hait-ta*. *Hait-ta* (1;7) (adult: volition/request *ire-ru/ire-te*)
enter-PST enter-PST
'(I) want to put (this notebook in this bag) /
(You) put (this notebook in this bag).'
- d. #*Tot-ta* (1;7) (adult: volition/request *to-ru/to-tte*)
take-PST
'(I) want to take (the soap) / (You) take (the soap).'
- (Nakatani and Murasugi 2009)

In (12a), Yuta used the past tense *V-ta* form, when he wanted to open the cabinet or he wanted to ask his grandmother to open the cabinet. In this context, he should have used the present form, *ake-ru*, or the imperative form, *ake-te*, but instead, he produced the past tense *ta* form. In (12b), he used *hai-ta*, *V-ta* form, when he wanted to wear shoes or he wanted to ask his grandmother to put shoes on him in order to go out. In (12c), Yuta produced *hait-ta*, intending to mean 'I want to put this notebook into this bag', or 'You put this notebook in this bag.' He used *V-ta* form to express his volition or request. Lastly in (12d), *tot-ta* was produced instead of the present form, *to-ru*, or the imperative form, *tot-te*, intending to mean 'I want to take the soap', or 'You take the soap', since Yuta could not reach the soap that he wanted to play with. The data shown above indicate the typical properties associated with RIs, i.e., Modal Reference Effects stated in (6) that have been found in European RIs.

V-ta form is used not only for the intentional meaning (volition and request), but also for the extensional meaning (progressive and result state), as stated in (6). It is used instead of the correct aspectual form, such as *V + teiru* and *V + teita*, which have either progressive or result state interpretations. Some examples taken from the Sumihare Corpus are given in (13).

- (13) a. #*Baba tui-ta* (1;6) (adult: result *tui-te iru*)
thread stick-PST
'The thread stuck (to my finger).'
- b. #*Sii si-ta* (1;6) (adult: progressive *sii-si-te iru*)
pee do-PST
'(She) is peeing.'
- c. #*Buu maimai-ta* (1;10) (adult: progressive *si-te iru*)
plane round-PST
'A plane is going round.'
- d. #*Akatyan gaaze oti-ta* (1;11) (adult: result *oti-te i-ta*)
baby gauze drop-PST
'Baby's gauze was on (the floor).'
- (Murasugi, Fuji and Hashimoto 2007; Murasugi and Fuji 2008, 2009)

In (13a), Sumihare found a thread on his finger, and intended to inform his mother of this. In this context, an aspectual morpheme, *teiru*, should be attached to the verb stem, but Sumihare uttered *tui-ta*, using *V-ta* form. In (13b), Sumihare employed *V-ta* form instead of *V + teiru* form for the progressive event where one of his friends was peeing. In (13c), he saw a plane flying around and wanted to explain the situation. He used the onomatopoeic expression *maimai*, which means something goes around, and attached the past tense morpheme *ta* to it, instead of the progressive *teiru*. In (13d), he found a baby's gauze towel on the floor and picked it up. In this context, the past perfect ending *teita* should have been used, yielding the form *oti-teita*, but instead he uttered *oti-ta*.

The longitudinal study also found that Yuta used the *V-ta* form instead of the *V + teiru* form for the progressive and result state when he was a late one-year-old, just as Sumihare had done.

- (14) a. #*Tui-ta* (1;3) (adult: result *tui-te iru*)
on-PST
'(The light) is on.'
- b. #*Oti-ta otyoto oti-ta* (1;7) (adult: progressive *otosi-te iru*)
drop-PST outside drop-PST
'(I) am dropping (this doll) outside.'
- c. #*Tui-ta* (1;6) (adult: result *tui-te iru*)
stick-PST
'(The rice) stuck (to my hand).'
- d. #*Oti-ta oti-ta* (1;7) (adult: result *oti-te iru*)
drop-PST drop-PST
'(A case of video tapes) is on (the floor).'
- (Nakatani and Murasugi 2009)

As in (14a), *tui-ta* was produced as early as 1;3. *Tui-ta* is one of the very first verbs that he produced, and the verb was employed in *V-ta* form 100% of the time until *V + tyatta* form appeared at 1;6. Yuta uttered *tui-ta* when he was watching the light while lying on the sofa. In (14b), Yuta used *oti-ta* when he dropped a doll outside. He seemed to intend to mean ‘I am dropping the doll outside.’ In this context, he should have used the aspectual morpheme, *teiru*, but he used *ta* instead. In (14c), he uttered *tui-ta* instead of *tui-teiru* when he found rice on his hand. We analyze this utterance as having the result interpretation because the rice had already been stuck on his hand for a while when he found it. Likewise, in (14d), Yuta also used past tense *ta* form instead of aspectual *teiru* form for result state.

As Murasugi, Fuji and Hashimoto (2007) and Nakatani and Murasugi (2009), among others, point out, T(ense)-related items, such as Nominative Case and copulas, and C-related items are not produced with the non-finite verbs. At this stage, either some of the features in T are underspecified or T projection is truncated, as has been pointed out by many researchers (Rizzi 1993/1994; Wexler 1994, among others).

Then, how about the presence of *wh*-questions at this stage? Interestingly, Crisma’s effect is observed in Japanese, even though *wh*-questions in Japanese does not require main verbs to move.⁶ As in European languages, Tense- or C-related elements (e.g., complementizers and *wh*-phrases) are not found with the non-finite *-ta* forms, as Figure 1 shows.⁷

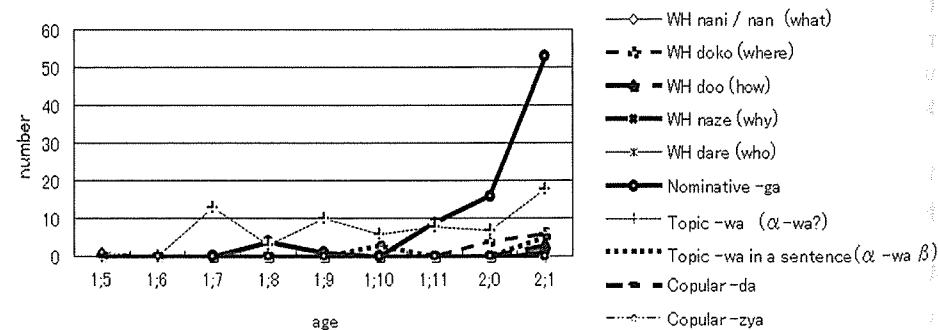


Figure 1: Frequency of C-, T- and D-related elements in Sumihare’s corpus

These data indicate that the RIs are not merely due to performance deficits of children. Rather, MoodP is active during the Very Early Non-Finite Verb (RIA) Stage, while AspectP and TP are still missing and the head merger inside the verbal projection is still unavailable. Evidence for the lack of Ts (or the jointed T-C heads) found

6 Nakayama (1997) finds that *wh*-questions start to appear in child production after what we call the Root Infinitive analogue stage.

7 The topic marker *-wa* was produced at a very early stage, only in the form of NP-*wa*, without ever being followed by verbal predicates.

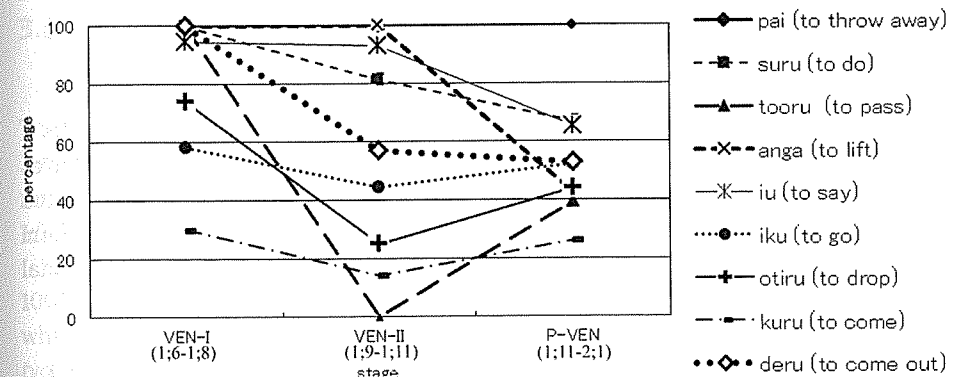


Figure 2: Proportion of null topic nominals for each verb in Sumihare’s corpus (Murasugi and Fuji 2008, 2009)

in the absence of any other T (or I) elements at the stage in question. Both the Nominative Case marker *-ga* and the finite *da/zya* (the finite *be*, the copula), and the co-occurrence of the tense-related adverbs such as *kinoo* (yesterday) and the RI analogue were not found in Sumihare’s corpus, which confirms the possibility that the stage is due to deficits in T (or I) projection (Kishimoto and Murasugi 2013).

Then, what about pro-drop in the subject position? It has been pointed out that RIs tend to co-occur with null subjects more often than finite verbs (i.e., Krämer’s effect). As is the case in the acquisition of German (Krämer 1993), Sumihare initially produced null topic nominals (without nominative case marker) frequently with many verbs, though the rate of them was sometimes lower depending on the verb.⁸ As shown in Figure 2,⁹ the percentage of null topic nominals of speaker-oriented verbs such as topic nominals as *pai* (to throw away) or *suru* (to do), where the agent tends to be a speaker (Ego), stays high even after proper inflections (conjugations) appear. On the other hand, subjects (a Topic NP) conveying new information with eventive verbs such as *oti-ru* (to drop) or *ku-ru* (to come) do not tend to be null. This is different from the findings reported in studies of non-null-subject languages, though it should not be surprising given that Japanese is a discourse-*pro* language.¹⁰

8 Although verb movement may be involved in the assignment of Nominative Case (Huang 1987; Otani and Whitman 1991), the Nominative Case *-ga* does not appear in the subjects’ language at the RI analogue stage. The Nominative Case marker *-ga* first appears around 1;11 for Sumihare.

9 VEN stands for Very Early Non-Finite Verb Stage, which is divided into two sub-stages: VEN-I is the stage where the *V-ta* form is used almost 100% of the time, and VEN-II is the stage where a modal meaning is realized with the form *tyoodai*. P-VEN stands for Post-Very-Early-Non-Finite Verb Stage.

10 Kim and Phillips (1998) argue that the overuse of the default mood-inflection “-e” in the earliest speech of Korean children parallels the RI in other languages, and report that there is no correlation between the RI analogue form and the number of null subjects produced at this stage. See Murasugi and Fuji (2008) for an argument in favour of a parallelism between the RI analogue stages of Japanese and Korean.

3.3 V+ *tyatta* forms (perfective verb forms) produced by Yuta as surrogate infinitives¹¹

Some Japanese-speaking children use another *ta*-form for the RI analogue. Yuta, a Japanese-speaking boy, for example, used V + *tyatta* forms, a perfective form, as RI analogues at the late stage of the very early non-finite verb stage (Nakatani and Murasugi 2009). V + *tyatta* form appeared at 1;6, after the stage when *V-ta* form had been used 100% of the time. Just like *V-ta* form, V + *tyatta* form has the Modal Reference Effect, and shows the properties of RI analogues, as shown in (15).

- (15) *Kippu kippu kippu *ai-ta. *ai-ta. *ai-tyatta. *ai-tyatta.* (1;7)
 clips clips clips open-PST open-PST open-PERF open-PERF
 ‘(I) want to / (You) open this box of clips.’
 (adult: volition/request *ake-tai/ake-te*)

In (15), *ai-ta* and *ai-tyatta* were produced in the same context, and they both had the same intended meaning ‘I want to open this box of clips’, or ‘You open this box’. Hence, V + *tyatta* forms as well as *V-ta* forms are used for volition and request. V + *tyatta* forms are also used for result states.

- (16) **Tui-tyatta* (1;7) (adult: result *tui-te iru*)
 stick-PERF
 ‘(The rice) stuck (to my hand).’
 (Nakatani and Murasugi 2009)

Yuta uttered (16) when he found rice on his hand. In this context, he should have used the *teiru* form, but instead he used the *tyatta* form. Note that the *V-ta* form, *tui-ta*, was used in a similar context in (14). V + *tyatta* form and *V-ta* form are used in the same manner to express result states.

Interestingly enough, unlike the case of *V-ta* forms, Yuta never used V + *tyatta* form with the meaning of progressive. We analyze that these *tyatta* forms were produced when Yuta found out that *tyatta* is another morpheme that can be attached to the verb stem as well as *ta*, in order to make the stem morphologically well-formed. *Tyatta* is perfective in adult Japanese, but we conjecture that Yuta used these V + *tyatta* forms as non-finite verbs as well as perfective, and this is the first “adult inflection” that the child learned after the stage of non-finite *V-ta* forms used as RI analogues.

¹¹ See Nakatani and Murasugi (2009) and Murasugi and Nakatani (to appear) for details.

3.4 Parallels and differences between Sumihare’s and Yuta’s RI analogue stage

The statistics for the kinds of verbs produced also confirm the predominance of the *V-ta* form forms at the RI analogue stage. The number of instances of each verbal form and the overall proportion of the verbal forms produced by Sumihare between 1;5 and 2;1 are shown in Figures 3 and 4, respectively.

The past tense *V-ta* form is predominantly used until 1;11, and it is used almost 100% of the time at 1;6 and 1;7. The RI analogue stage seems to end at around 1;11, when the present form and other forms appear. Sumihare distinctively used the *tyoodai* ‘give me’ form between 1;9 and 1;10 in order to express volition and request (e.g., *Pai-tyoodai* ‘please throw away’). Interestingly enough, as the frequency of the *tyoodai* form increases, the frequency of *V-ta* forms decreases. This would be

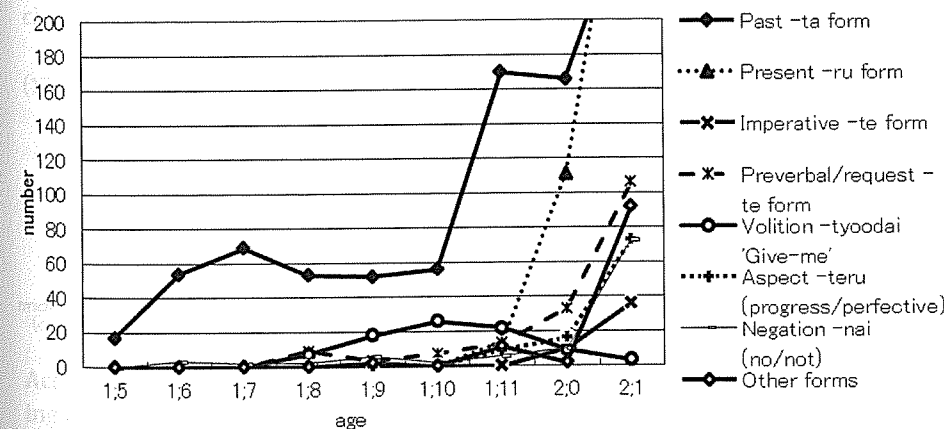


Figure 3: Number of instances of verbal forms (Sumihare)

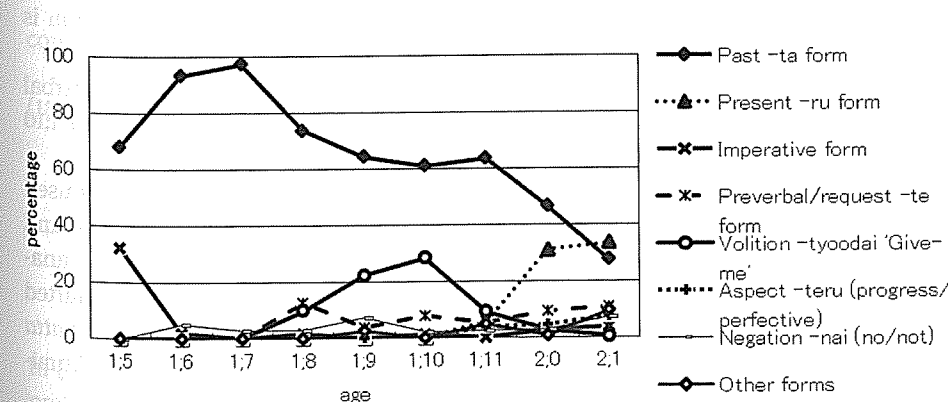


Figure 4: Percentage of verbal forms (Sumihare) (Murasugi, Nakatani and Fuji 2009)

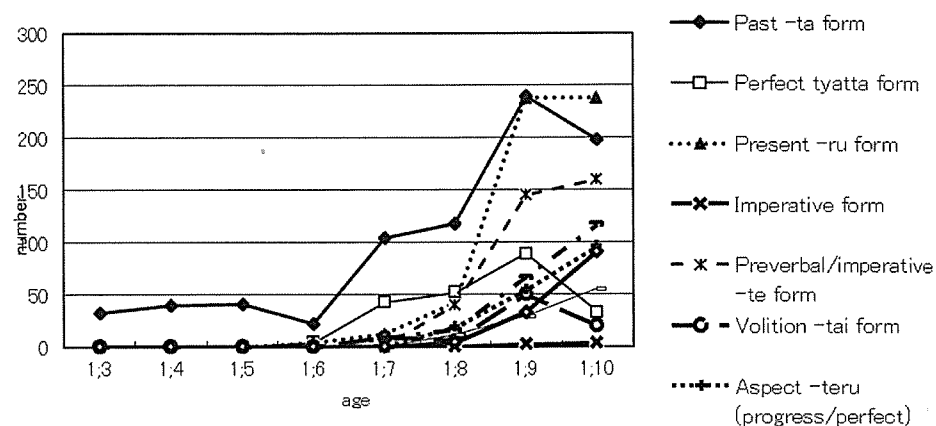


Figure 5: Number of instances of verbal forms (Yuta)

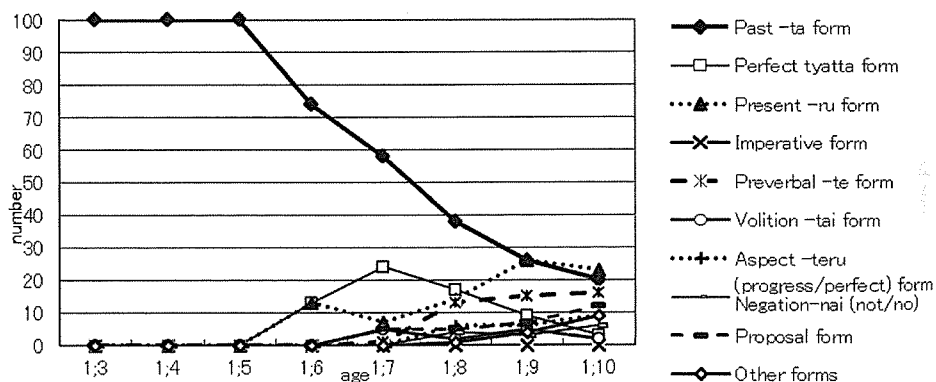


Figure 6: Percentage of verbal forms (Yuta) (Murasugi, Nakatani and Fuji 2009)

because volition and request are expressed by *tyoodai* forms, and the *V-ta* form is not used for those meanings anymore.

Importantly, Yuta and Sumihare show parallel curves in the acquisition of verbal conjugations. The results of our analysis of Yuta's production between 1;3 and 1;10 are shown in Figures 5 and 6 (Murasugi, Nakatani and Fuji 2009).

For Yuta, the past tense *V-ta* form appeared at 1;3, and it is predominantly used until 1;8. It is also notable that the perfective *V + tyatta* form appears from 1;6, and that form is the second most predominant until 1;7. Just like Sumihare, the RI analogue stage for Yuta came to an end when the present form and other forms started to appear at around 1;8. On the other hand, Yuta produced the perfective *V + tyatta* form, the volition *V-tai* form, and the propositive form more frequently than Sumihare did.

In this subsection, we argued that child Japanese has a RI analogue stage, and *V-ta* and/or *V + tyatta* is chosen as the RI analogue form. Those forms have the Modal Reference Effects and are predominantly used until other verbal forms appear. In the following subsection, we discuss why Japanese-speaking children go through an RI analogue stage, but not an RI stage.

3.5 *V-ta* as an adult non-finite verb form

Then, why is the *V-ta* form chosen as an RI analogue? Murasugi (2009a) argues that there are several pieces of evidence to indicate that the *V-ta* form is, in fact, the most unmarked non-finite form in adult Japanese.

It is well known that the non-finite *V-ta* form is found in complex NPs in adult Japanese (Teramura 1982; Abe 1993; among others). The past tense morpheme *ta* displays a result state interpretation as well as a past tense interpretation in a relative clause, as in (17).

- (17) a. [*boosi-o kabut-ta*] *hito*
 hat-ACC wear-PST person
 (i) 'the person who wore a hat'
 (ii) 'the person who is wearing a hat'
- b. [*Taroo-ga kabut-ta*] *boosi*
 NOM wear-PST hat
 'the hat which Taro wore'

According to Abe (1993), in (17), the past tense *V-ta* form in a relative clause containing a gap in the subject position denotes not only the past tense reading as in (i), but also the result state reading as in (ii). In (17), the result state reading disappears if a position other than the subject is relativized.

However, Abe (1993) also provides the following examples in (18), which do not contain a subject gap.

- (18) a. [*yude-ta*] *tamago*
 boil-PST egg
 'eggs that are boiled'
- b. [*tiisaku kit-ta*] *daikon*
 small cut-PST radish
 'radish cut into small pieces' (Ibid.)

In (18), although the simple past event reading can be detected, the preferred interpretation is the result state.

Furthermore, Murasugi (2009a) shows the non-finite status of *V-ta* form in the non-NP context as well in adult Japanese, discussing such examples as (19) through (21). She argues that the *V-ta* form is used as the strong imperative in Japanese as in (20), just like Italian infinitive (19) in a root clause.

- (19) *Partire Immediatamente!* (Strong Imperatives in Italian)
 go immediately
 'Go back (somewhere) immediately!
 (Rizzi 1993/1994)
- (20) a. *Kaer-e.*
 go back-IMP
- b. *Sassa to kaet-ta! kaet-ta!* (Strong Imperatives in Japanese¹²)
 immediately go back-PST go back-PST
 (Murasugi 2009a)

According to Rizzi (1993/1994), infinitives can appear in a root clause as imperatives in a special context in adult Italian. Similarly, in Japanese, as shown in (20), *V-ta* form, *kaet-ta*, can be used to express the imperative force instead of the imperative form, *kae-re*, as in (20).

In (21), two conjuncts are conjoined by the verbal conjunct *ri* attached to *V-ta* forms, and the form is unspecified for tense.

- (21) a. *tabe-ta ri non-da ri su-ru/-ta.*
 eat-PST drink-PST do-PRS/PST
 'We eat/ate, and we drink/drank.'
- b. *it-ta ri ki-ta ri de taihen -da/ dat-ta.*
 go-PST come-PST by troublesome is/ was
 'It is/was troublesome (of you) to go back and forth.'
 (Murasugi 2009a)

In (22), *V-ta* form is used with irrealis meaning. Murasugi argues that these facts (20b)–(22) indicate that *V-ta* form would be non-finite as well in adult Japanese.

- (22) *Mosimo watasi ga ie o tate-ru /-ta nara*
 if I-NOM house-ACC build-PRS/PST then
tiisa-na ie o tate-ru/-ta (desyoo).
 small house-ACC build-PRS/PST (would)
 'If I built a house, I would build a tiny one.'
 (Ibid.)

¹² See also Teramura (1984) and the citation of Kindaichi (1953) there.

Thus, *V-ta* form is the most unmarked surrogate form in both adult and child Japanese, and Japanese-speaking children, even at one year of age, naturally and voluntarily pick up the non-finite form as the default verbal form of their languages, and use it as an RI analogue, as Murasugi (2009a) and Murasugi and Nakatani (to appear) propose.

4 The Stem Parameter and the cross-linguistic variation: The surrogate infinitives in [-bare stem] child languages

The discussion so far indicates that very young children speaking Japanese, a typical [-bare stem] language, go through the RI analogue or the Surrogate Infinitive stage. Then how about the other languages sharing the property of [-bare stem]? In this section, based on the descriptions available in previous research, we will argue that children acquiring [-bare stem] languages such as those listed in (23), in fact, undergo an RI analogue stage as well (Murasugi, Nakatani and Fuji 2009).

- (23) Child languages that have surrogate forms as root infinitive analogues:
 Kuwaiti Arabic, Greek, Romanian, Turkish, Korean, K'iche' Maya, Japanese, among others

The data described in the previous literature can be reinterpreted on independent grounds as showing that children around the age of two who speak [-bare stem] languages attach some morpheme to the verb stem to make a "surrogate form". Since the verb stem itself is not a well-formed word in the language, the very young children pick up the unmarked morpheme in the target language.

Recall here that Dutch has been considered to be a typical RI language, but nevertheless some mysterious phenomena are found. As we saw in (5), repeated below, Wijnen, Kempen and Gillis (2001) report that verbal forms resembling imperatives are found, in addition to the Infinitive forms, at the early two-word stage. If this is the case, then Dutch-speaking children produce the imperative forms as the Surrogate Infinitives as well as the infinitive forms as their first verbs.

- (5) "... Starting with the early two-word stage, forms resembling imperatives were discarded from the analyses, as it is unclear whether they are finite or non-finite."
 (Wijnen, Kempen and Gillis 2001)

We argued that the fact that more than one type of RI analogue is found in a language is observed not only in Dutch but also in Russian and Italian should

not be labeled coincidental. Very early nonfinite verbs do not necessarily appear in a single form per language.

Then, what about Japanese? Do Japanese-speaking children produce another type of “infinitive” form besides *ta*-forms? We argue that the answer is yes. Very young Japanese-speaking children produce mimetic verbs just at the time when surrogate *ta*-forms are produced at around late one year old. In what follows, we discuss that the mimetic verbs and *ta*-forms are both RI analogues in Japanese.

4.1 Onomatopoeic/mimetic verbs in adult Japanese

Japanese is rich in onomatopoeia and mimetic words. They can be used as verbs, nouns, and adverbs in adult Japanese as shown in (24).

- (24) a. Mimetic verbs: *giragira suru* (do) ‘glare’
 b. Onomatopoeic nouns: *wanwan* ‘a dog’
 c. Onomatopoeic adverbs: *suyasuya nemuru* (sleep) ‘sleep peacefully’

Onomatopoeic/mimetic verbs are typically followed by the light verb *suru* ‘do’. For example, the mimetic verb *burabura* is followed by the light verb *suru* as in (25). In the structure, *burabura-suru* describes an event ‘to walk aimlessly.’ Tense and aspect is marked on the light verb as shown in (25).

- (25) Onomatopoeic/mimetic verbs followed by the light verb *suru* ‘do’
 a. *Kooen o burabura-su-ru.*
 park-ACC MIM-do-PRS
 ‘(I) walk aimlessly in the park.’
 b. *Mune ga dokidoki-si-tei-ta.*
 heart-NOM MIM-do-ASP-PST
 ‘(My) heart was pounding fast.’

Tsujimura (2009) points out that bare onomatopoeia/mimetics, onomatopoeia/mimetics without the light verb *suru*, can be also used as verbs in Japanese. The bare onomatopoeia/mimetic *pisyari* ‘shut out’ and *shan* ‘straighten the back’ in (26) are verbs.

- (26) Bare onomatopoeia/mimetics (without the light verb *suru*)
 a. *Sasaki osama ga pisyari kanpuu riree*
 king-NOM MIM shutout relay
 ‘The king, Sasaki, shutout a game, and he let his team prevent the opposing team from scoring after several changes of pitchers.’

- b. *Sesuzi ga syan*
 back-NOM MIM
 ‘(He) straightens (his) back.’
 (Tsujimura 2009)

In fact, adult bare onomatopoeia/mimetics show the Modal Reference Effects, one of the typical properties of RIs.

- (27) a. *Si!* ‘Silence!’ (Strong Imperative)
 b. *Si!* ‘Go away!’ (Strong Imperative with derogatory connotation)
 c. *Sesuzi o syan!* ‘Straighten your back!’ (Strong Imperative)

The onomatopoeia *si* in (27a) and (27b) can be strong imperatives, meaning ‘Silence!’ or ‘Go away’, respectively. *Syan* in (27c) can also be used for an imperative, meaning ‘Straighten your back!’ This is exactly parallel with the Italian infinitives and the Japanese *ta*-forms that we discussed in (6) and (19).

Thus, RIs may appear in two forms in adult Japanese, and two parametric values of verb morphology may coexist: [+inflected, -stem] verbs such as *V-ta* form, and [-inflected, +stem] verbs such as bare onomatopoeia/mimetics.

4.2 Bare onomatopoeia/mimetics as RIAs

In this section, based on the corpus analysis of CHILDES (Sumihare 0;0~6;0, Noji 1973–1977) and the longitudinal study with a Japanese-speaking child, Yuta (0;1~3;5), we argue that the children do produce bare onomatopoeia/mimetics, in addition to Verb+*ta*, as the very early nonfinite verbs.¹³

The children we observed produced the onomatopoeic verbs and *V-ta* form during the same period when T-related elements such as nominative *ga* and C-related elements such as Complementizer and *wh*-phrases were not found.

Bare onomatopoeic/mimetic verbs and *V-ta* forms were predominantly produced until 1;8 when the fully conjugated verb forms are used as shown in Figure 7. These facts naturally lead us to construct a hypothesis that if the bare onomatopoeia/mimetics show the typical properties of RI analogues, then bare onomatopoeia/mimetics produced along with *ta*-forms are analogues as well.

To begin with, there is the question of whether or not children use nominal onomatopoeia/mimetics and verbal onomatopoeia/mimetics distinctively just like adults do. Examples in (28) show that Japanese-speaking children, in fact, used the onomatopoeia/mimetics distinctively.

¹³ See Murasugi and Nakatani (to appear) for details.

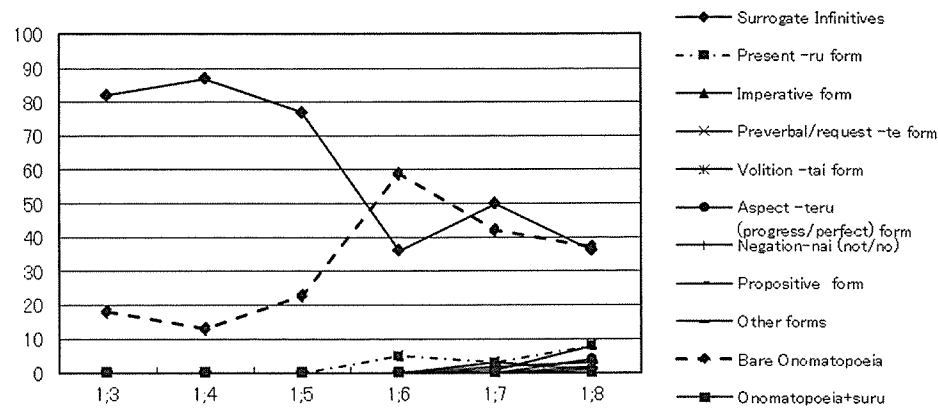


Figure 7: Proportion of verbal forms (Yuta) (Murasugi and Nakatani, to appear)

- (28) a. *Buu it-ta. Atti it-ta* (S;1;5) [nominal MIM]
 MIM go-PST there go-PST
 'A three-wheeler went by that way.'
- b. *tittyai buu buu, tittyai buu buu* (Y;1;8) [nominal MIM]
 small MIM small MIM
 'a small car'
- c. *dadadadadadadada* (Y;1;6) [looking at shinkansen] [verbal MIM]
 MIM
 'Shinkansen, a bullet train, is running extremely fast.'
- d. *toon-naa* (S;1;7) [S falls down and hits the head.] [verbal MIM]
 MIM-mood
 '(I) fell down.'

Nominal onomatopoeia/mimetics are exemplified in (28a) and (28b). An onomatopoeia *buu* in (28a), for example, refers to a three-wheeler, which is the subject of the verb *it-ta* 'went'. *Buu buu* in (28b) modified by the adjective *tittyai* 'small' refers to a car. In contrast, in (28c), Yuta produced *dadadadadadadada* when he saw a bullet train, *shinkansen*, which runs very fast. Note here that at this stage, he referred to *shinkansen* as 'shinkantan' always; he used *dadadadadadadada* only for the on-going action of *shinkansen*. In contrast, onomatopoeia produced by Sumihare were sometimes directly followed by the sentence-ending mood marker *na* to emphasize empathy as in (28d).

The difference between nominal onomatopoeia/mimetics and verbal onomatopoeia/mimetics is also found in the variation of form. The verbal onomatopoeia *buu*, for instance, has variation in its form. Typically, the onomatopoeia used as

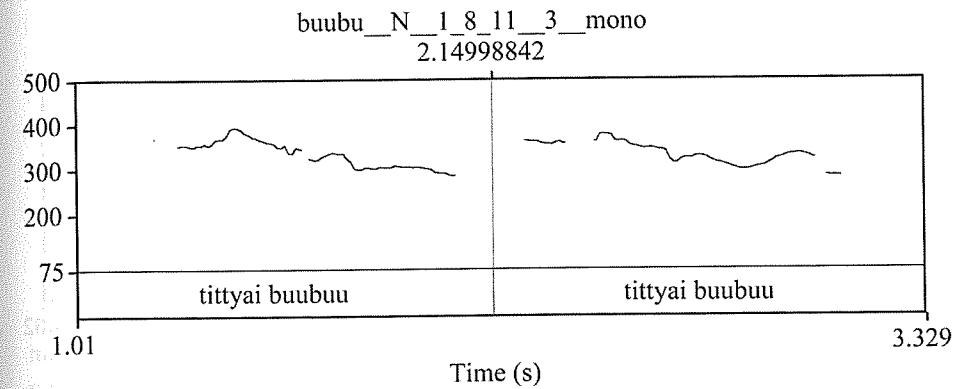


Figure 8: Pitch contour of nominal onomatopoeia/mimetic: *buu* (Y;1;8)

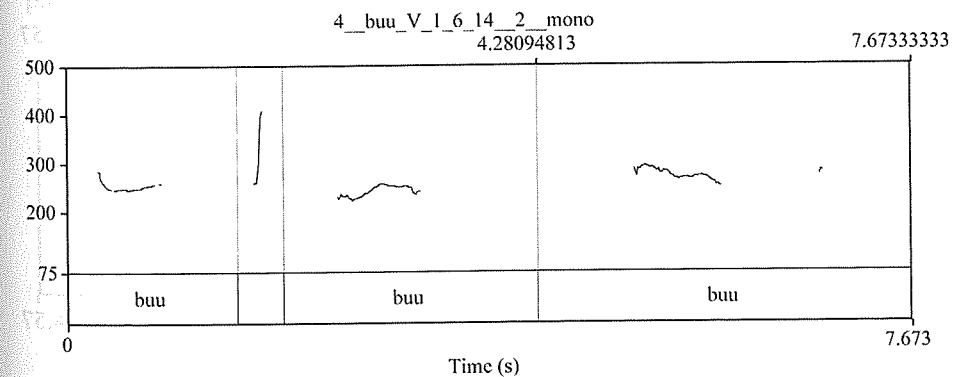


Figure 9: Pitch contour of verbal onomatopoeia/mimetic: *buu* (Y;1;6)

verbs are repeatedly pronounced as in *bubuu, buu bububuu buu buu*. The observer, Tomomi Nakatani, based on the analysis of the context the onomatopoeia are used, states that the repetition of the onomatopoeia seems to add an adverbial meaning (e.g., fast) to the verbal meaning (e.g., the car runs). Nominal onomatopoeia, such as *wanwan* (a dog), on the other hand, do not have such variation in their form.

Another difference between nominal and verbal onomatopoeia is found in their pitch contours. We used PRAAT (Boersma and Weekink 2005) to measure the pitch contour of each onomatopoeia we collected in the longitudinal study. Figures 8 and 9 show that the nominal *buubuu* and the verbal *buu* are distinct in their pitch accents. A marked fall in pitch is observable in the nominal *buubuu* while the verbal *buu* has flat or rising intonation. Such patterns are also observed in the contrast between the nominal *byuu* and the verbal *byuu*, as shown in Figures 10 and 11.

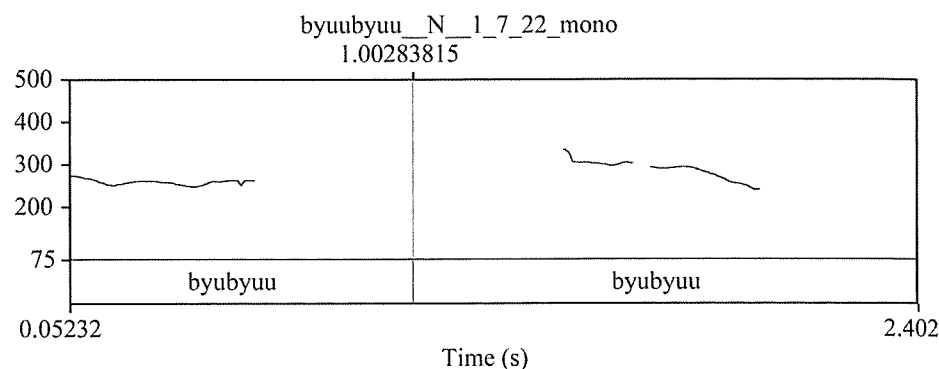


Figure 10: Pitch contour of nominal onomatopoeia/mimetic: *byuu* (Y:1;7)

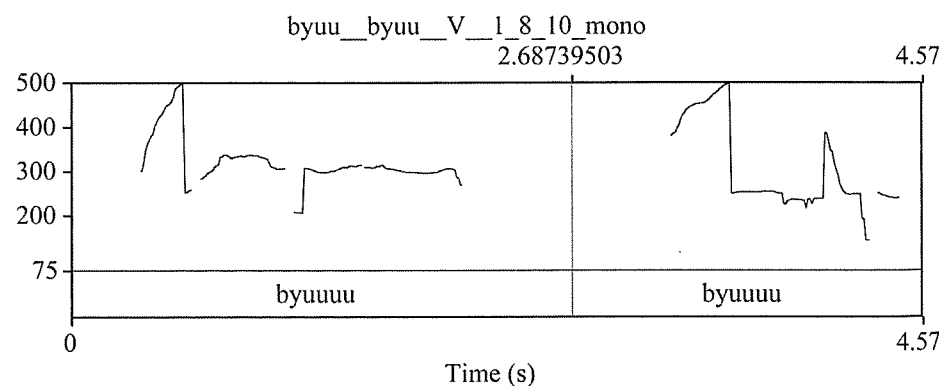


Figure 11: Pitch contour of verbal onomatopoeia/mimetic: *byuu* (Y:1;8) (Murasugi and Nakatani, to appear)

Then, are bare onomatopoeia/mimetics associated with the typical properties of RI analogues given in (6)? First, Modal Reference Effects are, in fact, found with Bare onomatopoeia/mimetics as shown in (29), just like the typical RI analogues.

(29) Modal Reference Effects of Onomatopoeic RI analogues

- a. *baba pai-ta* (S:1;8) [S wants mother to remove the dirt on a potato.]
dirt MIM-PST
'(You) remove the dirt.'
- b. *odenti pai-na* (S:1;10) [trying to take off his gown]
gown MIM-SFP
'(I want to) take off (my) gown.'

- c. *buu, buu, buu* (Y:1;6)
MIM
[Y wants grandmother to move the chair that he was sitting on.]
'(You) move (the chair).'
- d. *byuuuu, byuuuu* (Y:1;8) [Yuta wants his mother to draw a picture.]
MIM
'(You) draw a picture.'

In (29a), Sumihare produced *baba pai-ta* (mimetic *pai* followed by past tense morpheme *ta*) to ask his mother to remove dirt on a potato. This expression expresses volition and request, but not a past event. (29c) also indicates that *buu buu buu* is produced to order someone to move the chair.

Aspect Effects given in (6) are also found. Bare onomatopoeia were used for progressive and resultative aspect with extensional meaning.

(30) Aspect Effects of onomatopoeic RI analogues

- a. *tonton tonton* (S:1;6) [running after children trotting happily]
MIM
'(I) am running.' (progressive)
- b. *omoti tonton-naa* (S:1;9) [watching rice-cake making]
rice-cake MIM-Sentence-final Particle
'(They are) making rice-cake.' (progressive)
- c. *Gasyaan* (Y:1;6) [looking at the broken bowl]
MIM
'This bowl is broken.' (result state)
- d. *Pooi* (Y:1;6) [looking at grandfather taking out the trash]
MIM
'Grandpa is taking out the trash.' (progressive)

(30a) shows that Sumihare produced *tonton tonton* to express progressive aspect, and (30c) shows that Yuta produced *gasyaan* to express resultative aspect of a broken bowl, but not to refer to the bowl itself. The bowl itself was never referred to as *gasyaan* by the child in the longitudinal study (Nakatani and Murasugi 2009).

Just like typical RI and RI analogues, bare onomatopoeia/mimetics we analyzed as verbs based on analysis with PRAAT are eventive. 100 percent of bare onomatopoeia/mimetics produced by Yuta (1;3~1;8) were eventive (Murasugi and Nakatani in press).

(31) Eventive constraint of onomatopoeic RI analogues

- a. Bare onomatopoeia (Sumihare):
pai 'remove/take off', *sii* 'pee', *maimai* 'screw',
toon 'fall down/drop', *tonton* 'hit/run'

- b. Bare onomatopoeia (Yuta):
buu ‘move’, *poi* ‘throw a thing’, *byuu* ‘draw’, *jaa* ‘pour’,
dada ‘run fast’, *biribiri* ‘tear’, *bibi* ‘zip’

In summary, bare onomatopoeia/mimetics in child Japanese shows MREs, Aspect Effects, and the Eventivity constraint. The analysis given above naturally leads us to conclude that there are RI analogues in Japanese. Bare onomatopoeia/mimetics are, unlike Surrogate Infinitives, followed by no functional elements. Bare onomatopoeia are, rather, like the bare verbs without functional elements that Swahili-speaking children produce as RI analogues as given in (32).

- (32) RI analogues in Swahili
 Child: \emptyset $-\emptyset$ *-ka* *-a* *hapa* (2;3)
 Adult: *a* *-na* *-ka* *-a* *hapa*
 SA3s -PRS live IND here
 ‘She lives here.’
 (Deen 2002)

Bare verbs as RI analogues are also observed in other [+bare stem] languages. Inuktitut-speaking children produce bare verbs which are ungrammatical in their target language, as shown in (33).

- (33) RI analogues in Inuktitut
 a. *Kuapa liar uma paa.* (Elijah 2;0)
 kuapa -liaq -guma -paaq
 coop -VZ.GO.TO -MODAL.SIFFOX -OH.HOW.I
 ‘Oh, how I want to go to the co-op.’
 b. *Kuapa lia.* (Elijah 2;0)
 kuapa -liaq $-\emptyset$
 coop -VZ.GO.TO -NO.INFL
 ‘(I want to) go to the co-op.’
 (Swift and Allen 2002)

Swift and Allen (2002) observe that MREs are found when inflection drops. The child, who could produce the full form in (33a), produced bare verbs omitting the verbal inflection in (33b) when he expressed his strong volition.

The parallel phenomenon is found in Malagasy as well. In (34), the child omitted a morpheme of past tense and “actor trigger” *ni* which is obligatory in adult Malagasy.

- (34) RI analogues in Malagasy
 a. *Tomany za* (Tsiorisoa 2;7)
 cry 1SG NOM STR
 ‘I cried.’
 b. *Ni tomany aho* (adult form)
 PST AT cry 1SG NOM STR
 (Ntelitheos and Manorohanta 2004)

Nonfinite verbs appear as bare onomatopoeia and the *V-ta* form in Japanese. Onomatopoeia and the *V-ta* form can be nonfinite in adult and child Japanese. Even one-year-old children naturally acquire the two parametric values possible in the target language, i.e., [+bare stem] and [-bare stem], and produce the two types of RI analogues as their first verbs.

5 Conclusion

Root Infinitives (RIs) are non-finite (infinitival) verbal forms which very young children use in matrix (root) clauses, where such forms are not possible in adult grammar. Whether or not the target language is *pro*-drop, children go through the very early non-finite verb stage. The children’s use of non-finite verbs in root contexts is a universal phenomenon, but there are morphological variations associated with the different verbal systems of the target languages. RIs can be infinitives, bare verbs, participles, or certain (surrogate) “finite” forms. Japanese RI analogues are Verb + *ta* form (or *tyatta* form) and onomatopoeia/mimetics.

What children tell us is that there are several types of possible nonfinite verb forms in human languages, and Stem Parameter, a parameter related to the verbal morphology, plays a role in determining the form of the very early non-finite verbs.

Root Infinitives produced by children suggest that they go through a stage at which they speak a language that is like adult grammar in many respects, but one that is also like other languages, in allowing for the sentences without independent T projection. The “tense-less” phrases (or the phrases with the jointed T-C heads) children produce across languages cannot be explained by an experience-dependent account; adults speaking Japanese and English, for example, never produce those. The phenomena found at the intermediate stages of language development are, just like variation among the world’s languages (or the set of internalized I-languages), restricted within the range of Universal Grammar innately endowed to human beings.

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